

An assessment of the impact of entrepreneurship training on the youth in South Africa

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“Entrepreneurship is living a few years of your life like most people won’t, so you can spend the rest of your life like most people can’t”

(‘Founding’ via twitter; <http://www.twitter.com>)

ABSTRACT

At the bottom tip of the African continent lies South Africa – the economic powerhouse of the continent complimented by its rainbow nation with a myriad of cultures and even more opportunities, but an equal number of pressing challenges: Poverty, inequality, the prevalence of HIV/AIDS, a shortage of skilled people (or rather a surplus of unskilled people), poor quality of basic education, unemployment, and of particular importance for this study, youth unemployment.

In September 2011 more than 1.3 million young South Africans aged 15 to 24 years were unemployed, and 1.85 million aged 25 to 34 years were without jobs. Combined these figures represented 71 percent of total unemployment in the third quarter of 2011. As a result, the problem statement central to this study is the expectation that the poor quality of general (basic) education and the lack of purposive entrepreneurship education and training in South African schools will continue to contribute towards high levels of youth unemployment and poverty, as well as the proliferation of dysfunctional communities and increased levels of state dependency among a large part of the country's population.

This study set out in search of answers – answers to questions regarding the impact of entrepreneurship training on the youth in South Africa as the primary objective and the potential for entrepreneurship to serve as the panacea for many of the country's ills. The end result is a rendering of more than three years of intensive research culminating in valid conclusions and practical, attainable recommendations to promote entrepreneurial activity in the country.

The study examines the theories and definitions of entrepreneurship and concludes that entrepreneurship is a combination of opportunity and risk in the presence of extraordinary levels of 'want' (desire) to promote self-interest, whether it being monetary reward or the attainment of personal fulfilment, as the main motivational factor driving entrepreneurial behaviour (Schumpeterian theory).

The contemporary challenges facing South Africa are expounded to create a platform for the presentment of entrepreneurship as the 'magical genie', captured in the 'bottle' that is mainly the small and medium sized enterprise (SME) sector in the country, and capable of redressing

many of the country's ills by empowering the youth to take both charge of and responsibility for their own future.

The concomitant discussion shows that the 'genie' is held firmly in the confines of its 'bottle' by barriers obstructing the free flow of an enterprising spirit, confirming that the release of an enterprising spirit among South Africans faces many obstacles to be overcome before the 'genie' can be released successfully to work its 'magic'.

The concept of entrepreneurship education is examined to determine whether it is a reality or a myth. The discussion concludes that entrepreneurship is indeed a learnt phenomenon – it can be taught successfully. It is put forward that it can only be deemed a reality to the extent in which measurable evidence of its positive impact on learners exists. This conclusion sets the tone for the empirical research in later chapters by questioning the capacity for effective entrepreneurship education in South Africa.

The empirical research conducted for this study includes a pilot study and a national main study focused on examining the impact of entrepreneurship training on young learners in South African secondary schools. It is based upon the attitudinal and intentional approaches to entrepreneurship research and employs six validated entrepreneurship surveys suitable for use with young individuals to respectively measure entrepreneurial attitudes, entrepreneurial intentions, general enterprising tendencies, subjective personal wellbeing, adaptive cognition and innovation skills.

A total of 342 learners from secondary schools in the Harrismith region (Free State province) participated in the pilot study, followed by 898 respondents in the pre-testing phase and 751 in the post test phase of the AEG-3 main study and 910 respondents in the pre-testing phase and 749 in the post test phase of the PMY-3 main study. Participants in the main study originated from seven of the nine provinces of South Africa and were mainly female black Africans aged 15 to 17 years attending grades 10 and 11 at secondary schools.

The datasets gathered from both the AEG-3 and PMY-3 studies were subjected to extensive statistical analyses by Statistical Consultation Services of the North-West University (Potchefstroom campus). The results lead to the conclusion that the Mini-Enterprise Programme (MEP) of Junior Achievement South Africa (JASA) did not have any visible or practically significant impact on the entrepreneurial attitudes, entrepreneurial intentions,

subjective personal wellbeing, adaptive cognition and innovation skills of learners in either of the two samples examined in the empirical research project.

This conclusion reaffirms the challenges and barriers associated with releasing the spirit of enterprise among the South African youth. Although entrepreneurship can be taught effectively, it is dependent on long-term strategies providing adequate support to learners with the attitude and aptitude to become competent entrepreneurs, as well as suitable methods for continuous assessment and improvement. It further demands entrepreneurial learning enhanced by an extended period of deliberate practice (the ‘Eureka’-factor proposed in this study) flowing from ‘want’ (desire) on the part of the learner to have any chance of being truly effective.

The study concludes that content and methodology borrowed from other countries may not be suited for the South African context. This conclusion exclaims the need for purposive South African entrepreneurship education and training programmes assessed with purposive South African entrepreneurship measuring scales.

These conclusions are subsequently used to formulate practical and attainable recommendations for the promotion of effective youth entrepreneurship education and training in the country, including the need to get rid of high expectations, to never give up, stricter selection of learners for enrolment in entrepreneurship education and training programmes (other than those included in basic education), the need for continuous research, embracing the ‘power of one’, and finally, adopting an entrepreneurial solution for what is evidently an entrepreneurial problem.

The outcome of this study brings forward the message that the challenge in South Africa is to create entrepreneurs, not young people with the capacity to perform entrepreneurial tricks. True entrepreneurs are not ordinary people, regardless of whether they are born or ‘made’. Although entrepreneurship can be learnt by any person, it takes a very special kind of ‘want’ (desire), determination and practise to become a successful entrepreneur, and even more ‘want’, determination and practise to become an expert entrepreneur.

Keywords: attitudes, challenges, education, entrepreneurship, impact, intentions, JASA, recommendations, training, youth

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LIST OF ACRONYMS

α	alpha (for Cronbach's alpha)
ABET	Adult basic education and training
ACRO	Attitude, Creativity, Relationships and Organisation
AEG-3	Youth Entrepreneurship Survey for school learners
AGM	Annual General Meeting
AIDS	Acquired Immunodeficiency Syndrome
ANCOVA	Analysis of covariance
Anon.	Anonymous
ANOVA	Analysis of variance
ATE	Attitude toward Enterprise test
AYPF	American Youth Policy Forum
β	Standardised beta-value
BBBEE	Broad Based Black Economic Empowerment (South Africa)
BDSVP	Business Development Services Voucher Programme (UYF)
BfK	Business for Kids (Young Enterprise Trust)
CDE	Centre for Development and Enterprise
CEO	Chief Executive Officer
CFA	Confirmatory factor analysis
ComQol	Comprehensive Quality of Life Scale
Cont.	Continued
Cum. %	Cumulative percent
CV	Curriculum vitae
CWD	Centre for Workforce Development (USA)
d	Cohen's d -value indicating effect size
df	Degrees of freedom

List of acronyms

DfES	British Department for Education and Skills
diff.	Difference
DoBE	Department of Basic Education, South Africa
DoE	Department of Education, South Africa
DoL	Department of Labour, South Africa
EAO	Entrepreneurial Attitude Orientation scale
ECD	Early childhood development
EDC	Entrepreneurship Development Conference
EDP	Enterprise Dynamics Programme (Junior Achievement)
EFA	Exploratory Factor Analysis
e.g.	for example
EI	Entrepreneurial intention
EIQ	Entrepreneurial Intention Questionnaire
ENS	Enterprise North Shore (New Zealand)
EOR	Entrepreneurial Opportunity Recognition scale
ESE	Entrepreneurial self-efficacy
ESKOM	South African Electricity Supply Commission
ESP	Enterprise Studies Programme (Young Enterprise Trust)
<i>et al.</i>	<i>et alii</i> (and others)
etc.	etcetera
ETP	Effective entrepreneurship education and training programme
ETPs	Effective entrepreneurship education and training programmes
EU	European Union
EWET	The Education with Enterprise Trust
<i>F</i>	<i>F</i> -statistic
‘fff’	Funding-follows-formation
FEBDEV	Foundation for Economic and Business Development

List of acronyms

FED	Financial education
FET	Further Education and Training
FIFA	Fédération Internationale de Football Association
Foodbev SETA	Food and Beverages SETA (South Africa)
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
GENIE	Proposed model of youth entrepreneurship education and training
GET	General Education and Training
GET	General Enterprising Tendency test
HE	Higher education
HEI	Higher education institution
HEIs	Higher education institutions
HEQC	Higher Education Qualifications Council, South Africa
HIV	Human Immunodeficiency Virus
HSRC	Human Sciences Research Council
ID	Identity/identification
i.e.	<i>id est</i> (that is)
ILO	International Labour Organisation
ILO-SIYB	ILO ‘Start and Improve Your Business’ programme
IT	Information technology
JA	Junior Achievement
JASA	Junior Achievement South Africa
JA-YE	Junior Achievement – Young Enterprise programme
KIA	Kirton’s innovation-adaption measure
KMO	Kaiser-Meyer-Olkin measure of sampling adequacy
LCS	Living Conditions Survey
LSM [®]	Living Standard Measure (SAARF)

List of acronyms

MAC	Measure of Adaptive Cognition
MEP	Mini-Enterprise Programme (Junior Achievement)
MMBiz	Financial education programme (Junior Achievement)
<i>n</i>	Sample size (number of respondents)
<i>N</i>	Population size
NCEA	National Certificate of Educational Achievement
n.d.	No date
NEES	National Entrepreneurship Education Schools (SA)
NES	New Entrepreneur Scholarships
NFTE	National Foundation for Teaching Entrepreneurship (UK)
NGO	Non-government organisation
No.	Number
n.p.	No page number
NPO	Not-for-profit organisation
NWU	North-West University, Potchefstroom, South Africa
NYDA	National Youth Development Agency (SA)
OBE	Outcomes based education
OECD	Organisation for Economic Co-operation and Development
QLFS	Quarterly Labour Force Survey
%	Percent
<i>p</i>	<i>p</i> -value (level of significance)
PA	Personal attitude
PBC	Perceived behavioural control
PCA	Principal component analysis
PEES	Provincial Entrepreneurship Education Schools (EWET)
%SM	Percentage of scale maximum (Personal Wellbeing Index)
PMY-3	Youth Entrepreneurship Survey for school learners

List of acronyms

<i>p</i>	<i>p</i> -value indicating statistical significance
p ^{No.}	Proposition number
PrEP	Primary Enterprise Programme (Young Enterprise Trust)
PSYBT	Prince's Scottish Youth Business Trust
PWE	Protestant Work Ethic scale
PWI	Personal Wellbeing Index
PWI-A	Personal Wellbeing Index for the general adult population
PWI-ID	Personal Wellbeing Index for people with intellectual disabilities
PWI-PS	Personal Wellbeing Index for pre-school children
PWI-SC	Personal Wellbeing Index for school children
ROI	Return on investment
<i>s</i>	Standard deviation
SA	South Africa
SAARF	South African Advertising Research Foundation
SAB	South African Breweries
SAIE	South African Institute for Entrepreneurship
SBDS	Successneur™ Business Decision Simulator
SBRC	Small Business Research Centre, Kingston University, UK
SCS	Statistical Consultation Services, North West University
SEC	Science Enterprise Challenge (UK)
SELL	Student Enterprise Learning Link (Young Enterprise Trust)
SEM	Structural equation modelling
SETA	Sectoral Education and Training Authorities (South Africa)
Sig.	Significance (level of)
SIYB	'Start and Improve Your Business' programme
SME	Small and medium-sized enterprise
SMEs	Small and medium-sized enterprises

List of acronyms

SN	Subjective norms
SPD	Stork Parcel Distributors
SPSS	Statistical software programme
Stats SA	Statistics South Africa
Std.	Standard
STW	‘School-to-Work’ strategy (USA)
TEA	[Total] Early-stage entrepreneurial activity
TELL	Technology Enterprise Learning Link (Young Enterprise Trust)
TPB	The theory of planned behaviour
Trait EI	Emotional self-efficacy
TTBiz	Travel and Tourism Business programme (YAA)
TTBIZ	Tourism training programme (Junior Achievement)
TV	Television
UCLA	University of California, United States of America
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USA	United States of America
UYF	Umsobomvu Youth Fund
VET	Vocational Education and Training
vs.	versus
WEP	Women Entrepreneurship Programme
WIL	Work integrated learning
WVTC	Windhoek Vocational Training Centre (Namibia)
www	World Wide Web
$\bar{x}$	Mean
YAA	Young Achievement Australia
YES	Young Enterprise Scheme

List of acronyms

YES	Youth Enterprise Society (EWET)
YISQ	Youth Innovation Skills Measurement Tool
YOMP	Long distance march carrying full kit

DEDICATION



What you are about to experience is all about passion – obsession even – with something called ‘entrepreneurship’ and the outcome of my personal quest to understand the complex working of the entrepreneurial mind.

At the same time, and more important than my personal journey, far too many young South Africans are living the life of a lemon: Growing up sour and acidic, ready to be squeezed to a pulp by the realities of modern life. Firm squeezing in some areas is an important facet of growing up, and therefore, an integral part of the development of our youth. But why not add water and sugar, and shake vigorously to produce young South Africans as sweet as lemonade and capable of quenching the thirst of our developing nation?

So came the inspiration for this study. My search for knowledge and understanding catapulted me on a roller-coaster journey of self-realisation and self-enrichment, and what better way to share this experience than to dedicate it to the so many enduring poverty, the not so many blessed with abundance, and somewhere in between, those who have just enough: Our precious youth.

Should this study bring only one youth to seize an opportunity and prosper, inspire yet another to share an opportunity with others and cause a third to have more than enough, the effort will have been worthwhile.

Welcome to my *zahir*¹...

André

¹ *Zahir*: Islamic myth used to describe an object that traps everyone who so much as looks at it into an obsession eventually erasing the rest of reality. Everything on earth has the propensity to be a Zahir, but “*the Almighty does not allow more than one thing at a time to be it, since one alone can seduce multitudes*” (<http://www.knowledgerush.com/kr/encyclopedia/Zahir>; accessed 26 Mar. 2010).

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André

CHAPTER ONE

INTRODUCTION:

NATURE AND SCOPE OF THE STUDY

1.1 INTRODUCTION

What is entrepreneurship? Where lies the origin of entrepreneurial activity? Who are the actors in the play that is entrepreneurial economic activity? Who are these so-called ‘entrepreneurs’? What do they do and how do they do it? What are the challenges facing South Africa as a developing country, and how can these challenges be mitigated from an entrepreneurial perspective?

Can entrepreneurship be taught? Is entrepreneurship education a reality or just another myth? What are the challenges and barriers facing successful entrepreneurship education? What is currently being taught in entrepreneurship education? Is it successful? What are the key success factors underlying effective entrepreneurship education?

What is the impact – if any – of entrepreneurship education and training on young people in South African schools? How can current methodologies and course content be improved to promote the development of more competent entrepreneurs?

And so began the process of committing this study to paper. The end product is a rendering of intensive research over a period of almost three and a half years, mainly driven by the author’s obsession with the entrepreneurial mind, but often justified using Sir Richard Branson’s entrepreneurial approach of “*screw it – let’s do it!*” (Branson, 2006: 1) as the only mitigating factor for giving up significant resources, time and other opportunities in search of answers to these questions.

Far more important than the author’s personal journey of many trials and tribulations is that South Africa’s youth constitute the majority of the population, but they continue to be marginalised as a result of their low self-esteem and confidence, parents that are not involved in their activities or even not qualified to participate in their young lives, the prevalence of dysfunctional community structures and some negative influences flowing from the effects of globalisation (Maas & Herrington, 2007: 15).

The importance of education for future employability has been highlighted in all Global Entrepreneurship Monitor (GEM) reports and can be earmarked as one of the most important factors for the promotion of youth entrepreneurship in South Africa (Maas & Herrington, 2007). Herrington, Kew and Kew (2009: 31) report that South Africa had the highest percentage of experts identifying education and training as a major limiting factor among a total of 30 GEM countries that participated in the national expert's survey of 2008.

A similar finding had been reported in 2001 (Herrington *et al.*, 2009: 31). The procrastination in educational development for so many years is both disturbing and alarmingly indicative of future trends in the country. This finding is reiterated in the GEM 2011 South African report where the poor quality of primary education and insufficient increases in the number of people with secondary and tertiary education are singled out as a major limiting factor on any significant increases in entrepreneurial activity in South Africa (Simrie, Herrington, Kew & Turton, 2012: 63).

Even learners leaving school with a matriculation certificate are not guaranteed employment in South Africa. Many reasons have been presented for this phenomenon: Ill-prepared learners; an inferior schooling system; teachers with insufficient motivation and/or knowledge to transfer the skills required for the modern world of work; an economy which is not conducive to job creation; affirmative action (Horn, 2006: 113); and the conclusion by Herrington *et al.* (2009: 49) that entrepreneurship, although meant to form part of the secondary school curriculum, is taught neither widely nor effectively enough.

The result is higher unemployment rates in the lower age groups, especially in the group aged 15 to 24 years. In 2007 the highest concentration of discouraged work-seekers (people that have given up on finding employment) was in the younger age groups of 20 to 24 years (905 000: 19.4%) and 25 to 29 years (700 000: 16.1%) (Stats SA, 2007: xxi). Young South Africans also suffer from the effects of the HIV/AIDS epidemic, high levels of crime, insufficient economic growth and widespread poverty (Frye, 2006: 1; Leatt, 2006: 27; HSRC, 2004).

It follows that celebrations surrounding the steady increase in the matric pass rate from 60.6% in 2009 to 67.8% in 2010 (Department of Basic Education, 2013), and 70.2% in 2011 to 73.9% in 2012 (South African Government News Agency, 2013) may be gratuitous. It seems as if the statement by the Minister of Basic Education, Ms. Angie Motshekga, that

“...*We will continue to focus on the 3Ts – text, teachers and time*” (South African Government News Agency, 2013) omits the most important ingredient of the basic schooling equation: The learner.

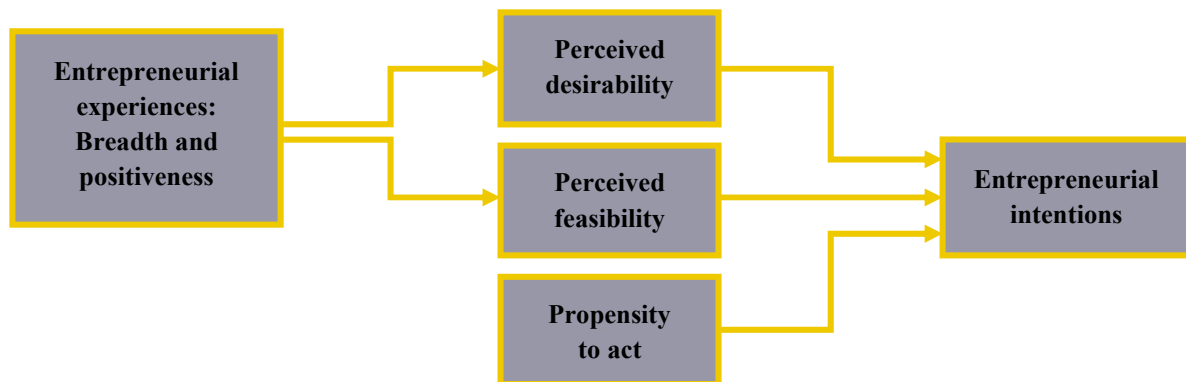
Against evidence of the South African public’s expectation that job creation is primarily the responsibility of the Government (Maas & Herrington, 2007: 35), Statistics South Africa (Stats SA, 2007) concludes that the Government has failed to create sufficient numbers of new jobs. It should be considered that the Government – perhaps with the exclusion of public infrastructure spending – is technically not capable of creating jobs. As a matter of course the Government has an important role to play in job and wealth creation by nurturing an economic environment where so-called ‘red tape’ procedures hampering the establishment of new businesses are removed. Regardless of the perspective, the failure of both the formal and public sector to absorb the growing number of job seekers in South Africa (Herrington *et al.*, 2009: 48) demonstrates the urgent need for young South Africans to turn to entrepreneurial activity as a viable means of becoming economically active and self-sustainable.

From this perspective, the importance of small businesses as the driver of sustainable job and wealth creation in South Africa has been highlighted by various scholars (Döckel & Ligthelm, 2005: 54; Jeppesen, 2005: 468-470; Burger, Mahadea & O’Neill, 2004: 203; Naudé & Krugell, 2003: 5). Petrakis (2005: 243) and Van der Merwe and de Swardt (2008: 450) respectively conclude that the start-up of sustainable small businesses is crucial for economic development and the alleviation of poverty in South Africa and that more successful entrepreneurs are needed to enhance the small business sector in South Africa.

It follows that entrepreneurship – with particular emphasis on youth entrepreneurship – has a crucial role to play in South Africa’s efforts to promote a business environment conducive to economic and social prosperity. In order to promote such a business environment, the revised GEM model (Simrie *et al.*, 2012: 10; Herrington *et al.*, 2009: 10, 14) suggests that South Africa’s efficiency-driven economy needs efficiency enhancers such as higher education and training, efficient goods and labour markets, financial market sophistication, readiness for technology and a suitable market size to capture the attitudes, activities and aspirations required for entrepreneurial behaviour.

In consideration for South Africa's long and controversial history of economic isolation and social injustice, it stands to reason that the attitudes of young learners towards new venture creation will have a significant impact on their future inclination towards self-employment. These attitudes need to be influenced through exposure to entrepreneurial experiences, and as an example, Shapero's model of entrepreneurial intentions (Peterman & Kennedy, 2003; Krueger, 1993a: 17) proposes that the breadth and positiveness of entrepreneurial experiences have an influence on the perceived desirability and feasibility of entrepreneurship as a career choice, and combined with the propensity to act on opportunities, provide the intention to engage in entrepreneurial behaviour as shown in figure 1.1 below.

Figure 1.1 Shapero's model of entrepreneurial intentions



Source: Krueger (1993a: 7)

It is, as the basis for this study, put forward that exposure of young learners to effective entrepreneurship training programmes in secondary schools will improve their perceptions of the feasibility and desirability of entrepreneurship as a career choice, as well as positively influence their propensity to act on entrepreneurial opportunities in pursuing an entrepreneurial lifestyle.

1.2 BACKGROUND TO THE STUDY

This study has its origin in an exploratory study of the entrepreneurial attitudes of secondary school learners in the Sedibeng district of the Gauteng province of South Africa (Steenekamp, Van der Merwe & Athayde, 2011a; 2011b; Steenekamp, 2009). Steenekamp (2009) and Steenekamp *et al.* (2011a; 2011b) employed the 'Attitude toward Enterprise test' (ATE test) developed by Athayde (2009a; 2009b; 2004) to measure the entrepreneurial attitudes of 1 748 grade 10 learners in 16 secondary schools in the Sedibeng District.

From the demographic composition of the Sedibeng sample, Steenekamp *et al.* (2011a: 58, 60-61) conclude that participating learners had inflated expectations for their future qualifications as evident from a high percentage expecting to obtain a university degree (24.49%) and a higher degree (42.91%). Whereas the majority of learners (52.63%) indicated that they had been exposed to entrepreneurial activities at school, the percentage of participating learners decreased dramatically as the frequency of exposure increased. This finding led to the conclusion that exposure to entrepreneurship at school is a sporadic event with a negligible effect on youth entrepreneurship development.

Statistical analysis of the ATE test results (Steenekamp *et al.*, 2011b: 325-326) produced no evidence of any practical significant differences in the entrepreneurial attitudes of learners from the perspectives of gender and ethnic origin. This finding suggests that male and female learners from different ethnic groups in South Africa may respond similarly to entrepreneurial training programmes.

The study (Steenekamp *et al.*, 2011b) also produced no evidence of any practical significant differences between the entrepreneurial attitudes of learners who had been exposed to entrepreneurship training at school and those who had not participated in entrepreneurship training activities. No practical significant differences could be determined between the entrepreneurial attitudes of learners with self-employed parents and those whose parents are not self-employed (Steenekamp *et al.*, 2011b: 325-327).

Consequently, Steenekamp *et al.* (2011b: 328) conclude that catalytic factors such as exposure to entrepreneurship at school and having self-employed parents, which should impact positively on the attitudes of young people (Athayde, 2009a; Gird & Bagraim, 2008: 711; Lewis, 2005: 481; Moen, Rahman, Salleh & Ibrahim, 2004), have not had any practical significant effect on learners in the Sedibeng sample.

1.3 PROBLEM STATEMENT

Today's learners are destined to become tomorrow's leaders in all walks of business and society. This is evident from the earlier acknowledgement by the current and honourable State President, Mr. Jacob Zuma, that "...we [South Africa] *need to invest in our youth to ensure a skilled and capable workforce to support growth and job creation...*" (Zuma, 2010). The honourable State President's call for increased investment in the South African youth gained even more momentum in 2013 when he acknowledged a crisis in youth

unemployment and designated investment in education as a common theme underlying successful societies (Zuma, 2013).

The problem is that the poor quality of educational standards in South Africa (Simrie *et al.*, 2012: 57; Herrington *et al.*, 2009: 49; Isaacs, Visser, Friedrich & Brijlal, 2007: 626; Co & Mitchell, 2006: 348; Horn, 2006: 113, 119, 121; North, 2002: 27) is known to impact negatively on job and wealth creation. Young South Africans face many challenges (Maas & Herrington, 2007: 16; Buys & Havenga, 2006: 41; Frye, 2006: 1; Leatt, 2006: 27; HSRC, 2004), but the prospect of long-term unemployment after school has severe implications for the future of our youth.

This challenge is exacerbated by the lack of sufficient academic and practical knowledge of the entrepreneurial attitudes, intentions and future plans of young learners in South Africa, and consequently, more knowledge is needed for the development of competent, young entrepreneurs capable of stimulating economic activity and promoting both job and wealth creation in the country.

Accordingly, the problem statement central to this study is the expectation that the poor quality of general (basic) education and the lack of purposive entrepreneurship education and training in South African schools will continue to contribute towards high levels of youth unemployment and poverty, as well as the proliferation of dysfunctional communities and increased levels of state dependency among a large part of the country's population.

1.4 RESEARCH OBJECTIVES

The course of this study is driven by the primary objective of determining the impact of entrepreneurship education and training on the entrepreneurial inclination of young people in South Africa, supported by a number of secondary objectives relating to various issues underlying entrepreneurship and entrepreneurship education and training.

1.4.1 Primary objective

The primary objective of the study is to determine whether *ad hoc* youth entrepreneurship education and training in South Africa in its current form has any quantifiable, positive impact on the entrepreneurial inclination of young learners in the secondary school curriculum.

1.4.2 Secondary objectives

The secondary objectives of the study were formulated to support the attainment of the primary objective. These objectives are listed below under a literature review, an empirical study with a national footprint and, finally, valid conclusions emanating from the study for the formulation of practical recommendations for *ad hoc* youth entrepreneurship training as an important aspect of an integrated strategy for entrepreneurship development in South Africa.

1.4.2.1 Literature review

The literature review comprises an examination of the extant literature on entrepreneurship with the following objectives:

- To examine the origin and true meaning of entrepreneurship and the entrepreneur.
- To examine the contemporary challenges facing South Africa and present sufficient evidence from the academic literature to propose entrepreneurship, the small business sector and youth development as the panacea for many of the country's ills.
- To examine whether entrepreneurship education is a reality or a myth and determine whether the concept of entrepreneurship can be taught successfully.
- To examine what is being taught by youth entrepreneurship training providers in the current paradigm, as opposed to what and how it should be taught and applied to constitute effective entrepreneurship education.
- To develop an appropriate research approach for the attainment of the primary objective, including the incorporation of suitable measuring instruments and the construction of a practical research instrument(s) for employment in the empirical study.

1.4.2.2 Empirical study

The empirical part of the study is paramount for the attainment of the primary objective described in section 1.4.1 and focuses on the following secondary objectives:

- ✦ To secure collaboration from reputable youth entrepreneurship training providers in South Africa for participation in the empirical study and for the provision of an entrepreneurship training intervention as part and parcel of the study.
- ✦ To subject the research instrument(s) constructed from the literature review to pilot testing and review.
- ✦ To conduct a main study using a pre- and post test control group design to validate the selected measuring instrument(s) for the South African environment and subsequently examine and report scientifically on the entrepreneurial characteristics of a sample representative of secondary school learners in South Africa.

1.4.2.3 Conclusions and recommendations

The study concludes with the interpretation of the knowledge emanating from the literature review and statistical analysis of the data gathered during the empirical research to address the following secondary objectives:

- ✦ To draw valid conclusions on the impact of *ad hoc* youth entrepreneurship education and training on young learners in South African secondary schools.
- ✦ To formulate practical recommendations for youth entrepreneurship training in South Africa as part of an integrated entrepreneurship development strategy.

1.5 SCOPE OF THE STUDY

The scope of this study is limited in both the field of study and the geographical demarcation.

1.5.1 Field of study

The field of research is limited to entrepreneurship, and focuses in particular on the impact of *ad hoc* entrepreneurship education and training on the entrepreneurial characteristics of school learners in the secondary phase of basic education.

1.5.2 Geographical demarcation

The geographical demarcation of the study is limited to seven of the nine provinces of South Africa as indicated by the gold markers in figure 1.2 on the following page.

Figure 1.2 Geographical demarcation of the study (South Africa)

Source: <http://www.places.co.za/html/visualfind.html> (Date of access: 24 May 2012)

An overview of each of the provinces included in the study is presented in table 1.1 below.

Table 1.1 Overview of South African provinces included in the study

Quick facts about provinces included in the study ($n = 7$)					
Province	Capital	Population (2010)		Surface area	
		Million ¹	Share of SA	Square km.	Share of SA
Free State	Bloemfontein	2.824 [2.745]	5.7%	129 825	10.6%
Gauteng	Johannesburg	11.191 [12.272]	22.4%	16 548 ²	1.4%
KwaZulu-Natal	Pietermaritzburg	10.645 [10.267]	21.3%	94 361	7.7%
Mpumalanga	Nelspruit	3.617 [4.039]	7.4%	76 495	6.3%
Northern Cape	Kimberley	1.103 [1.145]	2.3%	372 889	30.5%
North-West	Mafikeng	3.200 [3.509]	7.1%	106 512 ²	8.7%
Western Cape	Cape Town	5.223 [5.822]	10.0%	129 462	10.6%

Source: <http://www.southafrica.info/about/geography> (Date of access: 7 Aug. 2012)

- ¹ Population in [brackets] from Census 2011 (Stats SA, 2012: 18).
- ² Census 2011 (Stats SA, 2012: 9) reported changes in the geographical land area of Gauteng and the North West provinces respectively to 18 178 and 104 882 square kilometres.

The smallest province (in terms of surface area) included in the study is Gauteng at 16 548 [18 178] square kilometres (1.4% of South Africa), but the province has the largest concentration of the national population at 22.4%. Conversely, the largest province included in the study is the Northern Cape at 372 889 square kilometres (30.5% of South Africa), but it has the lowest concentration of the national population at 2.3% (2010 data).

1.6 RESEARCH METHODOLOGY

The research methodology employed in this study includes a literature review on entrepreneurship and entrepreneurship education and training to construct a theoretical basis for the research, followed by an empirical research project in the demarcated geographical area.

1.6.1 The literature review

The literature review sets out in search of the true meaning of entrepreneurship. The origin of the concepts ‘entrepreneurship’ and the ‘entrepreneur’ are examined and the early theories of entrepreneurial activity are revisited in search of understanding. The discussion culminates in the construction of nine important themes underlying entrepreneurship theory as the basis for the study, supported by the introduction of ‘new’ (and hopefully universal) definitions for both entrepreneurship and the entrepreneur.

The contemporary challenges facing South Africa are expounded to substantiate the urgent need for a paradigm shift in the approach to economic and societal development in the country. In response to these challenges, the literature review presents evidence from the academic literature to propose entrepreneurship, the development of the small business sector and purposive youth development as the ‘magical genie’ (represented by the spirit of enterprise) capable of healing many of South Africa’s growing ills.

A significant part of the literature study is devoted to addressing the question whether entrepreneurship can be taught effectively. In this regard, the academic literature is examined to determine whether entrepreneurship is a reality or a myth, and the differences between entrepreneurship and enterprise on the one hand and education and training on the other are probed in search of a universally acceptable umbrella-term for the incubation of competent entrepreneurs.

The literature review progresses to the formulation of a ‘new’ (and hopefully universal) definition for entrepreneurship education, followed by a discussion of the importance of education (both general and entrepreneurship-oriented) and important aspects underlying entrepreneurial learning. The essentials of effective entrepreneurship education are discussed, supported by the enlightenment of desired outcomes and the amplification of associated challenges and barriers as well as the need for impact assessment.

Still in search of answers, the focus of the literature review shifts to the examination of current methodologies used in *ad hoc* entrepreneurship education and training. The programmes of various international and local youth entrepreneurship education and training providers are probed. The ensuing essence of entrepreneurial teaching in the current paradigm provides the starting point for a discussion implicating the need for a paradigm shift towards effective youth entrepreneurship education and training, including the design and structure of programmes; programme content and curriculum development; teaching methodology; teacher and trainer development; the roles of various stakeholders; funding for [young] entrepreneurs; and finally, the importance of reflection, feedback and assessment.

The exploration of entrepreneurship and entrepreneurship education and training concludes with the introduction of the ‘eureka’-factor for effective entrepreneurship education: A factor promoted as the single distinguishing factor between entrepreneurship education and training and *effective* entrepreneurship education and training, or more aptly, true entrepreneurial learning.

The final chapter of the literature review presents the transition to the research approach, the measuring instruments and the data coding for the empirical part of the study. The research approach is introduced and supported with evidence from the academic literature, and the research design is discussed from the perspectives of important design considerations, definition of the study population and sample selection, as well as the co-optation of research partners including the Education with Enterprise Trust (EWET) and Junior Achievement South Africa (JASA) respectively for the pilot study and the longitudinal main study.

The selection of measuring instruments is substantiated with evidence of validity and reliability from the academic literature, and issues driving the compilation of the research instruments for the empirical research are advocated. The literature review concludes with a detailed explanation of the data coding procedures for the statistical analysis of the data

flowing from the empirical research project. The sources consulted throughout the study include academic journal articles, text books on entrepreneurship and the internet in an attempt to gain knowledge on the concepts underlying entrepreneurship, entrepreneurship education and training and research on entrepreneurship from different, yet complementary perspectives.

1.6.2 The empirical study

The approach to the empirical study is based upon the requirements for a valid research approach and design, thorough definition of the study population, the incorporation of suitable measuring instruments and reliable statistical techniques for analysis of the data (Welman & Kruger, 2001: 250).

1.6.2.1 The research approach and design

The empirical research approach underlying this study is based upon the attitude-approach to entrepreneurship research. This particular approach was informed by three important factors: Firstly, the empirical study focuses on young learners of secondary-schooling age, but entrepreneurial personality traits and characteristics are assumed to be latent at best in these young learners. Accordingly, an approach different to the traditional focus on the personality traits, characteristics and ‘special’ skills of entrepreneurs (e.g., Lüthje & Franke, 2003; Cromie, 2000; Caird, 1991; Hisrich & Brush, 1986; Cromie & Johns, 1983) was deemed more appropriate for young learners still at school.

Secondly, the notion that trait approaches to entrepreneurship research have not sufficiently contributed to the body of knowledge on entrepreneurship and the behaviour of entrepreneurs is argued extensively in the academic literature (e.g., Athayde, 2009a; Johnston, Anderson, Davidge-Pitts & Ostensen-Saunders, 2009; Bjerke, 2007; Van Wyk & Boshoff, 2004; Keh, Foo & Lim, 2002; Cromie, 2000; Krueger, Reilly & Carsrud, 2000; Robinson, Stimpson, Huefner & Hunt, 1991; Gartner, 1989) as opposed to growing support for the attitude-approach to entrepreneurship research (e.g., Athayde, 2009a; 2009b; 2004; Gird & Bagraim, 2008; Moen *et al.*, 2004; Van Wyk & Boshoff, 2004; Peterman & Kennedy, 2003; Douglas & Shepherd, 2002; McCline, Bhat & Baj, 2000; Krueger & Brazeal, 1994; Krueger, 1993a; Robinson *et al.*, 1991).

Thirdly, the empirical research is domain-specific (i.e., youth entrepreneurship), and according to Harris and Gibson (2008: 569), the attitudinal approach can be more domain-specific with the subsequent advantages of increasing correlation with actual behaviour and reducing unexplained variability. Resultantly, the empirical study is attitude-oriented and focuses on the relationships between early entrepreneurship education and training and corresponding attitudes, intentions, entrepreneurial self-efficacy and entrepreneurial activity within the domain of personal wellbeing.

The research design builds upon earlier research by Steenekamp (2009) and Steenekamp *et al.* (2011a; 2011b) to measure the impact of *ad hoc* entrepreneurship education and training on the entrepreneurial attitudes and inclination of the South African youth. Some important design considerations informing this study included the need for a national study involving all nine provinces of South Africa; a pre- and post test design involving both test and control groups; the incorporation of existing, validated measuring instruments from the extant academic literature; and the co-optation of reputable research partners to participate in the project.

1.6.2.2 The study population and sampling method

The study population comprises learners in secondary schools in South Africa, but with particular focus on learners in the further education and training (FET) band of the South African Department of Basic Education (DoBE), or in other words, learners in grades 10 to 12 (South Africa, 2010a: 8-9). Due to the academic responsibilities of grade 12 learners in their final year of basic education, the study samples comprise mainly grade 10 and 11 learners, but small numbers of grade 12 learners as well as learners in the final senior year of the general education and training (GET) band (i.e., grade nine) (South Africa, 2010a: 8-9) are included.

The composition of samples for this study is based exclusively on convenience sampling. The significant challenges associated with a national study in the absence of any external funding called for this approach early on, and more importantly, convenience sampling was deemed best suited to reach at least 300 respondents per group for factor analysis as per the recommendation of Tabachnik and Fidell (2007: 613).

The pilot study sample consists of two test groups and two control groups with a combined total of 342 respondents from three secondary schools in the Harrismith (Free State) area,

whereas the main study sample comprises 1 808 respondents for the pre-testing phase and 1 500 respondents for the subsequent post testing phase representing two test groups and two control groups from a total of 26 schools in seven of the nine provinces of South Africa (see appendix seven).

1.6.2.3 The selection of the measuring instrument(s)

The research approach and design and the scope of the empirical study indicated the need for a purposive research instrument comprising a battery of tests to examine the entrepreneurial tendencies of young people from divers (yet complementary) perspectives. These perspectives include entrepreneurial attitude, future career choices, entrepreneurial intentions, entrepreneurial self-efficacy, entrepreneurial skills and personal wellbeing as desired outcomes of exposure to effective entrepreneurship education and training.

Following extensive reading, a total of six validated instruments were incorporated into the research instrument, including (in alphabetical order) the Attitude toward Enterprise (ATE) test (Athayde, 2009a); the Entrepreneurial Intention Questionnaire (EIQ) (Liñán & Chen, 2009); the General Enterprising Tendency (GET) test (Caird, 1988); the Measure of Adaptive Cognition (MAC) (Haynie & Shepherd, 2009); the Personal Wellbeing Index for school children (PWI-SC) (Cummins & Lau, 2005) and the Youth Innovation Skills Measurement Tool (YISQ) (Chell & Athayde, 2009).

The ATE test² was designed by Athayde (2009a: 481) to measure ‘enterprise potential’ in young people by examining attitudes towards characteristics associated with entrepreneurship. Subsequent tests for validity and reliability using exploratory factor analysis (EFA) and Cronbach’s alphas produced satisfactory results (Athayde, 2009a: 488-489, 496).

Steenekamp *et al.* (2011b) re-tested the ATE test for construct validity, reliability and relationships between the constructs (correlation) in a local study in the Sedibeng district of Gauteng. The study concludes that the ATE test is suitable for further use in research on the entrepreneurial attitudes of young learners in South Africa (Steenekamp *et al.*, 2011b: 329), subject to further refinement and the concession by Field (2005: 688) that questionnaires designed to measure ‘attitudes’ may have alphas lower than the customary cut-off of 0.70

² Intellectual Property Rights for the Attitude Toward Enterprise (ATE) test belong to the Small Business Research Centre (SBRC) at Kingston University, London, United Kingdom.

(UCLA, 2009: 2; Bland & Altman, 1997: 2; Peterson, 1994) and still have acceptable levels of reliability.

The Entrepreneurial Intention Questionnaire (EIQ) was developed by Liñán and Chen (2009) as a standard instrument to analyse the intention to become an entrepreneur (Liñán & Chen, 2009: 595-600). Following initial tests for reliability and validity which indicated promising results, a subsequent study on Spanish and Taiwanese students produced Cronbach's alphas ranging from 0.776 to 0.953 and factor analysis corresponding with the developers' theoretical expectations (Liñán & Chen, 2009: 606). The EIQ was included in the research instrument(s) to examine the intentions of young learners to pursue an entrepreneurial lifestyle as well as the impact of entrepreneurship education and training on such intentions.

The General Enterprising Tendency (GET)³ test was developed by Caird (1988; 1991) to measure personal tendencies associated with the enterprising person. It is a simple, structured test representing attitudes, preferences and habitual behaviours suitable for self-assessment (Caird, 1991: 179), and was included in this study to examine respondents' propensity towards certain career choices as an outcome of the influence of entrepreneurial attitudes.

The Measure of Adaptive Cognition (MAC) was developed by Haynie and Shepherd (2009) as a research instrument to assess cognitive ability described as the aggregation of five dimensions, including goal orientation, metacognitive knowledge, metacognitive experience, metacognitive control and monitoring. Subsequent testing produced satisfactory results for construct validity using confirmatory factor analysis (CFA) and reliability using Cronbach's alpha (alphas of 0.718 to 0.822 recorded), and the developers conclude that the instrument has good psychometric properties (Haynie & Shepherd, 2009: 702-709). The MAC was included in the research instrument(s) based on the belief held by Haynie and Shepherd (2009: 709) that the instrument is suitable for empirical testing of cognitive adaptability in entrepreneurial contexts.

The Personal Wellbeing Index for school children (PWI-SC) is a measure of subjective quality of life (Cummins, 2002). The PWI-SC was included in the research instrument(s) to examine the impact of entrepreneurship education and training on the personal wellbeing of

³ The General measure of Enterprising Tendency (GET) test was developed in 1988 by Dr. Sally Caird and Mr. Cliff Johnson at Durham University Business School with funding from the University Grants Council. Further development led to the assessment and education materials available on the website <http://www.get2test.net> by Dr. Sally Caird, The Open University.

young learners for comparison against the ‘gold-standard’ of Cummins (1996), as well as the normative range for both Western and non-Western populations reported by Lau, Cummins and McPherson (2004).

Finally, the Youth Innovation Skills Measurement Tool (YISQ) was developed by Chell and Athayde (2009) to elicit young people’s intentions to pursue an innovative career path. Subsequent reliability testing using principal component analysis (PCA) produced satisfactory results, and the sub-scales in the instrument (with the exception of the risk-propensity scale) reached the required threshold of 0.7 for Cronbach’s alpha (Chell & Athayde, 2009: 20). The YISQ was incorporated into the research instrument(s) to examine the relationship between entrepreneurship education/training and innovation as an integral component of entrepreneurial activity, and in particular, due to its suitability for use with young people (Chell & Athayde, 2009: 18).

Following selection of the measuring instruments, the respective instruments were incorporated into a youth entrepreneurship survey comprising the battery of six tests, a demographic section, a socio-economic section and a longitudinal questionnaire identification code to enable comparison between the pre- and post test questionnaires of each respondent while maintaining anonymity. Subsequent discussions with Statistical Consultation Services of the North-West University (Potchefstroom campus) suggested that the scope and length of the survey would cause ‘questionnaire fatigue’ among young school learners, and the potential for this phenomenon was seen as a threat to the scientific basis of the study.

Resultantly, the survey was split into two separate surveys: The AEG-3 Youth Entrepreneurship Survey for School Learners (version 1.1) and the PMY-3 Youth Entrepreneurship Survey for School Learners (version 2.1), each comprising three different tests, the demographic and socio-economic sections, and the longitudinal questionnaire identification code (see appendix one). These surveys were subsequently adopted as the research instruments for the pilot study.

Following the pilot study in February 2011 and subsequent statistical analysis of the results by Statistical Consultation Services, a number of design considerations were reconsidered to improve the AEG-3 (V1.1) and PMY-3 (V2.1) surveys in view of the approaching main study.

Several changes were made to both surveys, including improvements to the general layout; the regrouping of constructs under examination; the inclusion of introductory sentences to guide invigilators and learners through the process; the simplification of wording for young learners; the reversal of reverse score items; and some structural improvements to the demographic section, small improvements to the layout of the socio-economic section and an improved introduction to the longitudinal questionnaire ID.

The improved surveys – the AEG-3 (version 1.2) and PMY-3 (version 2.2) Youth Entrepreneurship Surveys – were subsequently adopted as the research instruments for employment in the longitudinal main study throughout South Africa (see appendix two). The incorporation of two different instruments signalled the need for two mutually exclusive samples from the same population, indicating that the empirical study would consist of two separate studies within the framework of a larger study aimed at examining the impact of entrepreneurship education and training on young learners in secondary schools in South Africa.

1.6.2.4 The data collection process

The data collection process for this study involved three separate data gathering exercises, including:

- the collection of data for the pilot study;
- the collection of data for the pre-testing phase of the main study; and
- the collection of data for the post testing phase of the main study.

The pilot study was conducted in Harrismith in the Free State province over a period of two days in mid-February 2011 after the Education with Enterprise Trust (EWET) had identified one secondary school where learners had been exposed to the organisation's entrepreneurship training programme (test groups), and two schools where learners had not been exposed to any entrepreneurship training programmes (control groups). Field workers of EWET assisted the researcher to obtain prior written consent from the principals of participating schools for learners to participate in the pilot study.

Learners from three schools in the Harrismith area participated in the pilot study, and the AEG-3 V1.1 and PMY-3 V2.1 survey questionnaires were completed immediately after school under the supervision of the researcher and in the presence of EWET field workers

and designated teachers. The data collection process for the pilot study is illustrated in figure 1.3 below.

Figure 1.3 The data collection process for the pilot study

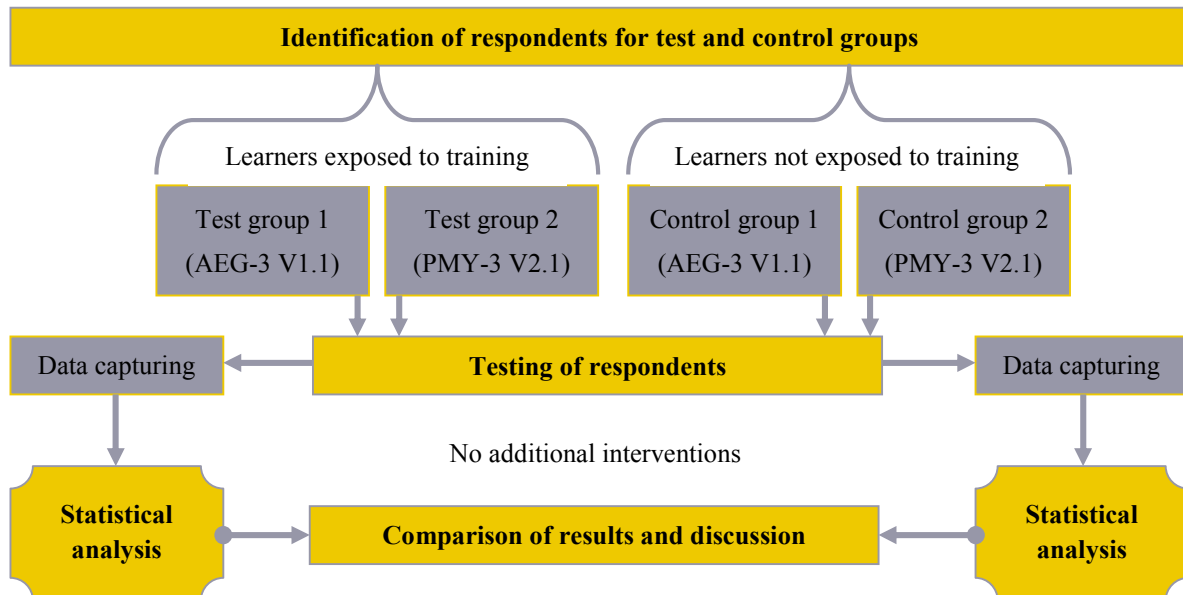


Figure 1.3 indicates that respondents in the pilot study were allocated to the test and control groups based on their previous exposure (or lack of exposure) to the entrepreneurship training programmes of EWET.

Contrary to the pilot study, the main study employed a pre- and post test control group design. This approach meant that learners in the two test groups had to be subjected to testing with the AEG-3 V1.2 and PMY-3 V2.2 Youth Entrepreneurship Surveys both prior to and after exposure to the entrepreneurship training programme of Junior Achievement South Africa (JASA), as opposed to the control groups with no exposure to JASA's training between the pre- and post testing procedures.

The national footprint of the main study called for the co-optation of a research partner to assist the researcher with the composition of samples for the test and control groups, the obtainment of permission from parents and principals for young learners to participate in the study and the collection of data. Junior Achievement South Africa (JASA) played a crucial role in this regard with JASA agents and partners operating in seven of the nine provinces of South Africa collecting the data for both the pre- and post testing phases by prior arrangement with schools and learners. The data collection process for the main study is illustrated in figure 1.4 on the following page.

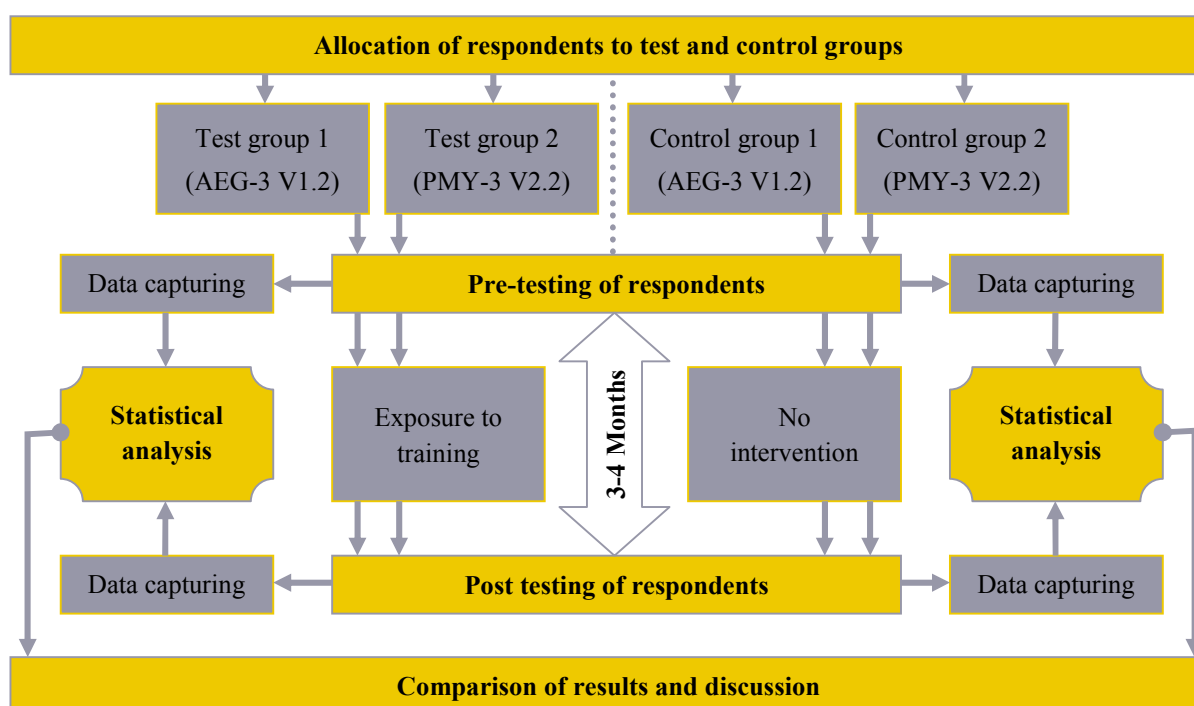
Figure 1.4 The data collection process for the main study

Figure 1.4 indicates that none of the respondents had been exposed to entrepreneurship education or training prior to the pre-testing phase. Learners enrolled in the training programme of Junior Achievement South Africa for 2012 were assigned to the two test groups, whereas learners not willing to participate in the training programme were assigned to the two control groups.

Once the pre-testing had been completed, learners in the two test groups were exposed to JASA's training programme for a period of three to four months, whereas learners in the control groups were not exposed to any training interventions other than the standard school curriculum. Once JASA's programme had run its course, all respondents (both the test and control groups) were subjected to post-testing for the collection of data, data capturing, statistical analysis and comparison of the results.

1.6.2.5 Statistical analysis

The statistical analysis of the data was conducted by Statistical Consultation Services of the North-West University (Potchefstroom campus) using Statistica (Statsoft, 2011) and SPSS (SPSS, 2011) software.

The construct validity and reliability of the three measuring instruments in each of the AEG-3 and PMY-3 surveys were examined respectively by performing principal factors analysis and calculating Cronbach's alpha coefficient for each of the underlying constructs. Kaiser's criterion, stipulating that factors with eigenvalues greater than one should be retained (Field, 2009: 640), was used to determine the number of factors for further analysis.

Factor loadings greater than 0.40 were considered to be significant in line with the recommendation by Field (2009: 671). In some instances smaller factor loadings were also acknowledged as being significant based on the general disposition that factor loadings of more than 0.30 are important, and even more so for large samples ($n \geq 600$) where Stevens (2002) proposes that factor loadings greater than 0.210 are significant.

In terms of reliability testing, the benchmark of $\alpha \geq 0.70$ (Field, 2009: 675; UCLA, 2009: 2; Bland & Altman, 1997: 2; Peterson, 1994) was used as a guideline throughout, but lower alphas of 0.50 minimum ($\alpha \geq 0.50$) were treated as an indication of reliability due to the psychological nature of the constructs being examined and the concession by Field (2005: 688) that questionnaires designed to measure 'attitudes' may have alphas lower than the customary cut-off of 0.70 and still have acceptable levels of reliability.

Further analyses were conducted on the pre-test data to examine differences in the mean scores of the test and control groups, as well as for differences in means for the total sample (respectively for the AEG-3 and PMY-3 datasets) for the demographic variables 'gender', 'type of school' (public/private), 'parents' employment' (self-employed or not) and for socio-economic background as measured by the Living Standard Measure (LSM[®]) of the South African Advertising Research Foundation (SAARF, 2010).

These comparisons were performed using tests for statistical significance (*t*-tests) and effect sizes (Cohen's *d*) to examine the datasets for both statistically significant and visible or practically significant differences at the time of pre-testing. Effect sizes (Cohen's *d*) were used as the deciding factor to conclude whether or not any real (i.e., practically significant) differences existed between respondents in the test and control groups, or between respondents from different demographic and socio-economic backgrounds, at the time of pre-testing.

Finally, and also the *crux* of this study, differences between the mean scores of respondents in the test and control groups were examined by performing similar tests on the post test data

to determine whether exposure of the test group to the training intervention of Junior Achievement South Africa has had any statistically significant and/or practically significant impact on learners. The results of the statistical analyses outlined above are presented in chapters eight (AEG-3 dataset) and nine (PMY-3 dataset) of the study.

1.7 LIMITATIONS OF THE STUDY

There are a number of limitations associated with this study which need to be acknowledged. Firstly, the construct validity of the respective instruments comprising the AEG-3 and PMY-3 surveys were examined using principal factors analysis (principal axis factoring). It should be borne in mind that this technique assumes that the sample is the population of interest, and accordingly, care should be exercised when extrapolating the results presented in this study beyond the AEG-3 and PMY-3 samples (Field, 2009: 636-637).

Resultantly, the findings and conclusions presented in later chapters are restricted to the AEG-3 and PMY-3 samples and any generalisation of the results can only be confirmed if different samples reveal the same factor structuring (see discussions in section 8.5.2 of chapter eight and section 9.5.2 of chapter nine).

Secondly, and in contrast with the generally accepted minimum reliability of Cronbach's alphas of 0.70 (UCLA, 2009: 2; Bland & Altman, 1997: 2; Peterson, 1994: 381), the acceptable reliability of the measuring instruments in this study is, in some instances, based on concessions for alphas below 0.70 ($\alpha \geq 0.50$) due to the psychological nature and diversity of the constructs being measured (Kline, 1999 *in* Field, 2009: 675).

Thirdly, consideration should be given to the exclusion of one factor (construct) from each of the ATE test ('intuition in problem solving') in the AEG-3 survey and the YISQ ('risk-propensity') in the PMY-3 survey. It follows that analysis and reporting of the results originating from these instruments are not as comprehensive as envisaged by the developers (respectively Athayde, 2009a and Chell & Athayde, 2009). The rejection of the GET test (Caird, 1988) for reasons of poor interpretability of the factor loadings and sub-par Cronbach's alphas for the underlying constructs, made the examination of general enterprising tendencies among young learners at school impossible.

Fourth and finally, this study set out to examine the impact of *ad hoc* entrepreneurship education and training on young learners during the years of secondary schooling. The

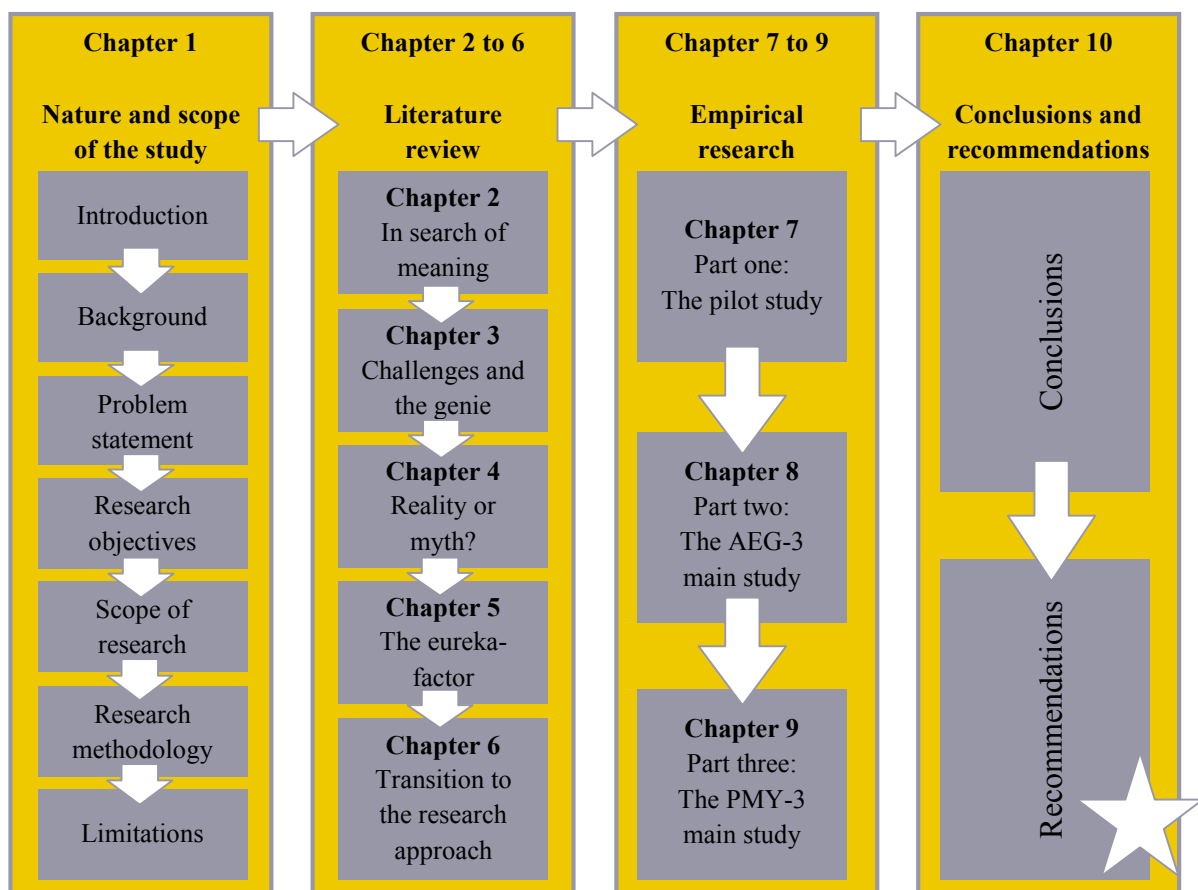
magnitude of the study, especially when considering the effort to conduct the empirical research on a national basis without any form of external funding, dictated the need for a reputable training provider willing to avail their time and resources to the research project. Junior Achievement South Africa (JASA) is recognised as one of the leading youth entrepreneurship training providers in South Africa (Friedrich, Visser, Isaacs, May, Stoltz, Brijlal & Solomons, 2005: v; UYF, 2004: 27) and without their goodwill to participate this study would not have been possible.

It follows that the outcome of this study is limited to a single training provider (i.e., JASA), and in particular, the Mini-Enterprise Programme (MEP) selected by the training provider for the research project. The limitation lies in the acknowledgement that the results presented in later chapters cannot be generalised to all youth entrepreneurship training providers and programmes currently available in South Africa.

1.8 LAYOUT OF THE STUDY

The layout and structure of the study is presented in figure 1.5 below.

Figure 1.5 Layout of the study



Chapter one presented the nature and scope of this study. The remaining chapters are structured as follows:

✦ **Literature review: In search of the meaning of entrepreneurship**

Chapter two sets out in search of the true meaning of entrepreneurship and the entrepreneur. The theories of entrepreneurship are revisited in search of central fundamental and functional themes, and the definitions of both concepts are examined in an attempt to construct universally acceptable definitions. The chapter concludes with a proposition for three essential elements and the true meaning of entrepreneurship.

✦ **Literature review: Contemporary challenges and the genie in a bottle**

Chapter three presents a synoptic exposé of the contemporary challenges facing South Africa as a developing nation, and proceeds to examine entrepreneurship, small businesses and youth development as the ‘genie in a bottle’ capable of redressing many of the country’s growing ills.

✦ **Literature review: Entrepreneurship education – reality or myth?**

Chapter four is devoted to determining whether entrepreneurship education and training is an achievable reality or just another myth. It examines the question whether entrepreneurship can be taught and probes the differences between entrepreneurship and enterprise on the one hand, and education and training on the other.

The definitions of entrepreneurship education are examined in an attempt to construct a new, universal definition, and the importance of education and entrepreneurial learning as well as the essentials of entrepreneurship education are discussed at length. The chapter concludes with challenges and barriers hindering effective entrepreneurship education and training, simultaneously highlighting the need for effective measures for impact assessment.

✦ **Literature review: Entrepreneurship education and the ‘eureka’-factor**

Chapter five examines the current paradigm in entrepreneurship education and includes an overview of the teaching methodologies and course content of a number of youth entrepreneurship training providers both locally and abroad. The essence of teaching in

the current paradigm is rendered to provide the basis for a detailed discussion of a proposed paradigm shift to *effective* entrepreneurship education and training, including the design and structure of programmes, programme content and curriculum development, teaching methodology, teacher and trainer development, the roles of stakeholders, funding for entrepreneurs, and finally, the importance of reflection, feedback and assessment.

The chapter concludes with the introduction of the ‘eureka’-factor for entrepreneurship education and training – a factor proposed as the distinguishing element between entrepreneurship education and training and *true* entrepreneurial learning.

✦ **The research approach, measuring instruments and data coding**

Chapter six is the concluding chapter of the literature review. It presents the transition to the research approach and design for the empirical part of the study, and further discusses the selection of measuring instruments and the construction of the research instruments for employment in the empirical research. The chapter concludes with a detailed explanation of the data coding procedures for the research instruments as prescribed by the developers of the respective instruments in the academic literature.

✦ **Empirical study part one: The pilot study**

Chapter seven presents the first part of the empirical research project underlying this study. It discusses the design, sampling methodology, data gathering and results of the pilot study carried out as preparation for the main study described in subsequent chapters. Based on the findings of the pilot study, improvements to both research instruments are presented for use in the main study. The chapter concludes with preparations for the main study, including the ‘two-in-one’ study approach, training of the research partners and important logistical issues that were deemed crucial for the success of the study.

✦ **Empirical study part two: The AEG-3 main study**

Chapter eight presents the gathering of data, results and discussion of the AEG-3 (V1.2) Youth Entrepreneurship Survey for School Learners focused on the entrepreneurial characteristics of a sample of secondary school learners in South Africa. The purpose of

this chapter is to discuss the impact of exposure to entrepreneurship education and training on young learners in South African secondary schools from the perspectives of attitudes, intentions and general enterprising tendencies.

✦ **Empirical study part three: The PMY-3 main study**

Chapter nine presents the gathering of data, results and discussion of the PMY-3 (V2.2) Youth Entrepreneurship Survey for School Learners focused on the entrepreneurial characteristics of a sample of secondary school learners in South Africa. The purpose of this chapter is to discuss the impact of exposure to entrepreneurship education and training on young learners in South African secondary schools from the perspectives of personal wellbeing, cognition and innovation.

✦ **Conclusions and recommendations**

Chapter ten draws conclusions from both the literature review and the empirical research conducted in the study to formulate practical recommendations for the improvement of *ad hoc* youth entrepreneurship training as one component of an integrated strategy for youth entrepreneurship development in South Africa.

CHAPTER TWO

LITERATURE REVIEW:

IN SEARCH OF THE MEANING OF ENTREPRENEURSHIP

2.1 INTRODUCTION

*You see things; and you say, 'Why?' But I dream things that never were;
and I say, 'Why not?'* (George Bernard Shaw⁴, 1856-1950).

Is this the mind of the 'entrepreneur' at work? Are the actions proliferated by these thoughts what is commonly referred to in economic language as 'entrepreneurship'? What is entrepreneurship? Who are these peculiar characters, these so-called entrepreneurs, and what do they do to make them deserving of the title?

Translated roughly, the word 'entrepreneur' (derived from the French verb 'entreprendre') means to 'set about' or 'to undertake' (Deo, 2005; Karlof & Loevingsson, 2005: 137). Kirby (2004: 511) uses this interpretation to describe the entrepreneur as someone who not only undertakes to make things happen, but in fact does. More specifically, the phrase 'entreprendre' signifies the process of "*between-taking*" by which the entrepreneur assumes a position between resources and opportunities to bring about something positive (Willax, 2003).

Entrepreneurship has had different meanings to different people under the broad interpretation of 'doing something' since inception of the term in the twelfth century (Long, 1983: 47), but an appetite for risk has always been a central theme. When it was first introduced into an economic context in the seventeenth century, entrepreneurship was associated with risk-taking and the use of own initiative (Fuchs, Werner & Wallau, 2008: 367). As early as in the first formal theory of entrepreneurship *circa* 1725, Richard Cantillon defined entrepreneurship as self-employed people who bear the risk of buying at certain prices and selling at uncertain prices (Chen, Weng & Hsu, 2010: 28).

Even today, risk remains at the root of entrepreneurial activity. Consider, as an example, the following comment by well known British publishing magnate, entrepreneur and multi-millionaire, Felix Dennis (Entrepreneur Media Inc., 2011: 85):

⁴ Source: http://thinkexist.com/quotes/george_bernard_shaw/. Date of access: 5 Jul. 2011.

Given time, a salary begins to exert an attraction and addictiveness all of its own; regular pay cheques and crack cocaine have that in common. More to the point, working too long for others will serve to blunt your appetite for risk. And in risk lies the only sure path to riches.

Erstwhile, and following Cantillon's definition of entrepreneurship, the concept was expanded by the French economist J.B. Say in 1803 to include the process of bringing the factors of production together. Say wrote that the entrepreneur transfers resources from locations where there are relative abundance to locations with scarce resources (Chen *et al.*, 2010: 28).

Entrepreneurship, in its broadest interpretation, is a process of finding resources in areas of relative abundance (opportunity), combining the factors of production (effort), and supplying resources to areas of scarcity (need) while being uncertain (risk) about the difference (profit or loss) between the associated input (costs) and the desired output (rewards).

It must be acknowledged that this interpretation is by no means complete as it begs the question as to why some people (entrepreneurs) would engage in such activity if the desired outcome (sufficient rewards) cannot be guaranteed? In a similar trend, Mitchell, Busenitz, Lant, McDougall, Morse and Smith (2002: 93-94) ask why some people and not others are able to discover and exploit particular entrepreneurial opportunities, and then conclude that there [still] is no satisfactory answer...

Even the exploration of the nature of entrepreneurship is no easy task given the variety of ways a person can be entrepreneurial and the different number of ways entrepreneurship is understood (Anderson & Jack, 2008: 260). Further complexity is evident in Krueger's (2007: 123) statement that one must understand how a person becomes an 'expert' entrepreneur to have any understanding of entrepreneurship. Baumol (1968: 67) also acknowledged the complexities surrounding the meaning of entrepreneurship when he wrote that "*...trying to understand entrepreneurship without the entrepreneur is like trying to understand Shakespeare without Hamlet.*"

Consequently, the remainder of this chapter expresses a journey in search for understanding of both the script and the actors constituting the play of entrepreneurship in the modern economic and social environment. It examines the classical economic theories of

entrepreneurship, as well as the evolution of definitions for both entrepreneurship and the entrepreneur.

2.2 OVERVIEW OF ENTREPRENEURSHIP THEORIES

Entrepreneurship has long been recognised as a vital component of economic growth, but at the same time, the entrepreneur remains “*one of the most intriguing and one of the most elusive characters in the cast that constitutes the subject of economic analysis*” (Baumol, 1968: 64-65).

The academic literature is fraught with the lack of a universally accepted, well-developed theory of entrepreneurship (Van Wyk, Boshoff & Bester, 2003: 22; Ripsas, 1998: 103; Hébert & Link, 1989: 47). There is some evidence of central themes arising from the evolution of economic theory that have contributed liberally to the extant knowledge on entrepreneurship, and consequently, these themes deserve some elucidation.

2.2.1 Fundamental themes in entrepreneurship theory

From a fundamental perspective, the evolution of entrepreneurship theory places the entrepreneur in a central role *vis-à-vis* economic development, innovation, reward, the combination of resources, and exposure to risk and uncertainty.

2.2.1.1 Entrepreneurship, innovation and economic development

During the first two decades of the twentieth century, three leading social scientists - Max Weber, Joseph Schumpeter and Frank Knight - wrote theories on entrepreneurship. Weber ascribed economic development to Calvinist ethic by emphasizing rationality (i.e., the anti-magical features of Protestantism and especially Calvinism), whereas Schumpeter put the innovative entrepreneur centre stage (Brouwer, 2002: 103). Schumpeter's view concurred with that of the Austrian critique, associated mainly with Von Mises and, more recently, with Rothbard and Israel Kirzner, that the entrepreneur takes centre stage in economic theory (Batstone & Pheby, 1996: 34).

According to Brouwer (2002: 103), Knight differed from both Weber and Schumpeter by casting the perceptive capitalist in the leading role of economic development. To the contrary, and when Knight (1942: 128) wrote that the first and primary function of the entrepreneur is leadership or ‘economic pioneering’ (i.e., to initiate useful change or

innovation), he unwittingly aligned his theory with that of Schumpeter's innovative entrepreneur.

The relationship between entrepreneurship, innovation and economic development is pronounced clearly in Joseph Schumpeter's life-long argument that the creative responses of entrepreneurs and entrepreneurial innovation are the primary determinants of economic change (Frank, 1998: 513). For Schumpeter, internally-induced change was caused by the entrepreneurial actions of an individual or a group of entrepreneurs who seized an opportunity to do things differently. The resulting change initiated innovation, thus triggering economic development (Betta, Jones & Latham, 2010: 230).

Schumpeter believed innovation was central to economic change by causing "*gales of creative destruction*" (Dabic, Cvijanovic & Gonzalez-Loureiro, 2011: 195-196), and argued that economic development is a dynamic process of disturbing the *status quo* where entrepreneurs use this process to disturb the circular flow in economics and carry out new combinations of resources (Hébert & Link, 1989: 43-44).

Casson, Yeung, Basu and Wadeson (2006: 46) provide further propulsion to Schumpeter's "*gale of creative destruction*" by ascribing it to the energy of entrepreneurs using innovation to outwit their competition in the market place, and for Hospers (2005: 20), this process of creative destruction signifies the importance of entrepreneurship, technological advancement and innovation policy for economic development.

Kirby's (2004: 511) interpretation of Schumpeter's theory depicts entrepreneurs as undertakers who make things happen, and as a consequence, they disturb the *status quo* as change agents working as self-employed individuals in small businesses or as employees in large enterprises.

In explaining the relationship between entrepreneurship and innovation, Schumpeter (1934: 136) excluded tangible products and purchasing power as part of the entrepreneur's contribution to economic development. Instead, and as a result of employing the existing means of production differently, more appropriately, and more advantageously, the entrepreneur is credited with the supply of will and action, and resultantly, innovation.

Consequently, Schumpeter (1939: 102-103), later supported by the economist G.L.S. Shackle's writings *circa* 1943 that enterprise was linked to action (Batstone & Pheby, 1996:

42), reserved the term ‘enterprise’ for actions focused on carrying out innovation, and defined ‘entrepreneurs’ as those individuals carrying out these innovative actions.

Entrepreneurship theory: Theme 1

“Entrepreneurs give will and action; they innovate; they are economic development.”

Schumpeter viewed innovation as much more than a simple invention: An invention only became innovation once it was employed in productive use, i.e., when action was taken (McDaniel, 2000: 278). J.B. Clark’s theory of economic growth supported Schumpeter’s view by exhorting that invention alone cannot change the economy: A technological change in the economy can only be induced through innovation, which follows the lure of profit attracting entrepreneurs (Pisciotta & Ghandour, 1969: 6).

McFarling (2000: 708, 712) found congruence between Schumpeter’s theory (1934) and that of John Commons as both theories imply that innovation will have disruptive consequences and subsequently promote processes to re-establish stability. From Schumpeter’s point of view, greater emphasis was placed on the ‘taking of action’ by not only linking the disruptive act to innovation, but by describing the entrepreneur as the actor responsible for disrupting the economy.

In yet another comparison of theories, Casson *et al.* (2006: 48) draw a distinction between Schumpeter’s view of entrepreneurial innovation as revolutionary and discontinuous, and Kirzner’s view of entrepreneurs as “*dynamic auctioneers*” using local knowledge of people, conditions and circumstances in an environment where economic progress is seen as “*incremental, experimental and evolutionary*”, or as “*equilibrators*” who noticed that which was already present (Vaughn, 1992: 255).

The importance of Schumpeter’s theory is that it provides an explanation for meaningful economic progress by attributing the fundamental nature of change to the innovator (entrepreneur).

2.2.1.2 Entrepreneurship, profit and the combination of resources

The concept of ‘entrepreneurial profit’ has been around for many years. Frederick B. Hawley wrote that “...*the uncertainty as to how price fluctuation will affect each individual transaction remains; and the entrepreneur will never assume this uncertainty inevitably attached to the productive process, both in ‘conjunctur’ [sic] and other risk, unless he [she] believes he [she] will profit thereby*” (Hawley, 1901: 604; text in brackets added).

Knight (1942: 126) later defined the term ‘profit’ as the income accruing to the owner of a business or productive enterprise (read entrepreneur) through the operations of that business or enterprise. Knight further explained that a positive profit consists to a greater or lesser extent of the remuneration for services rendered to the business by the entrepreneur in the form of labour or capital services, or both (Knight, 1942: 127).

Schumpeter (1934: 131-133) also regarded the concept of profit as central to entrepreneurial activity when he defined ‘entrepreneurial profit’ as a surplus over costs (i.e., the difference between the receipts and expenses of a business), and the essence of entrepreneurship as profit accruing to those who introduced new methods of combining existing resources into the so-called ‘circular flow’ (interpreted by Mathews [2002: 43] as meaning the formation of new enterprises).

Entrepreneurship theory: Theme 2

“Entrepreneurs are scarce in environments with no potential for profit.”

Kirzner maintained that alertness to profit opportunities is the essence of entrepreneurship (Jakee & Spong, 2003: 466; Hébert & Link, 1989: 46), and that the market must be in disequilibrium for such an opportunity to exist (Jakee & Spong, 2003: 466). According to Pittaway (2005: 212), the disequilibrium models in economic theory are based on the supposition that there are opportunities for profit within economic systems caused by inequalities between supply and demand, and entrepreneurial actions exploit these opportunities resulting in economic systems being driven towards a state of equilibrium.

Kirzner's focus on alertness to profit opportunities emphasized quality of perception to recognise an opportunity with an outcome that is certain. In reality, the realisation of profit in any opportunity is uncertain (Vaughn, 1992: 251; Hébert & Link, 1989: 46), indicating that Schumpeter's focus on action (using new combinations of resources to disturb the *status quo*) makes more sense in the realm of economic and entrepreneurial activity.

Cantillon, Schumpeter, Knight, Kirzner and Weber held congruent views on the combination of resources underlying entrepreneurial activity. In 1931 Cantillon included "*undertakers of their own labour without capital*" in his definition of entrepreneurs (Pittaway, 2005: 212), while Schumpeter (1939: 103) wrote that the entrepreneur may (but need not) invent the [new] product or process introduced into the marketplace, and the entrepreneur may (but need not) be the source of capital for the undertaking.

Knight (1942: 130) contended that the entrepreneur must have the ability to administer resources effectively, and even 'sell' the idea to others who have resources should the entrepreneur not have control over the required resources at the outset. Kirzner, in his earliest writings on entrepreneurship, advanced the notion of a "*pure and penniless*" entrepreneur (Hébert & Link, 1989: 46), and Weber considered the entrepreneur to be a person with "*unusual will and energy*", but with no capital (MacDonald, 1965: 380).

Entrepreneurship theory: Theme 3

"Entrepreneurship is not about having anything, it's all about wanting something."

The omission of ownership of capital as a prerequisite for successful entrepreneurial activity heightens the importance of self-reliance ('own labour'), the willingness to endure severe financial difficulties (being 'penniless'), and the determination ('unusual will and energy') to reach predetermined goals in the face of many challenges and setbacks.

2.2.1.3 Entrepreneurship and risk/uncertainty

Cantillon recognised the imminence of risk and uncertainty in entrepreneurial activity when he defined entrepreneurship as self-employment of any sort in the presence of uncertainty (Long, 1983: 48). This definition is interpreted by Hébert and Link (1989: 42) as referring to

a person who exchanges for profit by exercising business judgement in the presence of uncertainty. Shackle supported Cantillon's belief that entrepreneurs had to carry the risks associated with uncertainty, even implying decision making in the face of "*irremediable uncertainty*" (Batstone & Pheby, 1996: 39).

The classical economic movement following Cantillon placed emphasis on economic foresight and dealing with uncertainty in a closed framework of economic variables such as productivity, labour, prices and competition. Several scholars in this movement (e.g., Quesnay, Baudeau and Turgot) wrote of the presence of uncertainty (when outcomes are unknown) and risk (when the probability distribution of outcomes is known) (Murphy, Liao & Welsch, 2006: 18-19).

In a similar trend, Knight's 'Risk, Uncertainty and Profit' (1921) elaborates on the need for entrepreneurs to exercise judgement in the face of uncertainty (Casson *et al.*, 2006: 45). This view was supported by Watkins (1922: 683-684) who wrote that there would be no profit without uncertainty, and that these uncertainties could only be dealt with by exercising the necessary judgement. Knight (1942: 129) held that business operations are affected by various factors which are inherently unpredictable, and that the entrepreneur had no choice but to accept the consequences of such unpredictability. Knight depicted the entrepreneur as a specialist in risk-taking and uncertainty bearing.

Alfred Marshall also recognised inherent risk in the emerging division of labour in business of the modern world when he wrote that entrepreneurs "*...adventure or undertake its risks; they bring together the capital and the labour required for the work; they arrange or engineer its general plan and superintend its minor details*" (Marshall, 1962: 244).

Entrepreneurship theory: Theme 4

"Don't expect to achieve anything without taking a chance on something."

Hamilton and Harper (1994: 4) later point out that Marshall's function of the entrepreneur incorporates the ability to manage things through other people in an environment in which adventure and risk are inherent. In the same epoch as Marshall, August Marx (1963: 98)

based his view of risk on the ‘nothing ventured, nothing gained’ principle: Marx insisted that the right to profits goes to those who take the risk.

Schumpeter (1934: 137), on the other hand, argued against risk as a component of the entrepreneurial function. Although Schumpeter acknowledged risk insofar the entrepreneur’s reputation and the potential loss of material possessions are concerned, he maintained that possessions are not essential for successful entrepreneurial activity, and that the economic responsibility for failure is vested in other people (such as the providers of credit).

Schultz, Kirzner, and to a lesser extent, Weber, also rejected risk as an underlying component of entrepreneurial activity. Schultz attempted to refute the idea of entrepreneurial rewards as a return on risk by insisting that there is no exclusive relationship between entrepreneurial activity and risk as both entrepreneurs and non-entrepreneurs assumed risk (Hébert & Link, 1989: 46).

Kirzner also downplayed the importance of uncertainty in [entrepreneurial] decision making, but later altered his position to acknowledge that uncertainty is indeed ingrained in entrepreneurial activity (Hébert & Link, 1989: 47). In his analysis of the ‘spirit of capitalism’, Weber presented the entrepreneur as a modern professional with a rational attitude rooted in “*Protestant values of inner-worldly asceticism*”, and not merely a risk-taking adventurer or explorer (Ebner, 2005: 262).

Analysing Schumpeter’s rejection of risk should be approached with some caution. In 1982 Helene Verin assigned two meanings to the French word ‘entrepreneur’: The broker (l’entremetteur) and the adventurer (l’entrepreneur). Whereas the French school of thought (Jean-Baptiste Say) placed the entrepreneur in the former role of a manager or risk avoider, the Austrian school (including Joseph Schumpeter) adopted the latter by describing the entrepreneur as an innovator and a risk taker (Marchesnay, 2011: 358). It follows that the Austrian school of thought had indeed recognised the presence of risk in entrepreneurial activity, at least to the same extent as should be expected by an adventurer.

Murphy *et al.* (2006: 23) examined Say’s (1803) and Schumpeter’s (1934) conceptualisation of ownership of resources as being distinct from entrepreneurship (i.e., that entrepreneurship does not require ownership of resources) and found this concept to reveal that past activity cannot be used to predict future outcomes as every opportunity is unique. Although their findings suggest that uncertainty and risk can be minimised or managed, it is acknowledged

that the uniqueness of each entrepreneurial opportunity makes these elements immutable and essentially part of the entrepreneurial process.

It is evident that the classical economic theorists held widely diverging views on risk and uncertainty as fundamental themes in entrepreneurial activity, but the frequency at which unknown outcomes and divergent probabilities are highlighted in the scholarly articles reviewed for this study (preceding text) clearly points towards the irrefutable presence of both uncertainty and risk in entrepreneurial behaviour.

2.2.2 Functional themes in entrepreneurship theory

The functional themes emanating from economic theory contextualise entrepreneurship as both a function and a personality characteristic, and pave the way for better understanding of the relationships between entrepreneurship and social order, management, and a critical component of this study, education.

2.2.2.1 Entrepreneurship as a function and/or a personality trait

The early economic theories presented entrepreneurship as both a function and a personality trait. In the eighteenth century, Cantillon generalised the function of the entrepreneur to include many different occupations across several functions including production, distribution and exchange (Hébert & Link, 1989: 42). It would then seem as if Cantillon stressed the function of entrepreneurship, and not the personality of the entrepreneur.

In the late nineteenth century, Clark (1887: 605) referred to the function of the entrepreneur as consisting of both a mechanical operation (directing, buying and producing) and a mercantile operation (selling the product). Hawley (1901: 612) contended that the essential function of the entrepreneur is simply that of risk-taking.

Weber's sociological theory (1930) also supports the functional approach by arguing that the supply of entrepreneurship is a function of exogenously supplied religious and social values, i.e., that "*...certain types of Protestantism became a fountainhead of incentives that favoured rational pursuit of economic gain*" (Bendix, 1977: 57). Hamilton and Harper (1994: 13) observed Weber's intention to show that the religious imperatives of Calvinism provided the motives behind entrepreneurship, or in other words, the moral energy and drive of so-called capitalist entrepreneurs.

On the other hand, Schumpeter (1934: 85) described the entrepreneur as rational, egotistical, and self-centred to such an extent that it is “*peculiar and rare by nature*”, thus providing at least some support for the personality approach towards entrepreneurship research. Swoboda (1984: 21) found cause for Schumpeter’s consideration of the entrepreneur’s personality characteristics by noting that diverse attributes such as risk-bearing, leadership and alertness had previously been identified as prominent categories for the classification of entrepreneurs.

Later, Schumpeter (1951: 255) conceded that the entrepreneur need not be embodied in a physical person, and in particular, any single individual. A systematic shift of emphasis from the importance of leadership and the individual entrepreneur to a de-personification of the entrepreneurial function followed publication of Schumpeter’s first edition of ‘Theorie’ in 1911 (Michaelides & Theologou, 2010: 367; Becker & Knudsen, 2002: 394).

From the second edition (1926) onward, Schumpeter (1954: 895) based the functional character of his entrepreneurship theory on the general proposition of attributing certain functions in the economic process to entrepreneurs, while explaining the accompanying gains in relation to the carrying out of that particular function.

Entrepreneurship theory: Theme 5

“Entrepreneurs are peculiar characters, but anyone can exercise peculiar choices.”

The question of whether entrepreneurship is a function or a personality type does not detract from the importance of either approach in understanding entrepreneurship. Hamilton and Harper (1994: 10) acknowledge this by noting that “...*the principal determinants of entrepreneurial performance are strongly conditioned by the particular set of disciplinary spectacles through which one looks...*”, and then propose that theoretical economists have tended to neglect the unique set of personal qualities characterising the entrepreneurial type by focusing on the nature of the entrepreneurial function and surrendering the subject of entrepreneurial supply to psychologists and sociologists.

2.2.2.2 Entrepreneurship and social order

Cochran (1969: 1570), in his analysis of the relationship between economic development and social theory, purported that the investment of capital into national economies had not necessarily produced the anticipated results, thus emphasising problems associated with learning, the social roles of entrepreneurs and the attitudes of social elites. According to Cochran, these problems had led some economists (not identified in text; see Papanek [1962] below) to conclude that the main challenges facing economic development were non-economic, and that economic action was largely conditioned by the learning of entrepreneurs and the social structures in which they operated.

It is conceivable that Gustav Papanek was one of the economists mentioned by Cochran (1969). Papanek (1962: 57) argued that the absence of powerful economic incentives or the presence of great social obstacles may hamper the development of industrial entrepreneurs, unless either the social obstacles are removed by societal changes, or a deviant group is willing to overcome these obstacles for a certain level of economic reward. It follows that there is a significant relationship between entrepreneurship and social order, and accordingly, a brief discussion comparing the views of Cantillon, Commons and Schumpeter is warranted.

In Cantillon's notion of entrepreneurship even beggars and robbers were classified as entrepreneurs, provided they took chances, and resultantly faced economic uncertainty (Hébert & Link, 1989: 42). Cantillon's rejection of social standing as relevant to entrepreneurship was later supported by Schumpeter's (1934: 104) statement that entrepreneurs *per se* do not form a particular social class, as they originated from all classes prevailing at the time of their emergence. Schumpeter, however, acknowledged that entrepreneurs eventually become esteemed as a result of their abilities in a capitalist society (Hébert & Link, 1989: 44), effectively removing Cantillon's beggars and robbers from the entrepreneurial equation.

Entrepreneurship theory: Theme 6

"Noble ancestry is not a prerequisite for successful entrepreneurship."

Goss (2005: 208) identifies a strong theory of social control resting on the constraints of convention, routine, habit and social sanction at the centre of Schumpeter's conception of entrepreneurship. These constraints were said to regulate individual behaviour to such an extent that the propensity towards entrepreneurial action would be curtailed. Against these constraints, Schumpeter's entrepreneurs were those individuals or groups who would bring about change by detaching themselves from social and economic restrictions with the purposeful intention to innovate and set up new productive functions (McFarling, 2000: 716).

Schumpeter attempted to explain that the resulting change in the social structure was caused by the actions and social interactions of individual entrepreneurs operating in distinct and yet interacting sectors of social life (Becker & Knudsen, 2002: 390). Betta *et al.* (2010: 231) concur that the basis of entrepreneurial and innovative action is built by the individual, either as a 'loose reality' or as a member of a group, and then conclude that the 'social' in Schumpeterian theory has always been "*...a living thing, an organism to be shaped and changed by individuals.*"

Commons' entrepreneurs, to the contrary, would not go against the prevailing social and economic restrictions, but would rather reconfigure these bounds in such a way that the individual obtained a greater share of the existing joint product (McFarling, 2000: 716). Commons based his argument on the belief that collective action increased the range of attainable goals, even while constraining the individual's choice of action in pursuit of these goals (McFarling, 2000: 714).

Entrepreneurship theory then appears to have produced three different notions on the relationship between entrepreneurship and social order: Firstly, Cantillon's view that social standing is irrelevant to entrepreneurship, and secondly, a belief shared by Schumpeter and Commons that entrepreneurial activity occurs within certain social boundaries.

The third notion lies in the difference between Schumpeter's and Commons' theories on the manner in which entrepreneurs would approach these social restrictions. Whereas the Schumpeterian entrepreneur would go against social rules and obligations in an attempt to innovate and set up new production functions, Commons' entrepreneurs would use collective action within the set boundaries of social order to obtain a greater share of products (and services) existing at the time. In summary it can be inferred that the main difference between the theories of Schumpeter and Commons relates to self-interest.

2.2.2.3 Entrepreneurship and management

Entrepreneurship and management were frequently juxtaposed in the early economic theories. Towards the end of the nineteenth century, Clark (1887: 609) described the managerial function as the ‘other capacity’ of the entrepreneur. Clark drew a clear distinction between the entrepreneur and the manager, and qualified the difference by arguing that entrepreneurs’ fortunes are held largely in their own hands, as opposed to managers who can easily mar the fortune of the owner, but not always build it.

To the contrary, Watkins (1922: 684) later noted that economic theory had usually pictured the manager as an entrepreneur, but conceded that fusion of the entrepreneurial and the managerial functions was not likely, especially when considering its inconsistencies with the theory of profit.

Some forty years later, Marx (1963: 97) confirmed this by discerning that the entrepreneur is intimately attached to the economy, just as management is to the business, but also that management can exist without the involvement of the entrepreneur. Marx (1963: 100) opined that businesses do not need to be entrepreneurial (i.e., managers do not necessarily need entrepreneurial skills), but that the entrepreneur must have managerial abilities (i.e., entrepreneurs must be able to manage their businesses).

Schumpeter (1939: 102-103) argued that common sense would recognise the difference between deciding how much product to buy for production (management), as opposed to the introduction of a new process of production (entrepreneurship). Schumpeter acknowledged that a person cannot be an entrepreneur all the time: A person carrying out innovation will inadvertently have to perform non-entrepreneurial tasks (management) in the course of carrying out new combinations.

In his comparison of the entrepreneurial function and that of ordinary administration or management, Schumpeter (1951: 253) highlighted the distinctive element of “*acting outside the pale of routine*” which he maintained, is exclusive to the domain of entrepreneurial behaviour. Schumpeter (1951: 254) used this phenomenon, combined with a distinct return (i.e., surplus over costs), to conceptualise the entrepreneur as a ‘business leader’ or an ‘innovator’.

Entrepreneurship theory: Theme 7

“Entrepreneurship lives outside the comfort of routine.”

Knight (1942: 129) also recognised a distinction between entrepreneurship and management, and seemed to concur with Schumpeter’s conceptualisation of the entrepreneur as an innovator by adding ‘adaptive change’ to innovation as a second function of the entrepreneur. Knight contended that entrepreneurship is more a dynamic activity associated with major or more important changes, whereas management is more related to routine activities classifiable as labour.

Baumol (1968: 64) concurred with the necessity to differentiate between the entrepreneurial and managerial functions. Baumol described a manager as someone who is “*constantly on the lookout for means to save a little here and to squeeze a bit more there*”, as opposed to an entrepreneur who must identify new ideas and put them into practice, lead and inspire, fulfil the role of the Schumpeterian innovator, and some more (Baumol, 1968: 65).

The academic literature on classical economic theory overwhelmingly points towards the need for differentiation between the function of entrepreneurship and that of management. Notwithstanding the interchangeable nature of some roles and activities underlying both functions, it is proposed that management (although being a component of entrepreneurial activity) be kept separate from entrepreneurship in search of true understanding of the entrepreneurial concept and the entrepreneur’s *persona*.

2.2.2.4 Entrepreneurship and education

The relationship between entrepreneurship and education – more specifically, the influence of education on the promotion of entrepreneurial activity – is the quintessence of this study. The older academic literature on economic theory (Cochran, 1969; Schultz, 1968; Miller, 1967; Lockwood, 1964; Marx, 1963; Papanek, 1962) reveals that the relationship between education and [entrepreneurship] development had indeed been recognised by economics’ founding fathers.

The classical economists who had ‘thought most’ on the goals of education held that high quality education must emphasise general knowledge, and insisted that this was the primary task of elementary, secondary and university education (Miller, 1967: 293). Theodore Schultz (1968: 329) labelled education as a form of human capital: Human as it becomes part of man, and capital as it is a source of “...*future satisfactions, or of future earnings, or both of these.*” According to Hébert and Link (1989: 45), Schultz had high regard for the positive influence of education on people’s ability to perceive and react to disequilibria.

From another perspective, Marx (1963: 98) went so far as placing issues of risk at the centre of management education, as in his own words, “[T]he first and most considerable risk is to enter into the business process itself: to depend entirely upon oneself to buy and sell, to produce and offer one’s services in any way.” Miller (1967: 282) acknowledged the importance of entrepreneurship education by putting forward his belief that educated entrepreneurs “...*should more readily recognise opportunities for innovation and be able to use them more opportunely. They should be more adaptable to changing circumstances and better able to survive rapid changes.*”

Adam Smith also vested great confidence in education. This is clear from his pronouncement that “[T]he student in the bookshop is in the long run more important than the leaders of the parties... He [she] makes the choices, by processes which may be very obscure, which determine the next course in history” (Lockwood, 1964: 355; text in brackets added). Smith deemed education as important for its social benefits including improved moral standards; the promotion of a peaceful character; increased acceptance of the authority of parents; better understanding and judgement of government policies; and decreasing the vulnerability of ‘lower classes’ to political intrigue and conspiracy (Texeira, 2006: 2-3).

Texeira (2006) further found wide ranging support for the contributions made by economics’ founding fathers to escalate the importance of education, including John Stuart Mill’s research on its social, political and economic benefits; Alfred Marshall’s emphasis on the development of individuals’ intelligence, readiness and trustworthiness; and Milton Friedman’s explication of the role of governments in higher education.

Having established that the classical economists had indeed considered the importance of entrepreneurship education for economic development, some hortatory statements emanating from their research are noteworthy. Firstly, Schultz (1968: 337) pointed out more than four

decades ago that there were still children, especially in the rural areas, who were not completing even the elementary grades in school. This begs the question as to how different the situation in South Africa is today.

Secondly, and in a somewhat alarming comparison, Schultz (1968: 337) rated the private rate of return on the investment of resources entering into high school education as lower than that of elementary schooling, but still twice as high as that for private investment in attending college [university] education. This comparison begs the question whether Schultz's take on the private rate of return on investment in education is still highest for elementary (and basic) schooling in the modern environment. If indeed so, these words hold a stern directive for where latter-day educational resources are deserved most!

Thirdly, does education indeed promote economic growth? Using Weber's cautionary statement that "*...not just any kind of education will give the desired result*", Miller (1967: 281) claimed education can only be a source of economic growth if it is removed from tradition to such an extent that individuals are liberated, stimulated and informed why it is necessary to be self-reliant, and also shown how this can be achieved.

Fourth and finally, Cochran (1969: 1571) considered the sustainability of a hypothesis that "*... on the average the equivalent of twelve years of schooling in a particular educational system was necessary for successful entrepreneurial adoption of certain industrial technology, that ten to twelve years of schooling formed a doubtful zone, and that with less than ten years the chances for success were small.*" Although the validity of the given hypothesis was not proven in Cochran's analysis, it still points towards the importance of prolonged (and continued) education for entrepreneurial development.

Entrepreneurship theory: Theme 8

"Entrepreneurship is a journey of lifelong learning."

On the positive side, two comments found in the literature on economic theory are more encouraging: Firstly, Mill's proposition that the poor should not be denied access to education if they are unable to pay (Texeira, 2006: 5) provides clear direction for the need of a fully inclusive approach to basic and further education in South Africa. It should be noted

that Mill qualified his proposition by insisting that financial help be limited to those students who have proved themselves worthy of such help during elementary education. Would such a proposition have the capacity to motivate the poorest in our country to embark on a journey of learning?

Secondly, Lockwood (1964: 346) examined economic development theory as comprehended by Lord Keynes, and subsequently commented that parents of youth aged 17 to 21 years cannot fail to find “*consolation*” in Keynes’ comment on education that “...*at that age it is very difficult not to improve a good deal in three or four years.*” It seems as if Keynes directed his message of encouragement at parents to persevere in the upbringing of their children – wise words that still carry significant relevance today.

More recently, economic theory as foreseen by the classical economists has led to the development of a theory incorporating an evolutionary approach to the study of entrepreneurship. This approach, based on the Darwinian process of selection, variation and retention, may provide a suitable framework for modern-day entrepreneurship education as explained by Aldrich and Martinez (2001: 42):

Evolutionary theory unites in a single coherent framework a concern for the entrepreneurial outcomes and the processes and contexts making them possible. An evolutionary approach studies the creation of new organisational structures (variation), the way in which entrepreneurs modify their organisations and use resources to survive in changing environments (adaptation), the circumstances under which such organisational arrangements lead to success and survival (selection), and the way in which successful arrangements tend to be imitated and perpetuated by other entrepreneurs (retention).

Entrepreneurship has always been an evolving concept (Swanepoel, Strydom & Nieuwenhuizen, 2010: 63), and the value of applying this evolutionary approach to entrepreneurship education lies in demonstrating the connection between business situation, social situations and the personal situation of each individual student. In essence, it provides a platform for students to gain access to a medium through which they can learn about entrepreneurship and its many facets in the here and now, while having reference to both the past and the future (Jones, 2006: 339).

2.2.3 Lessons learnt from the classical theories of entrepreneurship

Eight important themes (lessons) were extracted from the overview of the classical theories of entrepreneurship. Are any of these lessons learnt from economics' founding fathers still relevant today? What are the potential relationships between classical entrepreneurship theory and the cultivation of entrepreneurial tendencies in young people? Can (and should) these lessons be ingrained in teaching methodology, and in particular, within the framework of basic education in South Africa, to promote a culture of entrepreneurship?

2.2.3.1 Lesson 1: Entrepreneurs are the drivers of economic development

In the first theme, entrepreneurs were described as people doing things differently: They exert high levels of will and action to engage in innovative behaviour and drive economic development. The creative ways in which entrepreneurs respond to their environments and their entrepreneurial innovations were earmarked by Schumpeter as the primary determinants of economic change (Frank, 1998).

Notwithstanding the importance of Schumpeter's theory for economic development, some critique seems appropriate from the viewpoint of underdeveloped countries (consider for the time being the majority of African countries, and South Africa as a developing country). Rimmer (1961: 424) identified three important themes in Schumpeter's theory, namely that [1] entrepreneurs are the propelling power behind economic development; [2] development follows the introduction of new productive techniques; and [3] the motivation for development originates on the supply-side in the innovative ambitions of entrepreneurs.

Contrary to Schumpeter's theory, Rimmer (1961: 424) then extracted opposing arguments from scholarly articles to conclude that in underdeveloped countries [1] development is more likely to be driven by governments; [2] it takes the form of introducing established production techniques borrowed from advanced countries; and [3] the motivation for development lies more on the demand-side resulting from aspirations to improve living standards.

From a South African perspective, both approaches seem to have some veracity. On the one hand, the role entrepreneurs have to play in economic development is confirmed by continuous calls from the government, academic scholars and organised business for the cultivation of more entrepreneurs. On the other hand, many South Africans (perhaps even the

majority) expect much from the government through its initiatives for infrastructure development, black economic empowerment and job creation, effectively earmarking the government as the designated driver of economic development.

It can be argued that this segment of the country's population expects ('demands') the reduction of poverty and improved living standards to be the main motivation behind economic development. One should also consider the question whether South Africa is predominantly a leader in the introduction of new productive techniques, or rather a borrower of established techniques from developed countries.

Where then would one place South Africa on the scale: A developing country set on cultivating a supply-oriented culture of innovation and action through self-reliance, or a state dependent culture where economic development is demanded for the sake of improved living standards?

From an educational perspective, there seems to be profound cause to argue for teaching methodology aimed at inculcating the prominent role entrepreneurs have to play in economic development, cultivating a culture of innovation and promoting attitudinal motivation for supply-side entrepreneurial behaviour, as opposed to state-dependency and demands for economic development purely for the sake of improved living standards.

The question in this instance is not whether basic education can make a contribution towards the attainment of this goal, but rather how teaching methodologies and interventionist approaches should be structured and implemented towards the attainment thereof.

2.2.3.2 Lesson 2: Profit is the main catalyst for entrepreneurial behaviour

The potential for and realisation of profit was identified as the overarching motivation driving entrepreneurial behaviour. This concept gave rise to the second theme, stating that entrepreneurs will be scarce in environments where there are no potential to make any profits. Can it then be said that aspiring entrepreneurs should be taught that making a profit is no sin?

Schumpeter's theory of the entrepreneur is largely based on self-interest. It follows that the realisation of profit is as much a driver of entrepreneurial behaviour as is the absence of any potential for profit an obstacle to entrepreneurial activity. From this perspective, it stands to

reason that the concept of profit must be embraced as a central theme in entrepreneurship education and training.

The assignment of such a central role to profit in entrepreneurial behaviour may present problems for the understanding of some modern types of entrepreneurs. As an example, both social entrepreneurs and corporate entrepreneurs ('intrapreneurs') typically engage in similar activities as their 'capitalist' counterparts, but generally for the benefit of other people or groups, or in other words, perceivably without the self-interest of the Schumpeterian entrepreneur.

In response to this contradiction, it should be considered that these entrepreneurs are also motivated by the lure of profit, albeit being profit of a different kind. It is argued that the concept of profit can (and should) be interpreted (and taught) as not only comprising monetary rewards, but also psychological rewards such as recognition, 'making a difference', self-realisation, self-satisfaction and self-fulfilment. Schumpeter proposed that entrepreneurs enjoy esteem as a result of their abilities in a capitalist society (see Hébert & Link, 1989: 44), and it is entirely conceivable that such prestige can result from creating not only own personal wealth, but also social prosperity for others.

2.2.3.3 Lesson 3: Ownership of capital and resources is optional

The third theme, stating that entrepreneurship is not about having anything, but rather about wanting something bad enough, evolved from the question whether ownership of resources is a requirement for successful entrepreneurial activity.

The classical theorists pointed out that aspiring entrepreneurs do not need capital or resources to become successful entrepreneurs, but rather confidence in their own abilities, the willingness to face severe financial difficulties and determination to reach their goals. Should one expect the reinforcement of learners' confidence in their own abilities and the development of determination and perseverance to be some of the outcomes associated with the basic education process?

Perhaps, but successful business creation cannot depend entirely on self-confidence, determination and perseverance, particularly if these outcomes (even if instilled successfully) are merely experienced as feelings of empowerment without being transformed into entrepreneurial action.

It is put forward that learners must master some basic (yet important) skills relating to new venture creation. As a basic example, bootstrapping⁵ is such a simple concept to understand, yet it has played an integral role in the creation of many prospering businesses. Knowledge of how to employ this concept will build self-confidence to engage in activities with limited or even non-existing resources; it will reinforce determination to stick to the basics to safeguard limited finances; and resultantly, it should motivate perseverance towards the attainment of set goals.

2.2.3.4 Lesson 4: Entrepreneurship is risky business

Notwithstanding attempts by some classical theorists to refute the presence of risk as inherent to entrepreneurial activity (e.g., Kirzner, Schultz, Schumpeter and Weber), it is evident that entrepreneurship is risky business with uncertain outcomes. Keynes described these uncertain outcomes as ‘fundamental uncertainty’, and explained that innovation creates an environment in which “*knowledge about future events simply does not exist at the time of decision-making*” (Dabic *et al.*, 2011: 197). Even Kirzner (Hébert & Link, 1989) and Schumpeter (Marchesnay, 2011) eventually conceded that risk and uncertainty are part of the entrepreneurial process, confirming the fourth theme that aspiring entrepreneurs should not expect to achieve anything without taking a chance on something.

Being ignorant towards the presence of risk and uncertainty when engaging in entrepreneurial activity, and not knowing how to mitigate these risks and tolerate uncertainty, are equally threatening to sustainable entrepreneurship development. Is it the responsibility of basic education to educate young learners about risk and uncertainty and to teach them how to mitigate these risks and tolerate the uncertainties?

Probably not, especially if there is any truth in the proposition that “[T]he greatest thing about risk-takers is that they think their behaviour is normal.”⁶ Basic educators would have great difficulty in transferring this level of ‘comfort’ with risk and uncertainty to young learners when considering that these educators, in general, have very little (if any) experience with the fluid and turbulent environments in which entrepreneurs operate.

⁵ Building a business out of very little or virtually nothing, relying on personal income [or pocket-money] and savings, sweat equity, lowest possible operating costs, fast inventory turnaround, and a cash-only approach to selling. Source: <http://www.businessdictionary.com/definition/bootstrapping.html>. Date of access: 8 Aug. 2011.

⁶ Posted on social network ‘Twitter’ by the author’s nephew, Regardt Steenekamp (@RegardtSteenekK), an aspiring film entrepreneur based in Hollywood, USA. <http://www.twitter.com>. Date of access: 2 Dec. 2011.

From another perspective, it is doubtful whether basic educators are equal to the challenge of striking a balance between the need for self-confidence and the dangers of being over-confident. It is documented that not enough prospective entrepreneurs in South Africa have an objective idea of the risks and challenges associated with entrepreneurship (Van der Merwe & de Swardt, 2008: 450), and entrepreneurs appear to be over-optimistic about the rewards of entrepreneurship, yet, at the same time, they underestimate the risks and sacrifices involved (Pinfold, 2001: 279).

Being overconfident when engaging in entrepreneurial activity has many implicit dangers (see Koellinger, Minniti & Schade, 2006; Forbes, 2005). The educational challenge to both educators and mentor-entrepreneurs is to raise the alarm on the risks and uncertainties associated with entrepreneurial activity, but at the same time, 'normalise' its presence by instilling the knowledge and comfort required to excel in risky, turbulent environments.

Acknowledging that this is no easy (or even attainable) task for basic education, it is still put forward that great strides can be made at the attitudinal level if learners are exposed to the 'nothing ventured, nothing gained' principle early on in their learning experiences.

2.2.3.5 Lesson 5: Anyone can exercise entrepreneurial choices

The overview of the classical theories indicated that entrepreneurs are peculiar characters (Schumpeter, 1934) providing support for the personality approach towards understanding entrepreneurship (Swoboda, 1984), but later suggested that anyone can be an entrepreneur as long as they perform certain functions in the economic process (Schumpeter, 1954).

More recently, and to the contrary, Thompson (2004: 245) argues that not everyone can be an entrepreneur and that people should not be encouraged to believe they can. The United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2008: 5) agrees that not everyone will be an entrepreneur, but recognises that entrepreneurship education should be available for all. Thompson (2004: 245) also posits that every person could, and perhaps even should, be more creative and innovative in the things they do (i.e., be more enterprising).

While recognising the peculiarity of entrepreneurs by doing things differently than other people (non-entrepreneurs), Schumpeter's de-personification of the entrepreneurial function and Thompson's call for elevated levels of creativity and innovation led to the extraction of

the fifth theme, i.e., that entrepreneurs are peculiar characters, but also that anyone should have the choice to exercise peculiar choices.

This theme suggests, with due consideration for the wide ranging levels of success to be expected from different people under different conditions, that the ‘peculiarity’ of entrepreneurs can be adopted and learnt to a lesser or greater extent, thus providing further cause for the inclusion of creative and ‘out-of-the-ordinary’ teaching methodology in basic education.

The important issue emanating from theme five is not simply whether all people can or cannot be successful entrepreneurs (or even want to be), but rather that exposure to entrepreneurship allows people to gain knowledge of the concept and enables them to exercise choice in pursuing a particular career and/or lifestyle.

2.2.3.6 Lesson 6: Ancestry is not important for successful entrepreneurship

Many people – young South Africans in particular – are so consumed by their personal surroundings that anything outside the confines of their personal experiences seems beyond their grasp or imagination. The classical theories presented some arguments that the absence of powerful economic incentives or the presence of great social obstacles may hamper the development of entrepreneurs, and that entrepreneurial activity is confined within the boundaries of certain social restrictions (see Goss, 2005; McFarling, 2000; Papanek, 1962).

The classical theories on entrepreneurship and social order (Schumpeter, 1934) proposed that entrepreneurs originate from all classes prevailing at the time of their emergence, providing support for the sixth theme that noble ancestry is not a prerequisite for successful entrepreneurship.

From this perspective, it can be argued that basic education has a major role to play in reinforcing learners’ self-confidence to break away from their personal confinements and strive towards the attainment of their own personal BHAGs (‘Big-Hairy-Audacious-Goals’).

2.2.3.7 Lesson 7: Entrepreneurs do not conform to routine

The seventh theme, describing entrepreneurship as living outside the pale of routine, originated from classical views on the differences between entrepreneurship and management and the roles of both functions in economic activity. Acting outside the pale of routine was

isolated as being exclusive to entrepreneurial behaviour, and whereas managers do not necessarily have to be entrepreneurs, entrepreneurs require managerial skills to manage their businesses.

Gibb (2007a: 4) agrees that entrepreneurship must not be confused with management, as many of the mechanisms, values and beliefs of corporate and administrative management are the antithesis of entrepreneurship. As an example of some of these mechanisms, the order, formality and transparency of management values are directly opposed to the 'untidiness', informality and ambiguity inherent to entrepreneurship.

The evolution of a new breed of modern entrepreneurs (e.g., corporate, social) has further complicated the entrepreneurial equation. Resultantly, a basic understanding of these distinctive (yet overlapping) roles and living a life removed from the comfort of routine is essential for young learners exiting school and hoping to make a meaningful contribution to economic activity in the small business sector, non-profit enterprises, or in large, multinational conglomerates. Resultantly, exposure to the unknown and living beyond the comfort of routine at a young age may embed strong future preferences for the varied types of modern entrepreneurship as a career choice.

2.2.3.8 Lesson 8: Entrepreneurship is all about a life of learning

The eighth and final theme emanating from the early economic theories describes entrepreneurship as a journey of lifelong learning. Support for the important role of education in entrepreneurship development came from various scholars, including the transfer of general knowledge (Miller, 1967); the development of human capital (Schultz, 1968); tolerance of risk (Marx, 1963); and the ability to recognise opportunities for innovation (Miller, 1967).

Adam Smith's regard for the learner (the 'student in the bookshop') as being more important than 'the leaders of the parties' (presumably the political leaders at the time) (Lockwood, 1964), provides substantial impetus for the role education has to play in sculpting favourable future outcomes for the economic and social dispensation in South Africa.

2.2.3.9 Conclusion

Reverting to the questions posed at the outset of this section, it is concluded that the lessons learnt from economics' founding fathers are indeed still relevant for the modern economic environment. Several important relationships between the classical entrepreneurship theories and the potential for the cultivation of entrepreneurial tendencies in young people were highlighted.

Throughout the discussion, entrepreneurship theory as seen through the eyes of the classical economists could be transfused into the modern classroom. This finding suggests that these lessons can and should be ingrained in the framework of basic (and further) education in South Africa, but Weber's cautionary statement – that not just any kind of education can promote economic growth (Miller, 1967) – must be reiterated: Education can only be a source of economic growth if traditional teaching methodologies are changed to a more liberating, stimulating, informative and action-oriented approach.

2.3 TOWARDS A DEFINITION FOR [THE] ENTREPRENEUR[SHIP]

The process of defining a particular concept is described as “...*the act of defining or making definite, distinct, or clear.*”⁷ Are any of the existing definitions for entrepreneurship and the entrepreneur capable of making either concept definite, distinct or clear?

Does such a definition exist in Richard Cantillon's eighteenth century description of entrepreneurship as self-employed people who bear the risk of buying at certain prices and selling at uncertain prices (Chen *et al.*, 2010: 28)? Could the lapse of a century have given sufficient time for the development of a more descriptive definition of the entrepreneur as “...*an industrial organiser; he [she] directs the productive energies of other persons*” (Clark, 1887: 604; text in brackets added)?

Should it be inferred that entrepreneurship is merely a process of buying and selling in the presence of risk and uncertainty, and that entrepreneurs are exclusively self-employed people who direct the productive energies of other people (non-entrepreneurs)? Both definitions appear factual inasmuch some conditions associated with entrepreneurial activity are concerned, but at the same time, neither one is inclusive enough to present a comprehensible picture of entrepreneurship and its main constituent, the entrepreneur.

⁷ Source: <http://dictionary.reference.com/browse/definition>. Date of access: 21 Aug. 2011.

The definitions by Cantillon (*circa* 1725) and Clark (*circa* 1887) are but two of many definitions for entrepreneurship and the entrepreneur available in the extant academic literature. The abundance of these definitions (e.g., Nieman & Nieuwenhuizen, 2009; Gibb, 2007a: 3; Mitchell & Busenitz, 2007; Timmons & Spinelli, 2007: 79; Deo, 2005; Visser, De Coning & Smit, 2005: 53; Watt, 2003: 8; Krueger *et al.*, 2000: 411; Hawley, 1901: 615) does not make the exploration of the nature of entrepreneurship and the complex wiring of the entrepreneur any easier for reasons relating to the divergent ways entrepreneurship is understood and the variety of ways being entrepreneurial (Anderson & Jack, 2008).

As an example of the complexity surrounding entrepreneurial behaviour, the term ‘entrepreneur’ is often associated with small business (Gibb, 1996), owner-management and self-employment (Kirby, 2004). According to Kirby (2004: 511), this approach constitutes over-simplification of the concept as not all owner-managers are entrepreneurs; not all small businesses are entrepreneurial; and not all large businesses are un-enterprising.

There has been much academic debate about the notion of entrepreneurship, but still there is little agreement on what the concept truly means (Gibb, 2007a: 2). This is evident from many scholars arguing that there is [still] no universally accepted definition of entrepreneurship and the entrepreneur (e.g., Kobia & Sikalieh, 2010: 110; Nafukho & Muyia, 2010: 99; Thompson, 2009; Anderson & Jack, 2008: 263; Deo, 2005; Howorth, Tempest & Coupland, 2005: 30; Kirby, 2004: 511; Gibb, 2002b: 235; Cromie, 2000: 7; Ripsas, 1998: 113; Gartner, 1989: 48; Long, 1983: 47).

Definitions of entrepreneurship have evolved from several perspectives. One approach, such as the definition of entrepreneurship as “...a way of thinking that emphasises opportunities over threats” (Krueger *et al.*, 2000: 411), is to focus on the importance of intentions for new venture creation. In this definition, the opportunity identification process is described as an intentional process, and accordingly, entrepreneurial intentions are designated as a suitable means to both explain and predict entrepreneurship.

Another similar, yet expanded approach focuses on an underlying assumption to entrepreneurial cognition research, i.e., that entrepreneurship is not only concerned with distinctive ways of thinking, but also with distinctive ways of behaviour (Mitchell & Busenitz, 2007: 3).

Schwarz, Wdowiak, Almer-Jarz and Breiteneker (2009: 276) support the intentions-based approach following their finding that previous research has indicated the necessity to improve understanding of the preconditions of entrepreneurial intent. In this approach, intentions are seen as crucial for the development of interactive models to explain entrepreneurial behaviour as a function of both the person and environmental conditions.

Yet another approach, based on the findings of Kobia and Sikalieh (2010: 110) that none of the approaches used to define entrepreneurship provide a comprehensive picture of the concept, is for researchers and educators to qualify their meaning when attempting to define entrepreneurship. It is suggested that the focus should be on the whole entrepreneurial process, rather than just concentrating on one part such as the entrepreneur, behaviour or opportunity identification. The problem is that most definitions of entrepreneurship that are based on the entrepreneurial process can only identify entrepreneurship *ex-post*, i.e., after the event, presenting further challenges for the encouragement of nascent entrepreneurs (Howorth *et al.*, 2005: 38).

It can be said that there are a number of challenges restricting the formulation of a single, universally agreeable definition for both entrepreneurship and the entrepreneur. Even empirical research on active entrepreneurs has produced divergent views: Entrepreneurs who had participated in a study by Howorth *et al.* (2005: 30) all seemed to feel that they were unique in some way, and their attitudes to risk-taking, their key roles in their businesses and their motivations for being in business varied considerably.

Consequently, Howorth *et al.* (2005: 29) conclude that entrepreneurs cannot be defined in terms of their personal characteristics, as entrepreneurship is a dynamic concept, and accordingly, definitions should be based on what entrepreneurs do. This coincides with the earlier finding by Gartner (1989: 57) that it is easier to explain the 'what' of an entrepreneur, than to specify exactly 'who' the entrepreneur is, as well as with Krueger's (1993b: 80) prescience in observing the gradual change in focus from 'who' entrepreneurs are, to 'how' entrepreneurs and their ventures came to be.

Can it be said that care should be exercised in isolating the entrepreneur for analysis by searching for one universal definition? Most of the existing definitions are a mix of the skills that characterise entrepreneurs; the processes and events which are part of the entrepreneurial process; and the results produced by entrepreneurial activity, giving rise to the call for focus

on the whole entrepreneurial process in attempts to define entrepreneurship (Kobia & Sikalieh, 2010: 110-112).

Contrary to this proposition, Howorth *et al.* (2005: 38) suggest that researchers and policy makers should rather focus on a relevant aspect of what entrepreneurs do, and then explain that the formulation of more specific definitions (relating to a specific aspect) will enable reliable comparison of different studies and give confidence that findings are not dependent on the operationalized definition of an entrepreneur.

One aspect of entrepreneurship research seems indisputable: Policy makers, researchers and educators alike are still asking “*what do we really mean when we are talking about entrepreneurship?*” The answer to this question remains unclear, and to some extent, partially concealed in the overlaps between entrepreneurship and other sub-fields of economics and social interplay. This does not mean that the existing definitions have not contributed in any way to a better understanding of the concept of entrepreneurship, and accordingly, the next section examines some definitions in continuing the search for the true meaning of entrepreneurship and the entrepreneur.

2.3.1 Defining entrepreneurship and the entrepreneur

The preceding section highlighted the abundance of definitions relating to both entrepreneurship and the entrepreneur in the academic literature, but also pointed towards the lack of both agreement on what the concept truly means and a single, universally accepted definition.

Should the existing definitions committed to paper then be considered irrelevant for further research on entrepreneurship? Evidently not, as it can be argued vigorously that these definitions have contributed liberally towards some understanding of specific aspects underlying entrepreneurial behaviour, and will continue to do so by expanding the pool of knowledge in combination with new research findings as and when they emerge (see Howorth *et al.*, 2005).

Correspondingly, some definitions of entrepreneurship and the entrepreneur were extracted from the academic literature reviewed for this study. The list to follow is by no means exhaustive, as such an exercise would have consumed several chapters without adding

significant value to the point being made, i.e., to present evidence of the lack of common agreement as to what the pursuit of entrepreneurship means.

Firstly, entrepreneurship is defined in the academic literature as:

- ✦ *“...a dynamic process of vision, change and creation. It requires an application of energy and passion towards the creation and implementation of new ideas and creative solutions. Essential ingredients include the willingness to take calculated risks – in terms of time, equity, or career; the ability to formulate an effective venture team; the creative skill to marshal needed resources; the fundamental skill of building a solid business plan; and, finally, the vision to recognise opportunity where others see chaos, contradiction, and confusion”* (Kuratko & Hodgetts, 2004: 30);
- ✦ *“...creating something different with value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risks, and receiving the resulting rewards of monetary and personal satisfaction”* (Visser et al., 2005: 53);
- ✦ *“...a way of thinking, reasoning, and acting that is opportunity obsessed, holistic in approach, and leadership balanced”* (Timmons & Spinelli, 2007:79);
- ✦ *“...an individual’s ability to establish a commercial undertaking”* (EDC, 2008: 9);
- ✦ *“...a general attitude that can be usefully applied in all working activities and in everyday life”* (European Commission in Fuchs et al., 2008: 367); and,
- ✦ *“...a willingness to take calculated risks, both personal (time, intellectual) and financial, and then doing everything possible to fulfil one’s goals and objectives. It also involves building a team of people with complementary needed skills and talents; sensing and grasping an opportunity where others see failure, chaos, contradiction, and confusion; and gathering and controlling resources to pursue the opportunity, making sure that the venture does not run out of finance when it needs most”* (Ndedi, 2009: 465).

The entrepreneur is portrayed as:

- ✦ *“...someone who organises a business venture for profit and accepts any risks or responsibilities associated with it”* (Watt, 2003: 8);

- ✦ *“...a person who recognises a gap or an opportunity in the market in his/her own area of interest and passion; seizes and converts the opportunity into a workable and marketable idea; uses effort, time, money and skills to add value to the idea; takes risks to implement the idea generally in a competitive marketplace; and endeavours to obtain the rewards for taking risk and use of resources” (Deo, 2005);*
- ✦ *“...having an eye for opportunity; being independent and learning to accept that there might not always be a pay-cheque at the end of every month; being capable of accepting change; possessing a ‘never quit’ attitude; thinking big; leading people and not managing them; building an institution that can survive without you; thinking long-term; being self-aware and having emotional intelligence; and, not wasting time trying to do everything” (EDC, 2008: 9-10); and,*
- ✦ *“...a person who sees an opportunity in the market, gathers resources and creates and grows a business venture to meet these needs. He or she bears the risk of the venture and is rewarded with profit if it succeeds” (Nieman & Nieuwenhuizen, 2009).*

Entrepreneurship and the entrepreneur have also been defined in a practical context by active entrepreneurs. As an example, Vinny Lingham (a South African technology entrepreneur and venture capitalist) describes the two concepts as follows:

- ✦ Entrepreneurship is *“[t]he ability to create a new meritocratic enterprise that can participate in an open market opportunity. This excludes businesses driven by regulatory opportunity (monopolies / oligopolies) or government spending: i.e., tenderpreneurship” (Lingham, 2011: 46); and,*
- ✦ *“[e]ntrepreneurs are the people willing to quit their jobs and take risks, either with time or capital (or both)” (Lingham, 2011: 46).*

A review of the definitions presented above indicates diverse views on entrepreneurship and the entrepreneur, thus reaffirming the lack of common agreement as to what these concepts truly mean. There are some coincidences based on the frequent use of certain words, and in an attempt to examine this phenomenon, words appearing in three or more of the listed definitions were extracted and grouped in table 2.1 on the following page.

Table 2.1 Recurring words in some definitions for [the] entrepreneur[ship]

Frequency of words in entrepreneurship/entrepreneur definitions			
Recurring word(s)	Entrepreneurship	Entrepreneur	Cumulative
Create/creation/creative	3	1	4
Risk(s)	3	4	7
Skill(s)	2	1	3
Resources	2	2	4
Opportunity	4	3	7

Two core elements of entrepreneurship and the entrepreneur emerge from table 2.1: Risk and opportunity. Notwithstanding the divergent views on entrepreneurship and the entrepreneur, the elements of risk and opportunity are not only recognised in the majority of the listed definitions (as indicated by frequencies of seven) as concepts central to entrepreneurial activity, but also seem to function together in a strong negative relationship.

Keh *et al.* (2002: 136-137) explain that the decision whether an idea is an opportunity or not will demand judgment under complex or uncertain conditions. Perceived risk plays an important role, as entrepreneurs will tend to give an opportunity a positive evaluation when the perceived level of risk is low. Businesses operating in cultures that display an unequal distribution of power and that do not embrace dealing with ambiguity, will be less likely to take risks than businesses in other countries (Kreiser, Marino, Dickson & Weaver, 2010: 976).

Opportunity recognition is the ability to “...*identify a good idea and transform it into a business concept that adds value and generates revenues*” (Lumpkin & Lichtenstein, 2005: 457), and Shane, Locke and Collins (2003: 259) suggest that the entrepreneurial process occurs “*because people act to pursue opportunities.*” Acs and Audretsch (2005: 105) believe that entrepreneurs see more opportunities than other people from signals in the environment that are filtered and processed through various mechanisms such as perception, decision-making, knowledge representation, and learning and cognitive development, and that the intentional pursuance of these opportunities is another critical distinction between entrepreneurs and non-entrepreneurs.

Searching for and discovering opportunity, as well as the decision to exploit the opportunity, is central to the process of new venture creation (Kobia & Sikalieh, 2010: 111; Shook, Priem

& McGee, 2003: 381). Hisrich and Peters (1998: 39) agree that opportunity identification and evaluation play a central role in the entrepreneurial process, and Longenecker, Moore, Petty and Palich (2006: 3) define an entrepreneurial opportunity as “...*a value-creating innovation with market potential*”, essentially making the entrepreneur a person who finds a way to create value for customers.

Support for the inclusion of opportunity as a central theme can also be found in Anderson and Jack’s (2008: 263) description of the ‘art’ of entrepreneurship: “*If we acknowledge that entrepreneurship is more than the basic and pragmatic skills to simply slot into a new business, the difference seems to lie in the novelty, the creation of new ventures, either as new businesses or as new ventures within existing organisations. We may characterise this as opportunity perception, developing these ideas into viable opportunities and pulling together resources to make this real.*”

Risk, as an underlying theme of entrepreneurial activity, was highlighted earlier as theme four in the overview of entrepreneurship theory (see section 2.2.1.3). Opportunity was not listed as a central theme in section 2.2, and the definitional emphasis on this concept as central to entrepreneurship provides sufficient cause for the formulation of the ninth theme of entrepreneurship theory.

Entrepreneurship theory: Theme 9

“Entrepreneurship is an obsession with opportunity.”

Despite the growing rhetoric enabling the isolation of certain central themes belonging to the domain of the entrepreneur, Gibb (2002b: 235) holds firm that there [still] appears to be no common agreement as to what the pursuit of entrepreneurship and the enterprise culture means. Gibb uses public policy ‘initiatives’ to infer that it can only mean “*the emergence of more small businesses; associated higher rates of small business creation; more fast-growth firms and technology-based businesses; social entrepreneurship; enterprise in public organisations and, increasingly, a basis for tackling social exclusion.*”

More recently Gibb (2007a: 2) concludes that there is almost universal agreement that the way in which individuals and enterprises create and implement new ideas and ways of doing

things, and the way in which they respond proactively to the environment and provoke change involving various degrees of complexity and uncertainty, is central to the concept of entrepreneurship.

In concluding this section, it can be put forward that universally accepted definitions for entrepreneurship and the entrepreneur remain elusive, but at the same time, that certain central themes shared by different definitions have contributed towards at least partial understanding of entrepreneurship and the entrepreneurial mind. As an overarching idea behind the concept of entrepreneurship lies the way in which new ideas and methods are both created and implemented, as well as the way in which entrepreneurs instigate change by responding to complex and turbulent environments fraught with uncertainty.

2.3.2 Redefining entrepreneurship and the entrepreneur

“Good science has to begin with good definitions” (Bygrave and Hofer, 1991: 15), and a study of this nature would not be complete without an[other] attempt to formulate that evasive, universally agreed definition for entrepreneurship and the entrepreneur.

In view of constructing these definitions, the eight themes extracted from the earlier discussion of entrepreneurship theory, as well as the ninth theme that was salient in the examination of some selected definitions, were revisited.

Having accepted the views of economics’ founding fathers as relevant for modern day entrepreneurship, and recognising the contributions made by existing, modern definitions, methodical combination of the extracted themes culminates in the following ‘new’ definition for entrepreneurship:

Entrepreneurship is an obsession with opportunity; it is a way of thinking and acting mainly outside the comfort of routine, and it demands high levels of desire, will and action to create something of value by way of using own or borrowed resources, while tolerating risk, uncertainty and both personal and financial hardship in search of financial rewards, or personal satisfaction, or both.

In conjunction with this ‘new’ definition of entrepreneurship, the entrepreneur can then be defined as follows:

An entrepreneur is anyone driven by a strong desire to learn, and who makes uncommon choices when taking action to obsessively pursue opportunity in search of creating something of value for financial reward, or personal satisfaction, or both, even in the face of severe personal and financial hardship, uncertainty and risk.

2.4 CHAPTER SUMMARY

Chapter Two set out in search of the meaning of entrepreneurship. The origins of the word ‘entrepreneur’ informed early on that entrepreneurship is not about talking – it is about taking action and exerting oneself towards the attainment of certain audacious goals. Eight central themes underlying entrepreneurship and entrepreneurial behaviour were extracted from an overview of the classical economic theories and transformed into ‘lessons’. It was evident that these lessons are still relevant for the modern environment and subsequently concluded that the core themes of entrepreneurship theory as envisaged by the classical economists can (and should) be transfused into modern teaching methodology.

Some academic and practical definitions for entrepreneurship and the entrepreneur were selected for examination in search of more central themes. This culminated in the reaffirmation of risk as a central theme in entrepreneurial activity and the exposition of a ninth theme relating to the identification and exploitation of opportunity as one of the main drivers of entrepreneurial success. The chapter concluded with the formulation of [new] definitions for entrepreneurship and the entrepreneur based on the nine extracted themes and the concomitant discussion.

The introductory quote suggested that entrepreneurs are people who dream about something that has never been, and then proceed to ask themselves why not to pursue it. The importance of dreaming as a thought-process underlying entrepreneurial behaviour is explicit, but dreaming is only a prelude to entrepreneurship: Entrepreneurship is about taking action; it is about ‘making something’ out of virtually nothing; and it is about having both the will and the determination to make ‘things’ work. Entrepreneurship is part creativity; part management; yet so much more than managing (see Hegarty, 2006: 326) or creating a business (Kuratko, 2005: 578). True entrepreneurship is about seeking opportunities, taking

risks beyond security and having the determination to push an idea through to reality (Kuratko, 2005: 578).

Why do entrepreneurs start businesses? Entrepreneurs are motivated to start a business by intrinsic rewards, their need for independence and extrinsic rewards (Choo & Wong, 2006: 47), or simply put, they start businesses to make profit (Hansemark, 1998: 30). What is the essence of entrepreneurship? Krueger (2007: 123) describes it as having an 'expert mind-set', but the meaning of entrepreneurship must be reduced to something more tangible; more graspable; and more digestible.

In common language, everything else considered, and when drilling down to the core of entrepreneurship, it is essentially about three things: Opportunity, risk and want. The essence of entrepreneurship is finding an opportunity worth pursuing, recognising the inherent risks, and wanting the envisaged outcome bad enough to tolerate those risks while pursuing the particular opportunity at almost any cost.

The overarching element seems to be the 'want'-component of entrepreneurship. Opportunity will always be around, and so will the inherent risks, but without wanting a given outcome bad enough, no one would subject themselves to the harsh realities and insecurities of a pure entrepreneurial lifestyle. The same can be said for entrepreneurship education: Learners can be taught how to seek and exploit opportunities, as well as how to mitigate risk, but the absence of 'want' (desire) effectively removes any motivation to act from the entrepreneurial equation.

People who discover opportunity do so because they want to; because they are determined to do so; and because they are set on promoting their own self-interest, regardless of whether such self-interest also holds significant benefit for other people, groups or organisations. Should it be inferred that thieves, robbers and corrupt individuals act entrepreneurial when carrying out their illegal or unethical activities, simply by virtue of promoting their own self-interest? Certainly not, as Schumpeter pointed out that entrepreneurs become esteemed in capitalist societies as a result of their abilities (Hébert & Link, 1989: 44), thus excluding 'thieves and robbers' from the entrepreneurial equation.

Financial gains from illicit behaviour cannot be justified by any reasonable person as being a 'reward' for 'effort', and it would be inconceivable for criminals and fraudsters to defend themselves by claiming 'self-fulfilment' as the objective causing their behaviour. Fortunately,

and save for the unique South African term ‘tenderpreneurship’⁸ which has been coined far too close for comfort to entrepreneurial activity, the prevalence of societal controls and criminal laws will always ensure that thieves are charged with theft; robbers with robbery; and corrupt officials for being corrupt, and not for perceivably being ‘entrepreneurs’ or acting ‘entrepreneurially’.

Self-interest, as the main motivational factor driving entrepreneurial behaviour, is largely supported by Schumpeter’s theory, and it is put forward that any attempt to understand entrepreneurship and the entrepreneurial mind must be approached from the perspective of self-interest.

Consider, as an example of the central role self-interest plays in the entrepreneurial mind, the apology Richard Branson wrote to his parents in 1967 following the small amount of time he had spent with his family over Easter due to ensuing commitments associated with his very first entrepreneurial venture (‘Student’ magazine):

You say ‘STUDENT’ is selfish and self-centred of me. ‘Possibly’ I say. But is it any more selfish than anything else one does in life? It is, in my opinion, a career like anything else. It could benefit many many [sic] more people than going to the films etc. It is a beginning to my life like university or your finals were to yours... (Branson, 2004: 35).

This leads to the firm conclusion that the true meaning of entrepreneurship is firmly rooted in the advancement of individual self-interest through the accumulation of monetary rewards, the attainment of personal fulfilment of any kind, or both. That is entrepreneurship and the entrepreneur defined, made definite, distinct and clear.

Everything else is secondary.

⁸ Tenderpreneurship: “...a unique South African term used to describe government officials, politicians and businessmen who use their power or proximity to the powerful [...] political luminaries to influence and secure government tenders and contracts.” [Political party omitted]. Source: <http://ezinearticles.com/?Black-Diamonds:-The-Feeding-Frenzy-of-the-New-Elites-in-South-Africa>. Date of access: 30 Oct. 2011.

CHAPTER THREE

LITERATURE REVIEW: CONTEMPORARY SOUTH AFRICAN CHALLENGES AND THE GENIE IN A BOTTLE

3.1 INTRODUCTION

Chapter two concluded that entrepreneurship is essentially about opportunity, risk and want (desire), but also proposed that the advancement of individual self-interest is the main catalyst driving the entrepreneurial mind.

How does this interpretation of the meaning of entrepreneurship fit into the contemporary South African environment? What are the challenges facing this country and where does this ‘genie in a bottle’ fit in? Should it be construed that there is some ‘quick-fix’ solution to South Africa’s increasing problems, simply by way of removing the stopper from some old bottle and releasing the captive magical creature inside to grant everybody’s wishes?

The danger of likening entrepreneurship to the magical features of some myth or legend in an academic study is acknowledged, but it is put forward that the entrepreneurial spirit indeed has some resemblance to this mythical creature. To give substance to this proposition, one merely has to examine the definition of a genie (‘jinni’) with an open mind.

A genie is defined as “...one in fables and stories who is confined to a lamp or bottle and who grants the wishes of whoever releases him”⁹ or “...a supernatural creature who does one’s bidding when summoned”¹⁰, and even as “...a spirit, often appearing in human form, that when summoned by a person carries out the wishes of the summoner [sic]”¹¹.

Evidently more towards the demonic side, the idiom ‘let the genie out of the bottle’ is defined as letting “...something bad happen that cannot be put right or controlled”¹², or allowing “...something bad or unwanted to happen which cannot then be stopped”¹³.

⁹ Source: <http://www.yourdictionary.com/genie>. Date of access: 31 Oct. 2011.

¹⁰ Source: <http://www.thefreedictionary.com/genie>. Date of access: 10 Nov. 2011.

¹¹ Source: <http://dictionary.reference.com/browse/genie>. Date of access: 10 Nov. 2011.

¹² Source: <http://www.usingenglish.com/reference/idioms/let+the+genie+out+of+the+bottle.html>. Date of access: 10 Nov. 2011.

¹³ Source: <http://dictionary.cambridge.org/dictionary/british/let-the-genie-out-of-the-bottle.html>. Date of access: 10 Nov. 2011.

How do these definitions resemble entrepreneurship? Although entrepreneurship is by no means some form of magic, the complex mindset of true or serial entrepreneurs is loosely comparable to that which is found in fables and stories and their elusive nature is not that far removed from the availability of bottles confining genies.

This bizarre approach in looking at entrepreneurship as the potential panacea for South Africa's challenges leaves two questions unanswered: Firstly, can entrepreneurship address the challenges facing our country, and secondly, can this genie be released in such a way that something bad, which cannot be controlled afterwards, does not happen? Accordingly, this chapter forth briefly examines some of the challenges facing South Africa and then examines the potential for entrepreneurship to address these challenges.

3.2 CONTEMPORARY CHALLENGES FACING SOUTH AFRICA

Poverty, inequality, high prevalence of HIV/AIDS, a severe shortage of skills, poor quality of basic education, unemployment, and in particular, youth unemployment: These are but some of the characteristics of modern-day South Africa (disregarding for the moment the absolute beauty and splendour of the country, its natural resources and unrivalled diversity, and its commendable position as the economic powerhouse of the African continent).

Add to the above a reversal of the steady increase in opportunity entrepreneurs in South Africa since 2004; sub-standard early-stage entrepreneurial activity (TEA) (Mwanambuyu, 2006: 52) as indicated by a significant decrease in the country's TEA rate from 8.9% in 2010 (Herrington, Kew & Kew, 2010: 4) to 7% in 2012 against the average of 28% for sub-Saharan African countries (Xavier, Kelley, Kew, Herrington & Vorderwülbecke, 2013: 24); and an established business ownership rate of only 2% (Xavier *et al.*, 2013: 27), and it becomes evident that relatively few people are starting businesses in the country and even fewer are able to sustain their businesses.

A brief discussion of each of these challenges is presented in the following sections, preceded by some facts and figures to describe the South African environment.

3.2.1 Overview of facts and figures

South Africa is the fourth largest country in Africa with a surface area of 1 219 090 square kilometres (UNESCO, n.d.: 502). The country has a population of 51.77 million people (Stats

SA, 2012: 18), up from the 44.8 million recorded in Census 2001 (Stats SA, 2005). The current population is almost 1.2 million more than the estimated mid-year population of 50.59 million people for 2011 (Stats SA, 2011b: 2). Based on Census 2011, the South African population comprises 25.2 million (48.7%) males and 26.6 million (51.3%) females, consisting of 41.0 million black Africans (79.2%), 4.6 million coloureds (8.9%), 1.2 million Indians/Asians (2.5%), 4.5 million whites (8.9%) and 0.2 million (0.5%) people from other groups (Stats SA, 2012: 19-21).

In terms of age distribution, nearly one-third of the population (29.1%) is younger than 15 years; almost another third (29.8%) is 15 to 29 years of age; and the remaining 41% of the population is 30 to more than 85 years of age (Stats SA, 2012: 28). The finding that almost 60% of the South African population is younger than 30 years of age re-enacts the impetus for a study of this nature with particular focus on youth development in South Africa.

3.2.2 Poverty in South Africa

Poverty is defined as “...*the inability of individuals, households or communities to command sufficient resources to satisfy a socially acceptable minimum standard of living*” (Acess, 2002: 1). The level of poverty in South Africa is ‘critically’ high and structural in nature (Frye, 2006: 1). A monthly income of R800 per household designated ultra-poverty in 2005, and more than half of South Africa’s children (55%) were living in these circumstances (Leatt, 2006: 27). In the same period, the majority of South Africans still perceived themselves as lacking sufficient food and income to meet their household needs. Black Africans, in particular, felt that they were lagging behind the other racial groups in South Africa in terms of access to enough food and income (Davids, 2006).

Earlier estimates of poverty by the Human Sciences Research Council (HSRC) indicated that the proportion of people living in poverty in South Africa had not changed significantly between 1996 and 2001: Approximately 57% of the population was living below the poverty income line in 2001, a figure that had remained unchanged since 1996 (HSRC, 2004: 1).

In 2002, Access (2002: 1) reported on the findings of the ‘Committee of Inquiry into a Comprehensive Social Security System for South Africa’, indicating that between 45% and 55% of all South Africans lived in poverty, depending on the measure of poverty employed. In a later study, Landman, Bhorat, Van der Berg and Van Aardt (2003: 1) reported consensus amongst most analysts that approximately 40% of South Africans were living in poverty.

Notwithstanding these substantial differences in the reported estimates, it remains alarming that even 40% of the South African population is living in poverty. The poverty gap (a measure of the annual income required by all poor households to bring them out of poverty) had grown from R56 billion in 1996 to R81 billion in 2001, indicating that poor households had sunk even deeper into poverty (HSRC, 2004: 1). Table 3.1 presents a summary of South Africa's poverty indicators by province in 2001.

Table 3.1 Poverty indicators by South African province (2001)

Poverty indicators by South African province (2001)				
Province	No. of poor people (million)	% of population in poverty	Poverty gap (R billion)	Share of poverty gap
Eastern Cape	4.6	72%	14.8	18.2%
Free State	1.8	68%	5.9	7.2%
Gauteng	3.7	42%	12.1	14.9%
KwaZulu-Natal	5.7	61%	18.3	22.5%
Limpopo	4.1	77%	11.5	14.1%
Mpumalanga	1.8	57%	7.1	8.7%
North-West	1.9	52%	6.1	7.5%
Northern Cape	0.5	61%	1.5	1.8%
Western Cape	1.4	32%	4.1	5.0%
South Africa	25.7	57%	81.3	100.0%

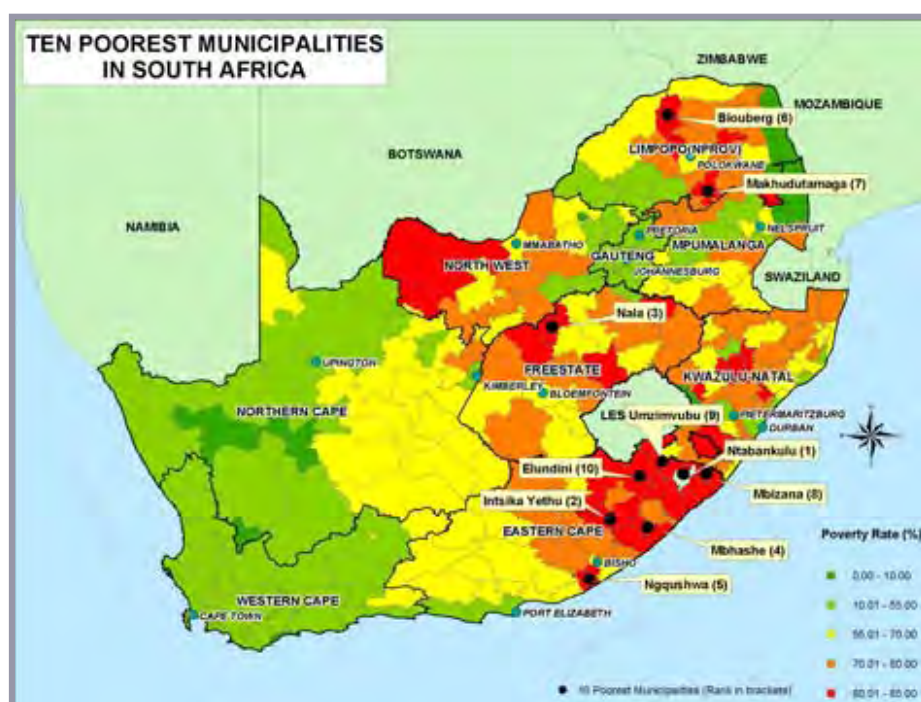
Source: HSRC (2004: 2)

Table 3.1 shows that KwaZulu-Natal had the highest concentration of poor people (5.7 million) in 2001, and consequently, also the largest share of the poverty gap (22.5%), followed by the Eastern Cape with 4.6 million poor people and an 18.2% share of the poverty gap. The Northern Cape had the lowest number of poor people (0.5 million) and shared only 1.8% of the poverty gap.

If one considers that 25.7 million people in South Africa were classified as being poor as far back as in 2001 and that their households would need a combined annual income of more than R81 billion to bring them out of poverty, it stands to reason that poverty is deeply entrenched in South African soil.

The HSRC (2004: 1) also reported estimated poverty rates for each of the municipalities in South Africa. In 2004, the majority of municipalities with the lowest poverty rates were located in the Western Cape, while seven of the 10 poorest municipalities were located in the Eastern Cape, two in Limpopo and one in the Free State. Figure 3.1 presents a colour-coded image of South Africa to illustrate the magnitude of poverty by municipal areas in 2004.

Figure 3.1 Poverty rates (%) in South African municipalities (2004)



Source: HSRC (2004: 1)

A brief explanation of figure 3.1 is justified due to the poor quality of the reprint. The areas coloured dark and lighter green represent municipalities with the lowest poverty rates, respectively 0 to 10% and 10.01 to 55%. The yellow and orange areas respectively indicate poverty rates of 55.01 to 70% and 70.01 to 80%. Areas with the highest poverty rates (80.01 to 85%) are shown in red. The ten poorest municipalities are identified by black buttons with their ranking shown in the corresponding labels.

The poorest municipality in South Africa in 2004 was Ntabankulu in the Eastern Cape where 85% of its residents lived below the poverty line (the poverty line varies according to household size; a household of four people had a poverty income threshold of R1 290 per month in 2004) (HSRC, 2004).

More recently, Tregenna (2011: 1) concludes that approximately half of the South African population is classified as poor, and projects that average annual economic growth of 8.7% between 2006 and 2014 is required to halve both the poverty gap and the poverty headcount ratio given the current distribution of income and expenditure.

In concluding this brief (and by no means exhaustive) overview of poverty in South Africa, a brief word on youth poverty is deserving. Ryan (2006: 69) calls for ‘real world’ solutions to ‘real world’ problems where unemployment, HIV/AIDS, involvement in armed conflicts, drug abuse and juvenile delinquency converge to pose a great threat to society. Ryan (2006: 69) exposes poverty as the common denominator of all these problems, and insists that there can be no uniform solution for the eradication of youth poverty. Country specific, holistic approaches are needed to eliminate or minimise these challenges by addressing poverty, as the root cause, through “*bold and determined actions.*”

It is obvious that the country is facing immense challenges to reduce poverty and bring about a socially acceptable minimum standard of living for all. The reader is referred back to section 2.2.3.1 in chapter two (lesson one from entrepreneurship theory): Can widespread poverty be addressed through a culture of state dependence and demands for economic development purely for the sake of improved living standards, or does the answer lie in the cultivation of a supply-oriented culture of innovation, action and self-reliance?

3.2.3 Inequality in South Africa

Inequality is expressed in the Gini-coefficient which measures the distribution of the national income of a country on a scale from zero to one. Values closer to zero indicate an equal society, whereas values approaching one indicate inequality (Landman *et al.*, 2003: 3). The Gini-score for South Africa was around 0.6 in 2003, down from the figure of 0.77 in 2001 reported by the HSRC (2004: 2). This is interpreted as South Africa having one of the most unequal income distributions in the world (HSRC, 2004: 2; Landman *et al.*, 2003: 3).

An unequal income distribution has a direct impact on access to services or to assets for those at the lower levels of the scale. As an example, Woolard and Woolard (2008: 81) found that 64% of black South Africans had access to formal housing in 2005, compared to 92% of coloured people, 96% of Asians/Indians and 100% of whites. Combined with further disparities in the ownership of vehicles and telephones, it is apparent that black Africans are subjected to the lowest levels of access to services or to assets among all South Africans.

In September 2010, there were 12.9 million paid workers in South Africa. Of these paid workers, 85.4% (11 million) were employees, while own-account workers and employers respectively accounted for 9.3% (1.2 million) and 5.3% (0.7 million) of total paid employment. Unsurprisingly, employers reported the highest median monthly earnings of R7 000, followed by employees at R2 800 and own-account workers at R1 820 (Stats SA, 2010: vii). The bottom 5% of the 11 million employees in South Africa reported monthly earnings of R570 and less, in contrast with the R17 000 and more of the top 5% (Stats SA, 2010: xi).

The results of the first 'Living Conditions Survey' (LCS), conducted by Statistics South Africa (Stats SA) between September 2008 and August 2009, revealed that the average annual household consumption expenditure for black African-headed households was below R45 000. This figure was nearly three times less than the corresponding figure for Indian/Asian-headed households, and almost five times less than for white-headed households (Stats SA, 2011a: 12).

Further disparities are evident in the distribution of monthly earnings for employees by population group: The median monthly earnings of black Africans (R2 167) were substantially lower than that of coloured employees (R2 652), and far removed from their Indian/Asian (R6 000) and white (R9 500) counterparts. These figures translate into black Africans having earned 22% of what the white population did; 36.1% of what Asians/Indians earned; and 81.7% of what the coloured population earned (Stats SA, 2010: viii).

On a national basis, distinct differences were also recorded between the average annual consumption expenditure for female-headed households (R51 528) and male-headed households (R89 371) (Stats SA, 2011a: 12). The median monthly earnings of South African employees (R2 800) also showed disparity between gender with the median for men at R3 033, as opposed to the R2 340 for women. In effect, women in paid employment were earning 77.1% of what men did (Stats SA, 2010: viii).

Notwithstanding the opinion that the main driver of inequality in South Africa is no longer the so-called black/white divide, but rather the emerging intra-group divide between rich and poor black Africans (Landman *et al.*, 2003: 7), the preceding discussion clearly shows that inequality in South Africa remains rife. It is put forward that the only counter-measure to inequality is equality: Equal education; equal accountability; equal employment; equal

opportunities – the list continues indefinitely. Ingraining such equality in the South African landscape will be, to say the least, a gigantic task.

At the same time, and in concluding the overview of inequality in South Africa, it should be borne in mind that equality in its broadest interpretation directly opposes the entrepreneurial spirit of ‘nothing ventured, nothing gained’: In a free market economy, the profit should (and will) go to those who take the risk (chapter two; section 2.2.1.3).

3.2.4 HIV/AIDS in South Africa

The personal risks associated with the HIV/AIDS pandemic, as well as its potential impact on friends, families and the country’s future, is a major concern for young people in South Africa (Wadula, 2006: 14). Cohen (2008: 1) reports that approximately two-thirds (21 million) of the global total of 30 million people living with HIV in 1997 were in sub-Saharan Africa. Since the start of the epidemic worldwide, an estimated 12 million people have died from HIV-related illnesses, of whom approximately nine million were black Africans.

Data from the South African Department of Health’s annual national HIV survey of women attending antenatal clinics since 1990, indicate that the country continues to have the largest number of people living with HIV/AIDS in the world (Shisana, Rehle, Simbayi, Parker, Zuma, Bhana, Connolly, Jooste, Pillay *et al.*, 2005: xix).

More than 550 000 South Africans were suffering from AIDS in mid-2005, and the total number of AIDS-related deaths recorded in 2005 approached 337 000 fatalities. This brought the cumulative number of AIDS-related deaths in South Africa by 2005 to a total of 1 477 556 people (Parker, Colvin & Birdsall, 2006: 12). One year later, Dorrington, Johnson, Bradshaw and Daniel (2006: i) projected that approximately 5.4 million (11%) of the estimated 48 million South Africans were HIV positive in the middle of 2006. At the same time, around 600 000 individuals were sick with AIDS (11% of the HIV infected).

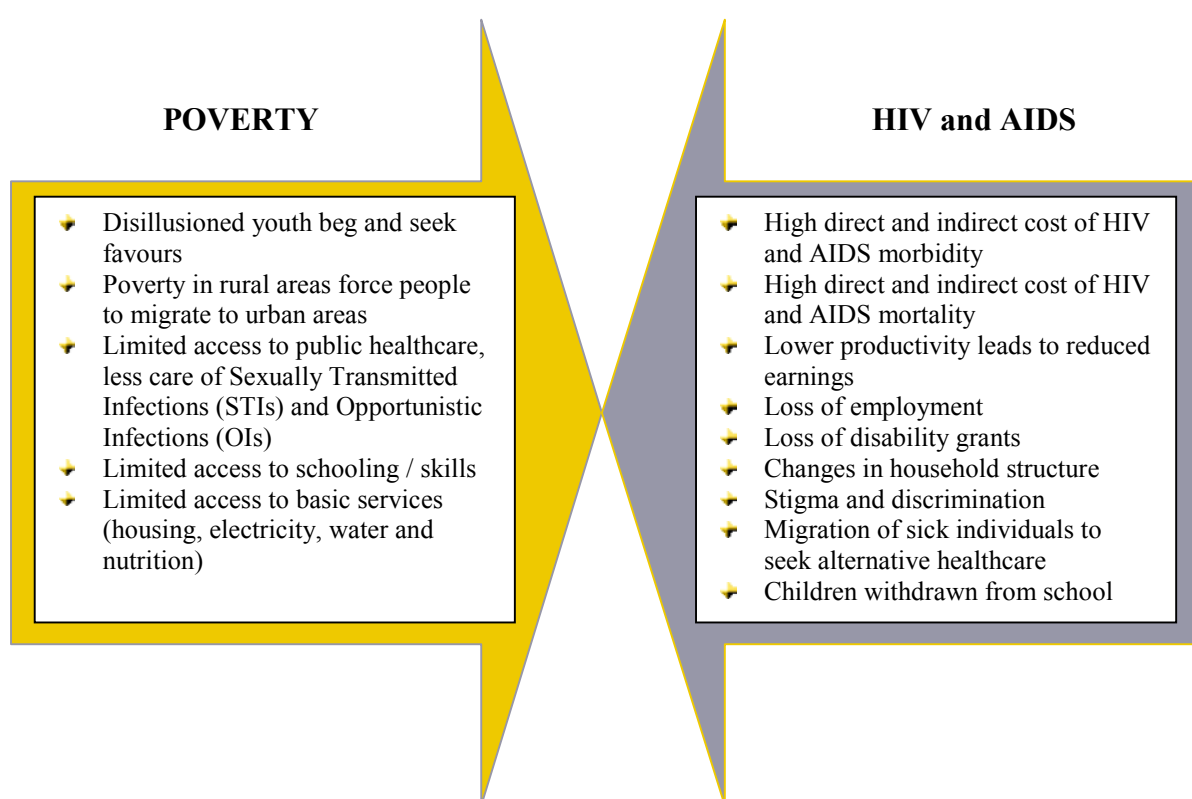
The overall HIV prevalence rate in 2011 was estimated at approximately 10.6% of the country’s population, translating into an estimated 5.38 million people living with HIV. New HIV infections for 2011 were estimated at 316 900 and 63 600 respectively among the population aged 15 years and older and children from birth to 14 years of age (Stats SA, 2011b: 2). It was estimated that there were more than 2 million AIDS-orphans living in South Africa in 2011 (Stats SA, 2011b: 8). In future terms, and using four different scenarios,

Nicolay (2006: 8) projects that between 2.4 and 5.4 million people in South Africa will be living with HIV by 2025 and that the adult HIV prevalence rate (20 to 64 years of age) will range between 7 and 18%.

From a financial point of view, HIV and AIDS expenditure by the South African National Department of Health exceeded R5.1 billion in 2007/2008 (Boulle & Cleary, 2006: 10). In terms of future expenditure, the total projected costs of HIV-related health services in the public sector for mid-2005 to mid-2024, again subject to four different scenarios, is estimated at between R144.1 billion and R284.2 billion (Boulle & Cleary, 2006: 13).

The underlying problem with HIV/AIDS is its bi-directional relationship with the socio-economic status of a country. On the one hand poverty can increase people's vulnerability to infection (Casale, 2006: 8; Ryan, 2006: 58), and on the other, HIV/AIDS can drive the already poor into even deeper levels of poverty (Casale, 2006: 8). This link between poverty and HIV/AIDS is illustrated in figure 3.2.

Figure 3.2 The poverty and HIV/AIDS link



Source: Reproduced from Naidu (2004)

Cohen (2008: 4) agrees with the above relationship between poverty and HIV/AIDS by concluding that “[T]he HIV epidemic has its origins in African poverty and unless and until poverty is reduced there will be little progress either with reducing transmission of the virus or an enhanced capacity to cope with its socio-economic consequences.”

3.2.5 Skills shortages in South Africa

Daniels (2007: 1) defines ‘skills shortages’ as “...an amorphous concept that encapsulates many specific components, but at the heart of the matter is the idea that the demand for certain skills exceeds supply.” ‘Scarce skills’, as seen by the Department of Labour (DoL) and the Sectoral Education and Training Authorities (SETA), refer to occupations experiencing “...a scarcity of qualified and experienced people, currently or anticipated in the future, either (a) because such skilled people are not available, or (b) because they are available but do not meet employment criteria” (Foodbev SETA, 2005: 42).

‘Critical skills’, on the other hand, refer to specific skills within a particular occupation, and for South Africa, these include either generic skills (e.g., problem solving, language, literacy and numeracy skills, and the capacity to work within teams), or particular occupational skills needed to perform in a given occupation (Foodbev SETA, 2005: 43).

Daniels (2007: 2) emphasises that skills shortages are not only about scarce and critical skills, as this would imply the need for some form of advanced qualification suited for highly skilled environments. Daniels points out that the emphasis on ‘high skills’ is not suitable for a developing economy such as South Africa, based on the opinion of Kraak (2004: 212) that low skill strategies are better suited to address unemployment and stimulate labour-intensive production methods.

Consequently, Daniels (2007: 2) expands the meaning of ‘skills shortages’ to include everything from the most elementary to the most advanced qualification, and ‘skills development’ as “something that may be needed for different people at different stages of their life cycle, or over the business cycle, or both.”

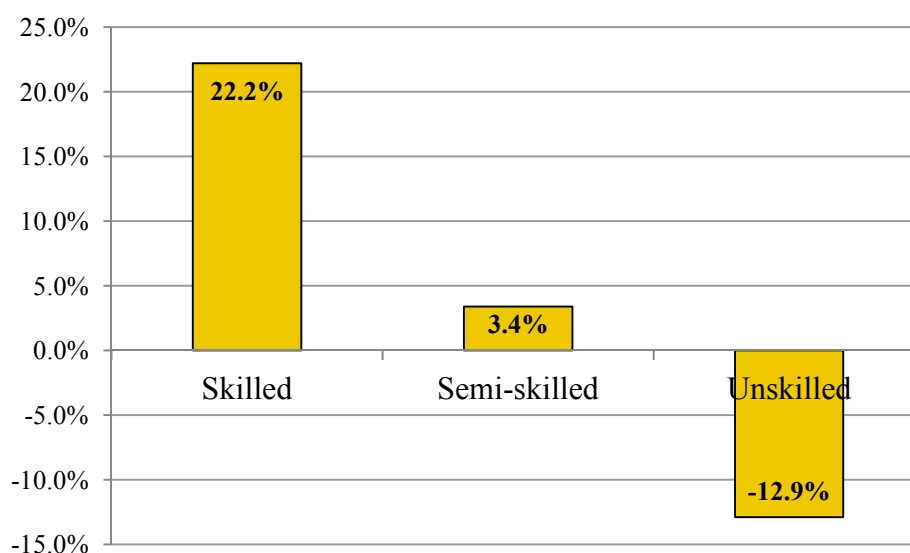
Based on the more inclusive approaches of both Kraak (2004) and Daniels (2007), it becomes clear that South Africa may be experiencing skills shortages at a level far deeper than the phrase would suggest. The varying levels of skills needed in South Africa – a developing country – are summarised by Gamble (2004) in table 3.2 on the following page.

Table 3.2 Varying levels of skills needed in South Africa

Skills needed in South Africa	
Level of knowledge/skill	Characteristic
Low	✦ Mostly trade workers ✦ Knowledge of set routines and procedures ✦ Understanding of an entire process not required ✦ Typically found in mass production environments
Intermediate	✦ Mostly craft and artisanal trades ✦ Knowledge is a combination of theory and practise ✦ Emphasis on the practical rather than the conceptual
High	✦ Mostly specialised professions (e.g., engineers, doctors) ✦ Knowledge of entire processes is required ✦ Emphasis on the conceptual rather than the practical ✦ Usually includes a managerial component

Source: Gamble (2004: 173-175)

The need for these skills becomes evident if one considers that the period 1995 to 2005 revealed a systematic shift towards skills-biased employment in South Africa (Bhorat, 2010) as shown in figure 3.3 below.

Figure 3.3 The shift towards skills-biased employment in South Africa (1995 to 2005)

Source: Bhorat (2010)

Figure 3.3 shows that skilled employment increased its share of total employment by 22.2% (up from 9% to 11%), and semi-skilled employment increased its share by 3.4% (up from

59% to 61%). Unskilled employment moved in the opposite direction and experienced a decrease of 12.9% following its share of total employment declining from 31% to 27% (Bhorat, 2010). Horn (2006: 118) and McCord (2008: 555) ascribe this significant decline in the demand for unskilled labour to structural changes in the South African economy following integration into the global market, as well as increased mechanisation and declining labour absorption in labour-intensive sectors such as agriculture and mining.

Table 3.2 and figure 3.3 raise an interesting question relating to this study: Which ‘profession’ would not only require a person to exercise knowledge and skills on all three levels (low, intermediate and high), but also to perform work normally designated to the skilled, the semi-skilled and even the unskilled, all at the same time, in order to have a fair chance at being successful? To answer this question, one should contemplate the chain of events following the launch of a small one-person business by an aspiring entrepreneur...

This raises another question: Is entrepreneurship a recognised ‘profession’? An overview of some Internet-based articles, case studies and reviews on skills shortages, scarce skills and critical skills in South Africa (African Academy, 2010; Erasmus & Breier, 2009; Calldo, 2008; Ministry of Labour, 2008) produced a long-drawn list of professions ranging from Chief Executive Officers (CEOs) to cleaners, heedfully substantiated by numbers designating the magnitude of scarcity, but without any mention of entrepreneurs or entrepreneurship.

Is this merely because entrepreneurs are expected to emerge from other professions, or has the proliferation of so many small and micro-enterprises in South Africa created the impression that entrepreneurs are in over-supply? Perhaps entrepreneurship in its truest form (i.e., opportunity entrepreneurship) has been anathematised by the South African culture for its focus on profit and its delineation of capitalism, and consequently, it is not recognised as an extremely scarce and very valuable skill. Has entrepreneurship indeed become the lost genie in a bottle, but in a way diametrically opposed to this author’s vision?

For the time being, and intentionally omitting a tedious list of scarce and critical skills in the country, the conclusion by Calldo (2008: 7) provides a concise summary of the state of skills in South Africa: The skills shortage has reached alarming proportions and the country is facing a national skills crisis...

3.2.6 Poor quality of basic education in South Africa

The Global Competitiveness Report 2010/2011 (Schwab, 2010: 303) painted a depressing picture for basic education in South Africa. The quality of primary education in the country was ranked 125th out of 139 countries and the quality of the educational system at 130th out of 139 countries. The quality of maths and science education was ranked at 137th, indicating that basic math and science programmes in South Africa were among the worst in the world.

More recently, South Africa scored the overall 52nd place among 144 countries in the Global Competitiveness Report 2012/2013 (Schwab, 2012: 37), but the quality of primary education remains poor with the country being ranked 132nd out of 144 countries (Schwab, 2012: 17). The quality of higher education and training in South Africa is more competitive with a ranking of 84th out of 144 countries (Schwab, 2012: 19), but still mediocre if one considers the role graduates and trainees have to play in the future of this country.

The problem is that widespread poverty does not provide a suitable platform for the development of children, and the poor outcomes of schooling in South Africa suggest that the growing shortfalls cannot be overcome by the current schooling system in the country (Biersteker & Dawes, 2008: 185). Herrington *et al.* (2010: 24) agree that many school-leavers do not have sufficient literacy, numeracy and livelihood skills to participate meaningfully in the South African economy.

Combined with financial restraints preventing the education sector from expanding its resources and infrastructure to cope with rapid growth (Kraak, 2008: 11), the poor quality of growth-linked programmes such as maths and science contributes largely to rising anxieties about the quality of basic education, particularly when considering that high quality basic education is the foundation of all skills training and tertiary education (CDE, 2008: 51). Chigunta, Schnurr, James-Wilson and Torres (2005: 5) agree that the growing problematic transition of young people in Africa today implies that there is no systematic process in place to prepare both in-school and out-school youth for training and employment.

High drop-out rates from formal education systems (UYF, 2008: 2; Chigunta *et al.*, 2005: 4) and minimal interventions and resources enabling young people to venture into sustainable livelihoods (UYF, 2008: 2), make the potential for basic education in South Africa to prepare the youth to make a meaningful contribution to both economic development and social upliftment in the country doubtful.

3.2.7 Unemployment in South Africa

Unemployment in South Africa is reported as being chronic and structural with the supply of labour far outstripping the levels of demand (McCord, 2008: 562). The country's capacity to absorb new recruits into the formal labour market has steadily been decreasing (Davies, 2001: 32), partly as a result of inflexibility in 'hiring and firing' regulations (Christianson, 2007: 14) and partly due to labour unions' bargaining agreements pushing entry-level wages upwards, consequently pricing out inexperienced work-seekers (Lund, 2010: 12). South Africa's unemployment rate is among the highest in the world: According to the National Treasury (2011: 13), the country's labour force represents a mere 0.5 percent of the global labour force, yet it accounts for two percent of global unemployment.

3.2.7.1 General unemployment

The South African labour market is characterised by missed opportunities for job creation. Few functioning programmes designed to reduce the costs and risks of looking for work exist; little effort has been devoted to reforming labour market regulations; and incentives for employers to use labour-intensive production techniques are hard to find (CDE, 2008: 44).

Recently, many South Africans had high expectations for favourable labour market outcomes with the hosting of the 2010 FIFA Soccer World Cup in the country. The Department of Labour (DoL, 2011: 1) tracked the benefits of this grandiose event using gross domestic product (GDP) and Quarterly Labour Force Survey (QLFS) figures produced and published by Statistics South Africa. A summary of the data is presented in table 3.3 below.

Table 3.3 Economic growth and employment in South Africa (2010/2011)

Economic growth and employment in SA (2010/2011)		
Period	Economic growth	Employment gains/(losses)
Quarter one, 2010	4.6%	Base
Quarter two, 2010	3.2%	(61 000)
Quarter three, 2010	2.6%	(86 000)
Quarter four, 2010	4.4%	157 000
Quarter one, 2011	4.8%	(14 000)
Net effect: Jobs gained/(lost) during the period:		(4 000)

Source: Department of Labour (2011: 1)

Table 3.3 indicates positive, yet erratic economic growth during the corresponding period, but also reveals that growth was not complimented by large scale employment. Contrary to the general expectation that hosting an event of this magnitude would act as a catalyst for economic growth and the reduction of unemployment in South Africa, the country had in fact shed 4 000 jobs. However, if one excludes the figures for the first quarter of 2011, it can be argued that 2010 – the year in which the event was hosted – had seen a net increase of 10 000 jobs. Even then, critics would argue that this number is far less than what was expected.

More recently, Statistics South Africa released its Quarterly Labour Force Survey for the third quarter of 2011: 4.4 million people in South Africa were unemployed and the official unemployment rate was reported at 25%. Compared to the previous year, unemployment increased by 46 000 (1%) and the number of discouraged work-seekers (people who have given up on finding employment) increased by 171 000 (8.4%) (Stats SA, 2011c: vi).

Although an additional 343 000 South Africans had found employment since the previous year, the labour force had increased by 390 000, effectively causing unemployment to rise by one percent (Stats SA, 2011c: vi). The increase in the labour force corresponds to a large extent with the 364 513 candidates who had passed the National Senior Certificate examinations (grade 12) in 2010 (Department of Basic Education, 2010b: 41).

From September 2010 to September 2011 unemployment among black Africans decreased from 29.8% to 28.9%, but unemployment among all the other population groups in South Africa increased (coloured: 22.3 to 23.6%; Indian/Asian: 8.9 to 10.8%; white: 5.1 to 5.6%). Combined for all population groups in the country, the unemployment rate improved slightly from 25.3 to 25.0% (Stats SA, 2011c: xii), but increased again to the level of 29.8% reported by Census 2011 (Stats SA, 2012: 56).

The almost one percent drop in unemployment among black Africans (third quarter 2011) is reason for celebration, but it should be borne in mind that this small win came at the expense of a combined increase of 3.7% in unemployment among the other population groups in the country. This is not to say that the inequalities in this country's past should not be addressed as is currently being done under great strain, but the unemployed cannot be legislated into prosperity by legislating the employed out of prosperity – any victory in the struggle against unemployment can only be celebrated if it is achieved without impacting negatively on any South African.

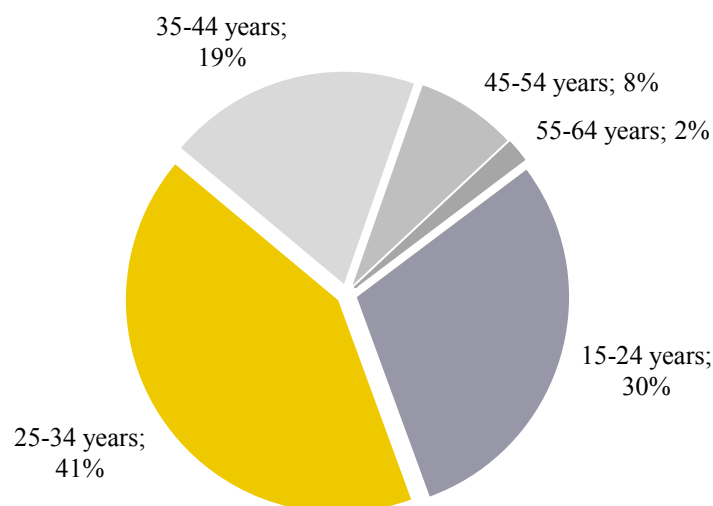
3.2.7.2 Youth unemployment

“Youth unemployment in Africa has reached alarming proportions” (Nafukho, 1998: 100). The Centre for Development and Enterprise (CDE, 2008: 5) reports that youth unemployment in South Africa is *“very extensive, and dangerously entrenched”*, and according to Nafukho and Muyia (2010: 105), has become an *“individual, organisational, community and societal issue.”* Although countries in many parts of the world face youth unemployment, the situation in South Africa is particularly extreme and presents serious threats to political stability, the long-term viability of the fiscal system and plans for a new, comprehensive social security system and social integration (CDE, 2008: 18).

The importance of youth unemployment is underscored by the fact that issues affecting the youth rest fundamentally on their lack of assets or material means: Their access to housing; health; self-concept; levels of independence; and their ability to exercise their rights as human beings, all depend on their access to assets (Ryan, 2006: 66).

More than 1.3 million South Africans aged 15 to 24 years were unemployed in September 2011. In the age group 25 to 34 years, 1.85 million South Africans were without jobs (Stats SA, 2011c: 30). Figure 3.4 below illustrates unemployment by age group for the third quarter of 2011.

Figure 3.4 Unemployment in South Africa (third quarter 2011)



Source: Stats SA (2011c: 30)

Interpretation of the data in figure 3.4 to determine the extent of youth unemployment in South Africa depends on the choice of definition for the term 'youth'. Under the South African definition, youth are defined as people aged 15 to 34 years (National Treasury, 2011: 13), which means that more than 3 million young people were unemployed in the third quarter of 2011. This figure represents 71% of total unemployment in South Africa at the time (Stats SA, 2011c: 30).

The definition adopted by the International Labour Organisation (ILO) restricts youth to individuals aged 15 to 24 years (National Treasury, 2011: 13), which would mean that more than 1.3 million young people in South Africa were unemployed at the time (30% of total unemployment) (Stats SA, 2011c: 30). When compared to global unemployment using this definition, youth unemployment in South Africa is lower than reported globally. According to the ILO, 88 million of the 186 million unemployed people in the world (47%) in 2004 were youth aged 15 to 24, even though the youth represented only 25% of the world's working population at the time (Lam, Leibbrandt & Mlatsheni, 2008: 1; UNESCO & ILO, n.d.: v).

Regardless of which definition is used, the results either way are terrifying and paint a bleak picture for the future prospects of young[er] people in this country. For as long as young people are treated as a social liability rather than the potential social and economic resource they are (Chigunta *et al.*, 2005: 69), and continue to experience exclusion from economic activity for reasons both within and beyond their control, it is doubtful whether they will care in which bracket of statistical reporting they fall.

Sutherland (1999: 349) agrees by observing that “...nowhere are the private and public benefits from investing in human capital greater than in the context of young people.” Chigunta *et al.* (2005: 69) define human capital as “...the technical, economic and social skills and knowledge that an individual has in relation to the demands of the market place”, and consequently, Ryan (2006: 59) proposes that sustainable, livelihood activities for young people should be based on a holistic approach that will recognise the provision of quality education, decent employment and proper health care, and that are integrated with plans and programmes for the development of entire societies.

At the time of writing this section, there seemed to be some positive movement towards labour market differentiation for the youth in South Africa. As a possible solution for youth unemployment, Bhorat (2010) suggests a dual labour market (youth/non-youth). This

approach fits snugly with earlier recommendations by the Centre for Development and Enterprise (CDE, 2008: 52) for a wage subsidy with a period of flexible hiring and firing for young people, and more recently, with plans by the National Treasury (2011: 36) to implement a youth employment subsidy somewhere in the near future.

Based on initial calculations by the National Treasury (2011: 42), a youth employment subsidy in South Africa “...will subsidise 423 000 new youth jobs below the personal income tax threshold and create 178 000 net new jobs for young people over three years at a cost of R5 billion in tax expenditure.” Considering the magnitude of youth unemployment in South Africa, this may be a small step, but at least, it is a step in the right direction.

Bhorat (2010) further suggests the practice of ‘picking winners in the schooling system’, but fails to qualify the proposed methodology and parameters. Perhaps this suggestion can be tied to John Stuart Mill’s earlier proposition (chapter two; section 2.2.2.4) of providing financial support to those who cannot afford a proper education, but only to those that have proven themselves worthy of the investment...

3.3 THE GENIE IN A BOTTLE

Without vision, the people will perish, so without entrepreneurship, the economy will perish (Vinten & Alcock, 2004: 188; adapted from the Old Testament, Book of Proverbs, 29:18).

Capitalism and free-market economics is now the dominant economic philosophy in the world (Jennings, Perren & Carter, 2005: 150). This philosophy is not new to the world of economics, and the value of competitive capitalism, free enterprise and economic freedom is emphasised in archaic commentary on the work of Alfred Marshall. Shove (1942: 317) wrote that free enterprise and economic freedom “...had steadily and substantially (though not without temporary setbacks) raised the real income of the mass of the people in spite of a rapid increase in their numbers.”

This unequivocally points towards the importance of an enterprising spirit in economic activity, and Gilder (1971: 258) credits this ‘spirit of enterprise’ as being “...the source of all we are and can become, the saving grace of democratic politics and free men, the hope of the poor and the obligation of the fortunate, the redemption of an oppressed and desperate world.”

Morrison (2000: 59) further adds to the importance of the enterprising spirit by designating the degree to which a spirit of enterprise exists (or the extent to which it can be stimulated) among individual members of society, as key to initiating the process of entrepreneurship. Lewis and Massey (2003b: 2) agree that an 'enterprise culture' depends upon an enterprising population of individuals, providing further propulsion for the spirit of enterprise, and Roffe (2010: 142) argues that entrepreneurs and an entrepreneurial spirit are important contributors to a modern economy.

Accepting that an enterprising spirit is a prerequisite for entrepreneurial behaviour, the question remains whether this spirit (the 'genie') can, firstly, be released by educators, parents, mentors, organised business and the government, and secondly, whether it indeed has the capacity to grant South Africans their wishes by eradicating poverty and unemployment, and promoting economic growth and social stability.

Referring back to the definition of the idiom 'letting the genie out of the bottle' in the introductory section of this chapter, raises the question whether 'liberation' of the genie will, by definition, fulfil its promise of causing 'something bad or unwanted to happen which cannot be stopped afterwards'.

For the purpose of this study, the threat of unleashing an uncontrollable spirit of enterprise is twofold: Firstly, it should be interpreted as widespread unethical, exploitative and illicit business venturing. This threat is real, as according to Xheneti (2006: 110), entrepreneurs in many transition companies have been labelled speculators and exploiters using economies of shortage and the black market to enrich themselves, and entrepreneurship is still associated with tax evasion, corruption and criminal and non-compliant behaviours in many countries.

A similar threat is 'entrepreneurs' (the so-called 'tenderpreneurs') caught up in the practice of seeking protection and favouritism from politicians and authorities while lobbying and bribing them, which drastically reduces the psychological advantage of pursuing entrepreneurship as a way of life as opposed to other career alternatives (Chilosi, 2001: 340-341).

Secondly, the danger of creating a culture of expectation for reward based on 'want' in the absence of determination to pursue opportunity and accept risk should not be underestimated. McAuley and Fillis (2005: 498) report that less than 50% of start-ups survive for more than five years, and only a small percentage develop into high-performing businesses. The

situation in South Africa is even worse with an established business rate of 2.1%, placing the country second last out of 59 countries in terms of prevalence rates for established business owner-managers (Herrington *et al.*, 2010: 4). In comparison with Taiwan, where one in 19 people manages a firm (Chen *et al.*, 2010: 35), these figures leave much to be desired.

Returning to the unanswered questions on the previous page, the first part is concerned with entrepreneurship education and training and is addressed copiously in chapter four. The dangers of unleashing a delinquent, gluttonous or irresponsible spirit of enterprise should be implied as an admonition throughout the text. The remainder of this chapter examines the second part of the question: Is entrepreneurship destined to be a key ingredient of the remedy for the challenges facing South Africa?

3.3.1 Entrepreneurship as the genie in a bottle

“Entrepreneurship is critical for South Africa’s future” (Endeavor, 2009: 9) and a possible solution for high levels of unemployment (Mkhize, 2010: 10). Although Chigunta *et al.* (2005: 13) and Herrington *et al.* (2009: 110) caution against viewing entrepreneurship as the solution to all of society’s social ills, Anderson and Jack (2008: 260) argue that it seems to offer a unique solution to problems associated with the *“increased pace and turbulence of social and economic change.”* A major concern for South African economists is the lack of job creation causing high levels of unemployment (Swanepoel *et al.*, 2010: 59), and Brijlal (2008: 25) notes that these high levels of unemployment emphasise the urgent need for entrepreneurial development.

The perceived value of entrepreneurial activity is widely debated in the academic literature. Entrepreneurship is viewed as the life source and corner stones of economic systems (Özmen & Özaltın, n.d.: 213), as well as a necessary component of knowledge-based economies (Hartshorn & Hannon, 2005: 616), and has been singled out as the panacea for stagnating or declining economies in both developed and developing countries (Matlay, 2006: 704). It has become an important economic and social phenomenon, as well as a popular research subject (Fayolle & Gailly, 2008: 569), and it is recognised as a major driver of innovation, competitiveness and growth (Karanassios, Pazarskis, Mitsopoulos & Christodoulou, 2006: 44; EU, 2005: 7).

Kuratko (2005: 578) and Hegarty (2006: 323) conclude that the formation of new businesses is a source of both innovation and the creation of wealth and employment. According to

Kuratko (2005: 578), entrepreneurial businesses make two indispensable contributions to market economies: Firstly, these businesses play an important role in innovation leading to technological change and growth in production which revitalises the renewal process that pervades and defines market economies. Secondly, entrepreneurial businesses are the essential mechanism allowing new entrants access to the economic mainstream in pursuit of their own economic wellbeing.

Entrepreneurship is seen as vitally important to create wealth and develop both societies and businesses (Hansemark, 1998: 31) and it is considered to be the key driver of socio-economic growth and development, employment opportunities, the supply of a variety of consumer goods and services, and generally improving national prosperity and competitiveness (Chen *et al.*, 2010: 35).

Accordingly, entrepreneurs are credited with being key contributors to new job creation and economic growth (Choo & Wong, 2006: 47) and they are said to contribute to economies in several ways by developing new markets; by introducing new technologies; by mobilising capital resources; and by creating employment in the private sector (Roffe, 2010: 142). It is, therefore, not surprising that Co and Mitchell (2006: 348) echo the call for rediscovery of the entrepreneur in an attempt to address unemployment and revitalise the South African economy.

3.3.2 Small businesses as the genie in a bottle

The preceding section highlighted the importance of entrepreneurship and indicated that it may indeed be the magical genie best suited to address worldwide unemployment, poverty and social instability. The small and medium-sized enterprise (SME) sector is considered to be the sector in which the entrepreneurial spirit resides (Vinten & Alcock, 2004: 188), and it is said to have the capacity to play a significant role in economic development (Klinger & Schündeln, 2007: 2).

The contribution small businesses can make towards creating a culture of enterprise (Gibb, 2006b: 265), global employment and income generation (Rocha, 2005: 365-366; Bradley & Roberts, 2004: 37; Hanley & O’Gorman, 2004: 309; Ligthelm & Cant, 2003: 41; Ladzani & Van Vuuren, 2002: 154), as well as social stability (Ladzani & Van Vuuren, 2002: 154), underscores the importance of both entrepreneurship and the formation of small entrepreneurial enterprises.

South Africa is no exception. Entrepreneurial behaviour forms the backbone of the small business sector (Bekker & Staude, 1988: 3-4) and the entrepreneur is credited with being the key factor in the successful creation of new businesses (Human, 1998: 86). These small businesses now account for an increasing proportion of economic activity (Co & Mitchell, 2006: 349) and are recognised as the 'engine' of sustainable job and wealth creation (Döckel & Ligthelm, 2005: 54; Jeppesen, 2005: 468-470; Burger *et al.*, 2004: 203; Naudé & Krugell, 2003: 5; Horton, Honderich & Modise, 2000: 45-50). Accordingly, the start-up and sustainable existence of small businesses are seen as crucial for the alleviation of poverty and economic development in South Africa (Marais, 2005: 28; Petrakis, 2005: 243).

How important are these small businesses for global economies? According to Hanley and O'Gorman (2004: 305), small businesses and micro-enterprises provide more than 75% of all private sector employment in most countries, whereas Mills and Pawson (2006: 329) report that small and medium sized businesses make up more than 95% of all businesses in New Zealand. In China, SMEs and private sector enterprises account for more than 50% of new graduate employment (Sasaki, 2006: 1).

The Organisation for Economic Co-operation and Development (OECD) estimates that 95% of businesses within the OECD are SMEs, which account for 60% to 70% of jobs in most member states. It is estimated that 19 million SMEs exist within the European Union (EU). These businesses represent 99.8% of all businesses in the EU and account for 70 million jobs, or approximately two-thirds of total employment in the region (McAuley & Fillis, 2005: 498). Consequently, and for the whole of Europe, small businesses are increasingly seen as a key component of the industrial profile of countries (Hynes & Richardson, 2007: 733).

As another example, small and medium-sized businesses represent 98% of all businesses in Hong Kong, and accordingly, it is said that entrepreneurs are one of the territory's most important assets (Cheung, 2008: 500). For China as a whole, small and medium business development has become so important that its 2003 SME Promotion Law requires local governments to develop support services giving entrepreneurs access to the resources and inputs required to start and grow new ventures (Atherton, 2008: 642). China became the fourth largest and fastest growing economy in the world in 2005 and small and medium-sized enterprises were at the forefront of this phenomenal growth (Millman, Matlay & Liu, 2008: 805).

The flexibility of small businesses makes them particularly suited for labour market and employment policies. These businesses can make a significant contribution to regional and local development and may play a major role in service provision, thus enabling others to participate in the workforce (Hanley & O’Gorman, 2004: 305). The Small Business Research Centre at Kingston University in the United Kingdom (SBRC, 2010: 4) agrees that the rationale for fostering a small-business economy is vested in the ability of small businesses to create both self-employment and jobs for other people.

3.3.3 Youth development as the genie in a bottle

Globalisation is an economic force, a strong wind, sweeping over our existence, infiltrating our homes, places of work, and places of worship. It grips the minds of our youth, causing them to act and think out of the box. We need to foster a mind shift away from government dependency to self-enlightenment and empowerment of the individual. This is a prerequisite for the promise and hope of a better life under entrepreneurship (SEDA, 2009).

It is evident from the above, and also by popular conception, that entrepreneurship has become a crucial instrument to address unemployment and social exclusion among young people (Xheneti, 2006: 104). The European Union (EU, 2004: 10) views the encouragement of the enterprising spirit in young people as a pre-condition to achieving progress in employment, growth, competitiveness and innovation, especially in the longer term.

The increasing role that self-employment plays in job creation across the world and the improvement of social attitudes towards entrepreneurship as a career choice among young people (Chigunta *et al.*, 2005: 15), exclaims the need for the promotion of youth entrepreneurship to build an enterprising culture.

Steenekamp *et al.* (2011b: 314) agree that youth entrepreneurship has an important role to play in South Africa’s efforts to promote a business environment conducive to sustainable growth, as well as economic and social prosperity. From a youth perspective, Brijlal (2008: 31) argues that entrepreneurial development is crucial for the integration of large numbers of young people into the South African economy by developing skills that can be transformed into a meaningful living.

Youth entrepreneurship is not only a means to foster employment opportunities or to address social exclusion, but an entrepreneurial environment can also act as an outlet for many highly educated young people to excel in areas such as information technology, biotechnology and other modern industries (Xheneti, 2006: 105). It further equips young people with life skills that will enable them to participate actively in their communities, in turn, contributing towards a stronger civil society (Broadbent & Ovens, 2004: 89-90).

According to Ndedi (2009: 463-464), there are three key rationales for supporting the development of young entrepreneurs in South Africa: Firstly, entrepreneurship plays a central role in innovation, economic growth and job creation; secondly, it has the capacity to improve the welfare of the nation by empowering young people to earn their own livelihood; and thirdly, it can contribute towards social and economic empowerment by increasing the self-esteem and confidence of young people, effectively giving them greater control over their lives.

3.3.4 The padlock on the genie's bottle

It is evident from the preceding sections that entrepreneurship has a crucial role to play in South Africa, and more to the point, that it is indisputably a key ingredient of the remedy for at least some of the most pressing challenges facing the country. This finding not only exclaims that the 'mystical bottle' is indeed real, but also that it has been in plain sight for many years. This raises another question: Why has the genie (the entrepreneurial spirit) not been released in South Africa?

Can it be, and with particular reference to the poor levels of entrepreneurial activity in South Africa (Xavier *et al.*, 2013; Simrie *et al.*, 2012; Herrington *et al.*, 2010), that the padlock on the bottle (barriers obstructing the free flow of the enterprising spirit) is so secure that any attempt to release the magical genie inside is met with failure or disappointment?

These barriers are a topic of discussion in much of the extant academic literature (Herrington, Kew & Kew, 2010; 2009; 2008; Choo & Wong, 2006; Rouse & Jayawarna, 2006; Slack, 2005), and include, especially for deprived and disadvantaged groups, and most certainly among many other factors, the following:

- ✦ Absence of local role models (Rouse & Jayawarna, 2006: 388; Slack, 2005: 448).
- ✦ Compliance costs associated with owning a business (Choo & Wong, 2006: 47, 60).

- Hard realities of an entrepreneurial lifestyle (Choo & Wong, 2006: 47, 60).
- Inadequate specialist and mentoring support (Rouse & Jayawarna, 2006: 388; Slack, 2005: 448).
- Insufficient and ineffective government programmes and policies (Herrington *et al.*, 2008: 30).
- Lack of affordable access to childcare (Rouse & Jayawarna, 2006: 388).
- Lack of business skills (Choo & Wong, 2006: 47, 60; Slack, 2005: 448).
- Lack of confidence (Choo & Wong, 2006: 47).
- Limited access to finance (Herrington *et al.*, 2009: 15; Choo & Wong, 2006: 47, 60; Rouse & Jayawarna, 2006: 388; Slack, 2005: 448).
- Low levels of entrepreneurial capacity and technology transfer (Herrington *et al.*, 2008: 30).
- Poor quality of education (Herrington *et al.*, 2008: 30), especially in maths and science (Herrington *et al.*, 2009: 15).
- Regulatory environments that are not supportive of entrepreneurship (Herrington *et al.*, 2009: 15).
- Social and entrepreneurial factors discouraging entrepreneurship as a career choice (Herrington *et al.*, 2009: 15).

In addition to the above, entrepreneurship in South Africa suffers from unique factors limiting entrepreneurial activity, including an unconvincing enabling environment, a weak entrepreneurial culture and a limited body of knowledge surrounding the topic of entrepreneurship and entrepreneurship development (Antonites & Wordsworth, 2009: 69). Another problem facing the release of the entrepreneurial spirit is that most individuals only choose entrepreneurship in response to external pressures such as unemployment, redundancies, workplace frustration and the need for greater flexibility in their lives, instead of going the entrepreneurial route to satisfy their need for independence (Kobia & Sikalieh, 2010: 121).

Notwithstanding these barriers and their associated challenges, it is imperative that the release of the entrepreneurial spirit in South Africa be expedited to change the prevailing mindset instilled by the current education system, causing learners to favour employment in big (corporate) businesses (Brijlal, 2008: 25) rather than pursuing self-employment and an entrepreneurial lifestyle.

Perhaps increased emphasis on the modern environment where individuals are faced with greater uncertainty in all aspects of life, ranging from uncertainties with regard to job and financial security, personal life and relationships, and as consumers exposed to an ever growing choice of products and services, will give heed to the warning by Gibb (2007a: 7) that the future will present a demand for all kinds of entrepreneurial behaviours.

Perhaps better understanding of the fact that entrepreneurs bring about benefits not only for themselves, but also for their immediate surroundings, their regions and the country as a whole which permeate to business, social and community development (Roffe, 2010: 142), will realise more support for the development of entrepreneurship in South Africa. Moreover, and apart from the positive correlation between entrepreneurship and economic performance, entrepreneurship also offers something else to society: It is a vehicle for personal development and one of the most efficient and effective antidotes to unemployment (Karanassios *et al.*, 2006: 44).

Perhaps the greatest impetus for the development of an entrepreneurial culture in South Africa emanates from the earlier discussion of the skills shortage in the country. Section 3.2.5 highlighted the shift towards skills-biased employment and warned of an impending national skills crisis. Against this, McCord (2008: 563) argues that the shortage in skilled labour in South Africa is significantly smaller than the surplus in unskilled labour, and accordingly, the unmet demand for skills is of limited significance in comparison with the scale of unemployment in the country.

This phenomenon finds expression in the earlier finding by Le Roux, Pretorius and Millard (2004: 37) that many young people in South Africa find themselves without work after completing secondary school (grade 12), and often without the intention to work for themselves, but rather aiming to find employment in the formal sector. Co and Mitchell (2006: 349) and Isaacs *et al.* (2007: 619) concur that South African learners are not motivated to create jobs, but rather to seek employment in big businesses to secure a stable income.

Given the composition of the economy's current demand for labour, McCord (2008: 563) questions the potential for training interventions focused on producing skilled and semi-skilled workers to secure employment for a significant portion of the unemployed. This finding suggests the urgent need for a paradigm shift in South Africa from educating and training the unskilled, unemployed labour surplus to compete with the employed, to

interventions focused on arming the young, potentially unemployed with skills to create employment for themselves and for others.

3.4 CHAPTER SUMMARY

This chapter set out to highlight the contemporary challenges facing South Africa and examine whether the extant academic literature holds any solution to address these problems in some sustainable way.

Entrepreneurship, or more specifically, the entrepreneurial spirit, was likened to the ‘genie in a bottle’, a mythical creature said to grant the wishes of anyone who releases it from the confines of a bottle or a lamp. Incorporation of the idiom ‘letting the genie out of the bottle’ early on called for caution as it is, by definition, associated with causing something bad to happen which cannot be controlled afterwards.

This comparison led to the formulation of two specific research questions: Can this genie, or in business language, entrepreneurship, successfully address these challenges, and can the genie, or in this case, the entrepreneurial spirit, be released in such a way that something bad does not happen?

A synoptic exposé of the challenges facing South Africa, including poverty, inequality, HIV/AIDS, the shortage of skills, poor quality of basic education, unemployment and sub-standard levels of entrepreneurial activity was presented. The literature review confirmed that these challenges are extensive and deeply entrenched in South African soil, and pointed out that young people continue to be marginalised and treated as a social liability, instead of the potential social and economic resource they in fact are.

This finding reiterated the call for the inclusion of young people in the economic mainstream in South Africa, and consequently, the literature review proceeded to examine the potential of an enterprising spirit and its vocation, entrepreneurship, to address the stumbling-blocks on the country’s path towards the eradication of poverty, sustainable economic growth and social stability.

The resulting discussion firstly confirmed that an enterprising spirit is fundamental to initiating the process of entrepreneurship, and secondly, that this spirit of enterprise is crucial for modern economic activity. A third research question surfaced, asking whether the

enterprising spirit can be released successfully by educators, parents, mentors, organised business and the government.

The subsequent discussion focused largely on the question of whether entrepreneurship has the capacity to redress at least some of the challenges facing South Africa, and in search of the answer, the proverbial genie was placed in three different, yet overlapping roles as the champion of entrepreneurship, the fertiliser for small businesses and the incubator of youth development.

Based on the literature reviewed for this part of the study, the spirit of enterprise performed exceptionally well in all three roles and clearly showed that entrepreneurship in general, the formation of small [entrepreneurial] businesses and youth entrepreneurial development all have the capacity to bring about significant improvements in many [most] of South Africa's ills.

The discussion also revealed that the 'mythical bottle' (the so-called 'rainbow nation') confining the 'genie' (the spirit of enterprise) has been around all along, and resultantly, questioned why this genie has not been released in South Africa. A number of barriers limiting entrepreneurial activity were presented – some on a global scale and some unique to the South African environment – in an effort to provide an explanation for the poor levels of entrepreneurial activity in the country.

Although these barriers are deeply entrenched in the South African landscape, a call was made for the immediate release of the entrepreneurial spirit. In an attempt to reinforce this plea, some concluding arguments from the academic literature were presented to reiterate the importance of entrepreneurship, and in particular, youth entrepreneurship development.

These arguments included a warning by Gibb (2007a) that the future will present a demand for all types of entrepreneurial behaviour; that entrepreneurship is a proven vehicle for personal development and ideally suited to address unemployment (Karanassios *et al.*, 2006); that the benefits associated with entrepreneurial activity permeate to all levels of national development (Roffe, 2010); and finally, that the magnitude of the surplus in unskilled labour in comparison with the shortage in skilled labour (McCord, 2008) urgently calls for the development of the young, potentially [probably] unemployed to create employment for themselves and their peers.

Returning to the three research questions emanating from this chapter, and in response to the first question asking whether entrepreneurship has the capacity to redress the challenges facing South Africa, it is concluded that entrepreneurship is indeed *the* key ingredient of the remedy for the country's growing ailments, as well as the 'growth engine' for the country's economy. Consequently, it is proposed that competent entrepreneurs be elevated to the highest possible level of both scarce and critical professions, and that entrepreneurship receives urgent, expansive and continued development in South Africa.

In response to the second question, the dangers associated with 'letting the genie out of bottle' and its similarities with an uncontrollable spirit of enterprise were discussed in section 3.3. To conclude this chapter, it would suffice to say that true entrepreneurship has never been and will never be about exploitation, illicit business venturing, unethical behaviour, corruption, non-compliant activities or bribery.

It is for this reason that Gibb (2002a: 136) defines effective entrepreneurial behaviour as "*...that which is morally and ethically acceptable within the conventions of society and which enables individuals and organisations to fulfil their objectives more wholesomely.*" From this perspective, 'tenderpreneurs' are not entrepreneurs, and any doctrine to the contrary should be discarded with contempt.

Any tenet encouraging entrepreneurial behaviour simply by guaranteeing personal reward is unfounded, as it will only contribute towards the statistics of failed start-ups in South Africa. 'Want' is only one component of the entrepreneurial equation, and although chapter two concluded that it appears to be the overarching element, it cannot function without the other two elements of actively seeking opportunity and taking risks.

This should act as a stern warning to both prospective entrepreneurs and entrepreneurship educators, as the 'want' in entrepreneurial activity must never create a culture of expectation. One of the core entrepreneurial values and beliefs is that 'hard work brings its rewards' (Gibb, 2006a: 35). True entrepreneurs expect nothing – instead, they make things happen by seeking opportunity, by taking risks and by having the determination (i.e., 'want') to push an idea through to reality (see Kuratko, 2005: 578).

Third and finally, can the enterprising spirit be released successfully by educators and other stakeholders in South Africa? For now this question remains unanswered, but in agreement with Le Roux and Steyn (2007: 330), it should be implicit that the encouragement of

sustainable entrepreneurial activity among the general population presents an enormous challenge to policy makers, thought leaders and various stakeholders in South Africa.

One merely has to substitute creativity with entrepreneurship in the following extract from De Bono (1971: 219; words in [brackets] added) to grasp the extent of the challenge facing the successful release of the genie that is entrepreneurship:

We tend to regard creativity [entrepreneurship] as something brought about by chance, or as the by-product of an ego-seeking temperament, or as a mysterious magic gift which some people have and others do not. Creativity [Entrepreneurship] is all these things, but only because we have made no attempt to introduce discontinuity into our thinking in any other way.

CHAPTER FOUR

LITERATURE REVIEW:

ENTREPRENEURSHIP EDUCATION – REALITY OR MYTH?

4.1 INTRODUCTION

Can entrepreneurship be taught? Chapter two hinted that educators may not be up to this challenge, and chapter three concluded that the release of an enterprising spirit among the South African population presents an enormous challenge to policy makers, thought leaders and various stakeholders in the country.

The instilment of an enterprising spirit in society is associated with many challenges. The first challenge is that entrepreneurship, by virtue of its meaning, functions in a paradoxical environment. The entrepreneur sets up a business in search of independence, but ends up dealing with a whole series of interdependencies on customers, staff, suppliers, bankers, regulators and accountants (Gibb, 2006b: 271).

Entrepreneurs are seen as the ultimate expression of individuals with free will to determine their own destiny, but governments demand that free will is exercised in a manner that benefits both the economy and society (Jennings *et al.*, 2005: 150). One would then expect governments to play an integral role in providing direction to achieve a sustainable balance between exercising free will and creating benefits for the economy and society, but in South Africa, interventions implemented by the government to develop entrepreneurship do not seem to be making significant progress (Pretorius & Włodarczyk, 2007: 504).

Entrepreneurship extends far beyond the domain of the small business owner-manager sector with which it is ubiquitously linked. The entrepreneur is directly linked with the championing and initial development of new businesses, but at the same time, new businesses replicating something already in existence do not necessarily fall within the definition of being ‘entrepreneurial’ (Thompson, 1999: 210).

Growth of a business beyond a certain point also presents a paradox when it calls for the building of highly structured enterprises and the development of cooperative teams, which will sooner than later test the willingness of the founding entrepreneur(s) to ‘let go’ of the

businesses in which enormous amounts of time, passion and sweat-capital have been invested (Thompson, 1999: 210).

An entrepreneurial lifestyle is characterised by a blend of extreme opposites. Frans Aupa Indongo, a lifelong entrepreneur and founder of the Frans Indongo Group in Namibia, explains: *“I have such an exciting life behind me. I was young and became old now. I suffered initially but experienced comfort later. I know worries and I know happiness. I know failures and I know success”* (Indongo, 2011: 5).

It follows that entrepreneurs are expected to determine their own destiny, but also to take the responsibility for others; they are expected to grow the economy and strengthen society, but should not expect any support to achieve these goals; they are designated to champion new businesses, but they could never achieve status as ‘true entrepreneurs’; they are expected to grow these businesses, but may be called upon to walk away after this goal has been achieved; and finally, they may experience the sweet taste of comfort, happiness and success, but probably not before biting off large chunks of suffering, stress and failure.

Is it possible for educators and other stakeholders to instil sufficient levels of tolerance for these ambiguities, as well as the knowledge to overcome the inherent uncertainties and risks?

4.2 CAN ENTREPRENEURSHIP BE TAUGHT?

It is becoming clear that entrepreneurship, or certain facets of it, can be taught. Business educators and professionals have evolved beyond the myth that entrepreneurs are born, not made (Kuratko, 2005: 580).

The question whether entrepreneurship can be taught is debated extensively in the academic literature (e.g., Chen *et al.*, 2010; Roffe, 2010; Athayde, 2009a; Anderson & Jack, 2008; Dickson, Solomon & Weaver, 2008; Müller, 2008; Gibb, 2007a; Klinger & Schündeln, 2007; Gibb, 2006a; Hegarty, 2006; Frank, Korunka, Lueger & Mugler, 2005; Henry, Hill & Leitch, 2005a; 2005b; Kuratko, 2005; De Faoite, Henry, Johnston & Van Der Sijde, 2003; Peterman & Kennedy, 2003; Dana, 2001; Gorman, Hanlon & King, 1997).

From a theoretical point of view, Dana (2001: 405) argues that entrepreneurship must be linked to Kirznerian literature (see chapter two) to argue successfully that entrepreneurs are made and that entrepreneurship can be taught. This approach is vested in Kirzner’s

description of entrepreneurship as the identification of opportunities for profit, without actually creating the opportunity itself. To the contrary, when entrepreneurship is equated with Schumpeterian literature, and in particular the causing of disequilibrium, it can be argued at length that entrepreneurs are born rather than made (Dana, 2001: 405).

Hegarty (2006: 325) supports the notion that entrepreneurs are born, but concurrently argues that they are created by their individual experiences as they grow and learn from their environment, indicating that entrepreneurship is a 'learnt phenomenon'. Gibb (2006a: 5) agrees with Schumpeter's (1934) theory that some people are innately more entrepreneurial than others, but upholds an earlier argument (Gibb, 1993) that all individuals have some entrepreneurial characteristics. According to Gibb (2006a: 5), the factor deciding whether these characteristics are developed or not relates to the design of both environments and enterprises that will either stimulate or suppress entrepreneurial behaviour.

Some scholars (Athayde, 2009a; Dickson *et al.*, 2008; Bjerke, 2007; Frank *et al.*, 2005; Henry *et al.*, 2005a; 2005b; Kuratko, 2005) suggest that entrepreneurship, or at least some aspects of entrepreneurship, can be taught successfully in general education, and that entrepreneurship education has a positive influence on the decision to become an entrepreneur (Müller, 2008: 2). Anderson and Jack (2008: 265) concur, based on the outcome of some empirical studies indicating that educational programmes can positively influence entrepreneurial attributes.

One such study is a 10-year literature review of enterprise, entrepreneurship and small business management education conducted by Gorman *et al.* (1997: 63). The empirical studies surveyed as part of the research project indicated that entrepreneurship can be taught, or at least, encouraged by entrepreneurship education. Gibb (2007a: 2) agrees that the 'weight of opinion' supports the notion that entrepreneurial attributes can be influenced considerably through education, and further argues that entrepreneurial behaviour can be encouraged both within the context of standard curriculum subjects and within a more specific business education context.

These findings confirm that entrepreneurship can be taught, but can it be taught successfully in South Africa? Numerous factors impacting on the success of entrepreneurship education are underscored in the remainder of this chapter, as well as in the greater part of chapter five. The empirical study discussed in chapters seven, eight and nine specifically examines the

capacity of *ad hoc* entrepreneurship training to develop an entrepreneurial mindset in young learners, and accordingly, the question whether entrepreneurship can be taught successfully in South Africa remains unanswered for the time being.

4.3 ENTREPRENEURSHIP OR ENTERPRISE, EDUCATION OR TRAINING?

The words ‘entrepreneurship’ and ‘enterprise’ are often used interchangeably in the academic literature, as is the case in this study. Similarly, the transfer of knowledge and practical capabilities for the development and release of an enterprising spirit is classified in the academic literature as either ‘education’ or ‘training’.

Are these words indeed interchangeable, or does improper use contribute to either overly simplistic or increasingly complex models of entrepreneurship theory and teaching? Matlay (2008: 383) argues to this effect by observing that the “*failure to mitigate definitional divergence in the field of entrepreneurship has resulted in a polarisation of emergent theory.*”

Mwasalwiba (2010: 21) agrees that different interpretations of entrepreneurship, enterprise and the entrepreneur have far-reaching effects on the understanding of the objectives of entrepreneurship as a field of study. These effects, according to Mwasalwiba (2010: 21), influence both specific course objectives and the design of course content, as well as the choice of target audiences and the teaching methods applied. Ultimately, it is argued, these different interpretations have an impact on the evaluation of progress and the design of impact assessment frameworks.

Not unlike calls by the European Commission (EU, 2004: 61) for the adoption of a definition for entrepreneurship education as a reference for activities to be developed at national level and for data collection, South African policy makers and educators can greatly benefit from understanding the meaning and objectives of different words and phrases relating to entrepreneurship education.

4.3.1 Entrepreneurship education versus enterprise education

Is there a difference between entrepreneurship education and enterprise education, and between entrepreneurship or enterprise education and management, business or economic studies?

The academic literature clearly distinguishes between entrepreneurship education and management or business education. These differences were highlighted in chapter two (sections 2.2.2.3 and 2.2.3.7), and are supported by Hegarty (2006: 326) in noting that entrepreneurship has to be different and clearly about more than management. Urban (2006: 93) maintains that traditional management courses are functionalist by design and fail to acknowledge the stage of business development which is a crucial element of entrepreneurship education. Solomon (2007: 171) agrees by arguing that the specific nature, skills and business life cycles inherent in new ventures differentiate entrepreneurship, and therefore entrepreneurship education, from traditional business education.

From a similar perspective, the European Union (EU, 2004: 12) maintains that an innovative and cross-curricular approach is required to teach entrepreneurship as a subject in its own right, and consequently warns against confusing entrepreneurship education with general economic studies. Although certain overlapping concepts such as the transfer of basic knowledge regarding the functioning of economies and the role of entrepreneurs, as well as basic management education are acknowledged, it is put forward that the aim of entrepreneurship education is to stimulate personal skills forming the basis of entrepreneurial behaviour from an early age and to encourage self-employment as a career option (EU, 2004: 12).

The differences between entrepreneurship education and enterprise education are more subtle. Gibb (1993; 2002b) interprets the two phrases as conceptually the same but contextually different, and adds that ‘entrepreneurship education’ is mainly used in America and Canada while ‘enterprise education’ is native to European countries such as the United Kingdom and Ireland (Gibb, 1993). Mento and Friedrich (2007: 222) agree that the phrases ‘enterprise education’ and ‘entrepreneurship education’ are used differently between continents (contextually different), and not within continents (conceptually the same).

Other scholars (e.g., Jones & Iredale, 2010; Garavan & O’Cinneide, 1994) insist that entrepreneurship education and enterprise education are different concepts altogether. Garavan and O’Cinneide (1994: 4) argue that entrepreneurship education is aimed at directly stimulating entrepreneurship by developing opportunity-seeking individuals, whereas enterprise education has the development of enterprising people and the inculcation of an attitude of self-reliance as the overriding goals.

Jones and Iredale (2010: 11) maintain that a key differentiator between entrepreneurship and enterprise education lies in the pedagogical approach that is adopted. The primary focus of entrepreneurship education is on starting, growing and managing a business, whereas enterprise education is primarily focused on the acquisition and development of personal skills, abilities and attributes that can be used throughout the course of life. As a consequence, entrepreneurship education may use traditional didactic approaches to teaching mainly theoretical knowledge of the new venture creation process, in contrast with the more creative, innovative pedagogical approaches in enterprise education (Jones & Iredale, 2010: 11).

It is acknowledged that enterprise education has obvious links with entrepreneurship, but simultaneously argued that it is more than learning how to start a business: It advocates action; it supports experiential learning; and it allows for work-related learning. The emphasis is on the freedom of an individual to “*change, grow, develop, act on and adapt to opportunities, circumstances and contexts*” (Jones & Iredale, 2010: 12).

From this perspective, it can be argued that enterprise education is much broader than entrepreneurship education, and that it addresses the needs of a wider range of stakeholders, including consumers and the community (Jones & Iredale, 2010: 11). Anderson and Jack (2008: 259) also seem to acknowledge that enterprise education is a broader concept in commenting that teaching techniques for entrepreneurship education “*need to reflect the different roles that encompass enterprise.*”

Entrepreneurship education in South Africa cannot function in isolation from the objectives of enterprise education as outlined above. The challenges facing the country are just too great for a blinkered approach, and accordingly, it should be implicit from the preceding discussion that entrepreneurship education must be practised in its widest interpretation (i.e., ‘enterprise-entrepreneurship education’) to have any chance at developing and releasing the spirit of enterprise among the population.

The United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2008: 10) contend that definitions of entrepreneurship education in developed countries (focused on aspects such as creativity, innovation and thinking outside the box) are different from those in developing countries (focused on developing a positive attitude towards entrepreneurship and self-employment).

It should be clear from the preceding discussion that any attempt to release the spirit of enterprise in South Africa must be approached with due consideration for contextual differences between this country and developed countries from which the conceptual similarities between entrepreneurship and enterprise education originate.

4.3.2 Entrepreneurship education versus entrepreneurship training

Enterprise and entrepreneurship education were combined in the preceding section to coin the phrase ‘enterprise-entrepreneurship education’ as a prerequisite for the release of the spirit of enterprise in South Africa. This approach makes provision for *education*, but does not explicitly include *training*, and this raises the question whether there are any differences between these two words often used interchangeably in academic research.

Isaacs *et al.* (2007: 613) conclude that schools can have the most (holistic) profound impact on youth development, and accordingly, identify education as key to the success of establishing a culture of entrepreneurship in South Africa. But what is meant by ‘education’? Does education have the capacity to produce entrepreneurs? Does it encircle ‘training’ in the form of interventionist programmes aimed at delivering the actionable skills required for entrepreneurial behaviour?

Martínez, Levie, Kelley, Sæmundsson and Schøtt (2010: 8) explain the differences between education and training in their definitions of entrepreneurship education as “...*the building of knowledge and skills either ‘about’ or ‘for the purpose of’ entrepreneurship generally, as part of recognised education programmes at primary, secondary or tertiary-level educational institutions*”, and entrepreneurship training as “...*the building of knowledge and skills in preparation for starting a business.*”

Although these words (‘education’ and ‘training’) are often used interchangeably, Feinstein, Mann and Corsun (2002: 739) emphasise the importance of distinguishing between the two concepts. Education is not targeted at creating successful role performance, but rather at generally developing critical thinking skills, the ability to ask questions and find answers, and learning facts and figures. Accordingly, education is described as the transfer of knowledge to learners primarily in lectures based on theory (Feinstein *et al.*, 2002: 739).

Training, on the other hand, is generally more concerned with delivering skills for practical decision-making, communication and on-the-job action. It follows that the main difference

between education and training relates to focus: Whereas education is concerned with the development of a product (an entrepreneurial product in the case of entrepreneurial education), training is more concerned with a process (i.e., honing practical skills for application in the ‘real’ world) (Feinstein *et al.*, 2002: 739).

Anderson and Jack (2008: 263) insist that the creative entrepreneurial process is not independent of managerial knowledge, notwithstanding the argument that the imprecise notion of creativity associated with entrepreneurship is clearly more than ‘managerialism’. As a consequence, both knowledge (relating to education) and experience (more related to training) are earmarked as the basis for assessing “*what is possible, what is realistic, and what is achievable.*” For this reason, Steenekamp *et al.* (2011a: 51) downplay the importance of debating whether entrepreneurship education or entrepreneurship training will produce the higher number of new business start-ups.

What is important, though, is that entrepreneurship education from an early age has the potential to develop an ‘entrepreneurial product’ (to instil an entrepreneurial attitude), whereas entrepreneurial training is best suited to refine the ‘entrepreneurial process’ (to develop skills that will support entrepreneurial action). In support of this notion, Steenekamp *et al.* (2011a: 51) put forward that “*...a more holistic approach is required for the construction of a developmental pipeline to connect knowledge transfer (education) to skills development (training), and enable the free flow of an enterprising spirit among young people in South Africa.*”

Perhaps this is the reason why the European Commission (EU, 2004: 11) appointed an expert group to agree on a common definition of entrepreneurship *teaching*, instead of entrepreneurship *education*. The importance of both educating for entrepreneurial attitudes and skills, and more specific training on how to create a business was recognised for this definition, and accordingly, the development of personal qualities; the transfer of early knowledge and contact with the business world; awareness of self-employment; learning by doing; and specific training on new venture creation, were adopted as the objectives of teaching about entrepreneurship (EU, 2005: 11; 2004: 11).

Fayolle and Gailly (2008: 574) disagree as ‘teaching’ seems to imply a degree of passivity from the learner. They argue that the initiative, creativity and innovative behaviour associated with entrepreneurship calls for more than ‘giving lessons’ or merely ‘imparting knowledge’,

and propose that the word ‘educate’ is more appropriate in situations intended for *“developing learners’ minds, raising people’s awareness of the entrepreneurial phenomenon, providing them with keys to their personal development and professional orientation and giving them incentives to act entrepreneurially.”* Conversely, ‘teaching’ is said to be better suited to describe knowledge transfer of entrepreneurial themes and dimensions, but it is acknowledged that both methods of tuition are required in entrepreneurship programmes and courses (Fayolle & Gailly, 2008: 574).

The foregoing discussion presents three different words used in the academic literature to describe the transfer of knowledge and skills for entrepreneurial behaviour: Education, training and teaching. It is evident that academic scholars hold diverging views on the proper use of these words and their roles in the learning process, yet it is clear that none of them can be used in isolation. This finding reaffirms the challenges associated with entrepreneurship education, as well as the interrelatedness and interdependency of different methods of tuition aimed at releasing the spirit of enterprise and creating a culture of entrepreneurship.

4.3.3 An umbrella-term for the incubation of entrepreneurs?

Section 4.3.1 showed that entrepreneurship education and enterprise education are essentially the same from a conceptual perspective, but simultaneously different in focus, pedagogical approaches and contextual nuances between different countries and cultures. South Africa, in particular, requires holistic approaches for the release of the spirit of enterprise, and with due consideration for the unique challenges facing the country, the need for ‘enterprise-entrepreneurship education’ was highlighted.

Implementing such an expanded phrase should be approached with caution, as it may lead to even further confusion in the development of pedagogies aimed at arming learners with the knowledge and skills required for the paradoxical environment in which entrepreneurship functions. The potential for confusion is implicit in UNESCO’s (2008: 10) insistence on using ‘entrepreneurship education’, as it is argued that enterprise education may be interpreted as overly focused on business.

Section 4.3.2 revealed distinct differences between enterprise and entrepreneurship education and training, and specifically between the targeted outcomes of developing an entrepreneurial product, as opposed to the transfer of skills required to master the entrepreneurial process in the ‘real’ world.

The European Commission's call for a common definition for entrepreneurship *teaching* seemed to provide an embracing concept including both education and training as inseparable components for the development and release of the spirit of entrepreneurship in South Africa, but opposing scholars argued that this would imply a degree of passivity on the part of learners. Entrepreneurship is about action; it is about passion; and it demands high levels of involvement; hence, any perception of passive learning must be eliminated.

Rather than attempting to construct some eye-catching (but confusing) acronym to pronounce a new paradigm for the development of entrepreneurs (something to the effect of 'E³T' for 'enterprise-entrepreneurship education and training' had indeed come to mind), it is concluded that content is more important than labelling, and accordingly, the words entrepreneurship, enterprise, education and training will be used interchangeably, but within context, for the remainder of this study. It should be construed that any reference to entrepreneurship includes enterprise and *vice versa*, and any reference to education similarly includes training.

4.4 TOWARDS A DEFINITION FOR ENTREPRENEURSHIP EDUCATION

Chapter two (section 2.3.2) presented 'new' definitions for both entrepreneurship and the entrepreneur. This study would not be complete without attempting to construct a universal definition for entrepreneurship education as well.

Constructing this definition is not without challenges as the multi-faceted approach required for entrepreneurship education may result in the definition being either too general, and therefore without focus, or too specific, and therefore not inclusive enough. In addition, the 'touchy-feely' nature of the entrepreneurial process makes the encapsulation of its underlying learning processes extremely difficult as evident from an independent radio entrepreneur's practical theory of business:

This is part-art, part-science, this is part what-feels-right. What do I know works? I can tell you what works because I've done it a number of times. I know what works, by gut feel and how people feel. Is there a list of rules, no, there's an approach, a style, a feel, I suppose it's things we believe in front of the business (Rae, 2004: 195).

How can entrepreneurship education be defined in such an abstract environment to give meaning to the important role it has to play in the development of more entrepreneurs? The starting point, as with any attempt to define something, is to review the existing definitions of entrepreneurship education in the academic literature.

4.4.1 Defining entrepreneurship education

In addition to the definitions of Martínez *et al.* (2010) presented earlier, Roffe (2010:141) considers enterprise education *“to involve teaching and motivating students with the fundamentals, practices and processes of business enterprise.”* Fayolle and Gailly (2008: 574) view entrepreneurship education as relating to the *“evolution of learning processes and methods from a didactical mode towards an entrepreneurial mode.”*

According to Hynes and Richardson (2007: 733), a common theme emanating from the examination of various definitions is that entrepreneurship education is not just about educating people to start a business, but rather programmes to equip graduates with the *“knowledge, skills and competencies to engage in a more enterprising, innovative and flexible manner in a changing workplace environment.”* UNESCO (2008: 10) adds that entrepreneurship education is [should be] made up of all kinds of experiences giving learners the ability and vision to access and transform different types of opportunities, and then define entrepreneurship education as *“education and training which allows students to develop and use their creativity, and to take initiatives, responsibility and risks.”*

Perhaps the true meaning of entrepreneurship education is vested in the behaviours underlying entrepreneurial activity. Gibb (2007a: 2) proposes that these behaviours, underpinned by certain skills and attributes, are important in the educational context. From this perspective, Gibb (2008: 6; 2007a: 3) defines entrepreneurship for educational purposes as *“...behaviours, skills and attributes applied individually and/or collectively to help individuals and organisations of all kinds to create, cope with and enjoy change and innovation involving higher levels of uncertainty and complexity as a means of achieving personal fulfilment and organisation effectiveness.”*

It is illuminating that this definition embraces behaviours, skills and attributes exhibited not only in contexts such as business activity, the family and the community, but also in social entrepreneurs, educational entrepreneurs and religious entrepreneurs, as well as in entrepreneurs in a range of non-governmental organisations (Gibb, 2008: 6; 2007a: 2-3).

Although this definition does not describe entrepreneurship education in so much as dictating what should be taught, it underscores the desired outcomes for an entrepreneurial culture through education (Gibb, 2007a: 2-3). Its value is embodied in learning for the pursuit of some specific task, learning through a given pedagogy aimed at stimulating entrepreneurial behaviour, and a pure cognitive element for learning about entrepreneurship (Gibb, 2008: 6).

4.4.2 Redefining entrepreneurship education

The formulation of a ‘new’ definition for entrepreneurship education presents a number of challenges: Firstly, an earlier discussion highlighted notable differences between education and training (Feinstein *et al.*, 2002: 739), yet both concepts seem essential for a holistic approach towards the development of entrepreneurial activity (Steenekamp *et al.*, 2011a: 51). Secondly, there seems to be necessity to distinguish between entrepreneurship and management (see section 2.2.2.3), yet the creative entrepreneurial process cannot be executed independent of managerial knowledge (Anderson & Jack, 2008: 263).

Thirdly, the construction of a fully inclusive definition for entrepreneurship education is complicated by entrepreneurship not being exclusive to the domain of economic activity, but also relevant in areas such as social life, education, religion and a range of organisations where financial profit is not the primary goal (Gibb, 2007a: 2). Fourth and finally, Gibb’s (2008: 6; 2007a: 3) definition of entrepreneurship for educational purposes has more to do with the desired outcomes of entrepreneurship education than the education process itself, yet it should be obvious that ‘something’ (but what?) must be taught to achieve these outcomes.

Irrespective of these contradictions, a careful review of the preceding sections culminates in the formulation of the following [new] definition for entrepreneurship education:

Entrepreneurship education is both product-focused, theory-based teaching and process-focused, practical training capable of nurturing desire, self-reliance, awareness of opportunity, adaptability to change and tolerance of risk and ambiguity by modifying attitudes, and instilling attributes, intentions, behaviours, knowledge and skills enabling individuals and groups to participate meaningfully in all aspects of life, create something of value, and gain financial independence, or personal satisfaction, or both.

4.5 THE IMPORTANCE OF EDUCATION

How important is basic and general education for the global community? Robinson and Wenwu (2009: 95) observe that basic education is recognised as a “*fundamental cornerstone*” for the development of less-developed countries, and Millman *et al.* (2008: 805) confirm that education has long been regarded as a driver of poverty reduction and social development. Education is not only pivotal for social integration, but also presents exceptional opportunities for “*programmatic, legal and financial intervention*” by both governmental and non-governmental organisations (Pollak, 2008: 395).

Developing countries need to improve productivity if they are to compete successfully in an era of globalisation, and it is argued that the competency level of human resources is crucial for improving production quality and efficiency (Namusonge, 2008: n.p.). The impact of globalisation on all aspects of society is far reaching, and increasingly, expertise and knowledge are replacing manual and semi-skilled labour in traditional industries. These changes are affecting mostly the unskilled and low-skilled segments of the global labour market (Millman *et al.*, 2008: 802).

The South African environment reveals a similar trend (see chapter three, section 3.2.5 and figure 3.3), and this trend is supported by evidence of a direct relationship between levels of education and the median monthly earnings of paid workers in South Africa. Research by Statistics South Africa (Stats SA, 2010: xi) indicate that workers with a matriculation certificate earn a median of 35% of those with a tertiary qualification. This finding corresponds with the trend in OECD-countries where a tertiary degree has been found to produce private annual returns as high as 22% in some countries, with all countries showing a rate of return in excess of 8% (OECD, 2007: 14).

The importance of [quality] education in South Africa is underscored by the vast number of learners in the country’s education system. In 2009 there were 14.1 million learners in the system, spread across more than 32 000 education institutions, and served by almost 470 000 educators and lecturers (South Africa, 2010a: 5). Of these learners, 11.8 million (83.8%) were in ordinary public schools and more than 393 000 (2.8%) were in ordinary independent schools. The remaining learners were spread between public higher education (HE) institutions (5.9%); public further education and training (FET) institutions (3.0%); public

adult basic education and training (ABET) centres (2.1%); early childhood development (ECD) centres (1.7%) and special schools (0.7%).

Based on the mid-year population estimate of 50.59 million people in 2011 (Stats SA, 2011b: 2), it stands to reason that education is of crucial importance if one considers that 14.1 million South Africans (27.8%) were enrolled in the education system in 2009. Providing quality education to these masses is not without challenges: Herrington *et al.* (2009: 43) question the quality and appropriateness of education in South Africa, and globally, employability is seen as an important outcome of education, but it requires a holistic learning experience rather than being the outcome of any one module or training programme (Rae, 2007: 608).

This study is not focused on ‘employability’ as the potential panacea for the challenges facing South Africa, but rather on developing a culture of self-employment by releasing the spirit of enterprise among the population, and in particular, among young South Africans. Accordingly, the discussion to follow is bent on the link between general education and entrepreneurial activity, as well as the importance of entrepreneurship education; its drivers; the conditions for and objectives of entrepreneurial learning; impact assessment; and challenges and barriers obstructing the attainment of objectives.

4.5.1 The link between general education and entrepreneurial activity

The concept of learning is gaining acceptance as an integral element of entrepreneurial practice and study (Cope, 2005: 373), and the academic literature suggests a distinct relationship between general education and entrepreneurial activity (e.g., Oseifuah, 2010; Roffe, 2010; Herrington *et al.*, 2009; Do Paco, Ferreira, Raposo, Rodrigues & Dinis, 2008; Smith, 2008; Botha, Nieman & Van Vuuren, 2007; Hannon, 2006; EU, 2004; Hisrich & Brush, 1986: 3).

According to Do Paco *et al.* (2008: 4), evidence suggesting a positive link between education and entrepreneurship is robust. This finding is supported by empirical evidence indicating that education has the most profound effect on the propensity of students to start a business (Raposo, Ferreira, Do Paco & Rodrigues, 2008; Ferreira, Do Paco, Raposo & Rodrigues, 2007). Herrington *et al.* (2009: 43) concur that education, and in particular tertiary education, significantly increases the probability that a person will be the owner-manager of a new business surviving beyond the start-up phase. Although Botha *et al.* (2007: 163) argue that education is not mandatory for new business formation, they simultaneously recognise the

importance of education for the transfer of skills, contacts and opportunities vital to most successful businesses.

Further evidence of the relationship between general education and entrepreneurial activity emanates from a number of studies, including:

- the widely held assumption that there is a positive relationship between education and entrepreneurial activity (Smith, 2008: 713);
- the important role education has to play in building entrepreneurial capability in tomorrow's entrepreneurs and leaders (Hannon, 2006: 296);
- recognition by the European Commission (EU, 2004: 6) that education can greatly contribute to the creation of an entrepreneurial culture;
- the finding that financial literacy contributes meaningfully to entrepreneurial skills (Oseifuah, 2010: 164); and,
- general consensus that education can significantly influence the development of knowledge, skills and attitudes that can be applied both in enterprises and for entrepreneurship (Roffe, 2010: 141-142).

It is clear from the preceding discussion that general education has direct links with the advancement of entrepreneurial activity, but still Isaacs *et al.* (2007: 615) call for increased emphasis on entrepreneurship education instead of general business education. It is argued that the former is much broader in coverage, and consequently, a closer examination of the importance of entrepreneurship education is warranted.

4.5.2 The importance of entrepreneurship education

It is said that entrepreneurship brings wealth and other benefits to both individuals and society (Yu & Man, 2007: 149), and worldwide, its importance for job creation and sustainable economic development is recognised by governments and various organisations (Kroon, De Klerk & Dippenaar, 2003: 319).

As a consequence, entrepreneurship has arrived as an “*essential subject area*” in education (Jones, 2006: 336), and there is an expectation that increased and improved entrepreneurship education will contribute towards an increase in both the number and the quality of entrepreneurs entering global economies (Matlay, 2008: 382). The Norwegian Ministry of Trade and Industry (Nærings-OG Handelsdepartementet, 2007: 3) concurs by predicting that

“[E]ntrepreneurship in the education system shall renew education in this and create quality and multiplicity in order to foster creativity and innovation.”

This prediction unequivocally points towards the importance of entrepreneurship education, but how can entrepreneurship education improve the number and quality of entrepreneurs entering global economies, and how should it be interpreted to give meaning to the need for effective teaching methodology?

The first part of the question is discussed copiously in the academic literature. Kroon and Meyer (2001: 47) argue that there are “...*not enough people in SA* [South Africa] *with the orientation and skills to create new businesses*”, and to address this shortage, Nafukho and Muyia (2010: 105) recommend investment in entrepreneurship education and training as one strategy that African countries can use to build capacity and develop human resources needed to promote socio-economic development.

In a similar stance, Galloway and Brown (2002: 398) maintain that entrepreneurship education is likely to be a significant contributor to the improved quality of graduate business start-ups, as well as an influencing factor on societal and intellectual attitudes towards entrepreneurship in the longer term.

Levie, Hart and Anyadike-Danes (2009: 1) draw from the extant literature to suggest that entrepreneurship education and training should have a positive impact on entrepreneurial activity by developing the skills required for new venture creation and growth (Honig, 2004); by enhancing the cognitive ability of people to manage complexity (De Tienne & Chandler, 2004); and by affecting the cultural attitudes and behavioural dispositions of individuals (Peterman & Kennedy, 2003). Individuals are more likely to start a business if training has made them more aware of budding opportunities, and if they believe they have the knowledge, skills and experience to start a business (Levie *et al.*, 2009: 2).

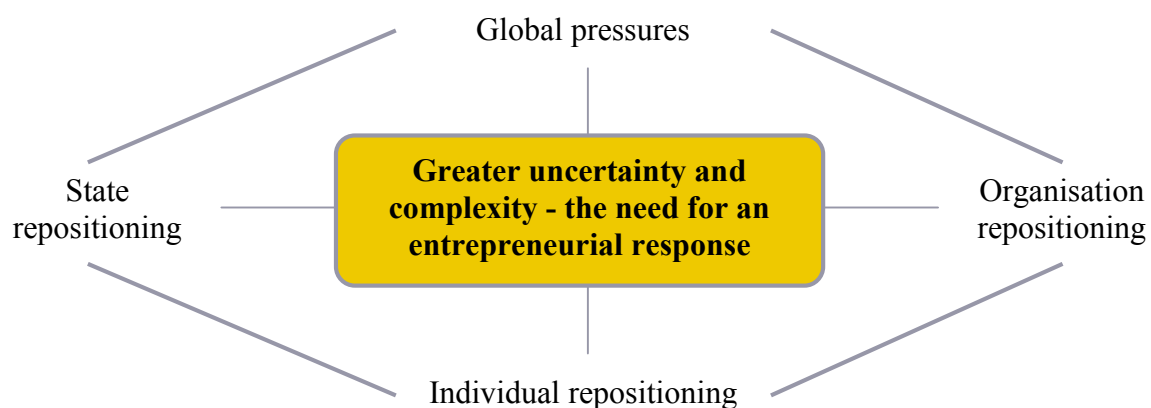
These findings are further supported by research indicating that high quality entrepreneurship training interventions ultimately reduce business failure rates, increase profits and growth of SMEs (Ladzani & Van Vuuren, 2002: 156). Based on the assumption that innovative behaviour can be learnt, Chell and Athayde (2009: 10) add that innovation, as a crucial element of entrepreneurial activity, may be developed through appropriate education, training and experience. Cheung (2008: 503) agrees that entrepreneurship education can help students

to develop innovative skills, as well as provide them with the entrepreneurial knowledge required to compete with the ‘entrepreneurial generation’.

The answer to the second part of the question is open to interpretation. Cheung (2008: 503) interprets entrepreneurship education as focusing on all aspects of ‘life’, whereas Hynes and Richardson (2007: 742) see it as an effective means of preparing graduates for the workplace of the future. Both interpretations are justified, but it is Gibb (2007a) who succeeds in pinning down the importance of entrepreneurship for the modern context.

Gibb (2007a: 6) ascribes the importance of entrepreneurship education to the increasing demand for entrepreneurial behaviour imposed by modern societies, and is supported by Jones and Iredale (2010: 9) expounding the emergence of entrepreneurship education as a response to complex changes in both economies and societies. Gibb (2007a: 6) continues by noting that global pressures upon societies, enterprises and individuals call for greater individual and collective entrepreneurial behaviour as shown in figure 4.1 below.

Figure 4.1 The need for an entrepreneurial response



Source: Gibb (2007a: 6)

Gibb (2007a: 6) postulates that thorough analysis and projection of the world in which tomorrow’s youth will live are required to provide more convincing arguments for a renewed and greater emphasis on entrepreneurship education. Accordingly, the need to understand *why* and *how* individuals will be faced with higher levels of uncertainty and complexity is emphasised.

It follows that the importance of entrepreneurship education is grounded on its potential to promote entrepreneurial activity, but also, and perhaps more importantly, its propriety for the

development of entrepreneurial responses to the complexities and uncertainties of the world of tomorrow.

4.5.3 The importance of youth entrepreneurship education

The preceding sections established a link between general education and entrepreneurial activity, and highlighted the importance of entrepreneurship education for the release of the spirit of enterprise and the promotion of entrepreneurial activity.

The importance of entrepreneurship education gains even further momentum if it is brought into the context of youth development. Man and Yu (2007: 621-622) use the extant literature to emphasise the significance of developing entrepreneurial attributes during the years of early adolescence. In support of this finding, Chigunta *et al.* (2005: 45) opine that young Africans aged 15 to 24 are at a formative stage in their lives consisting to a large extent of vulnerabilities and risks. Simultaneously, they are at a stage of “*dynamic and multi-faceted*” development with significant implications for the development of entrepreneurial capabilities.

This formative stage should be embraced for accelerated youth development, but Saboe, Kantor and Walsh (2002: 1) warn that at-risk youth may ignore the learning process if they experience the content and methodology as irrelevant to their lives. UNESCO and ILO (n.d.: ix) also emphasise the importance of learning approaches linked directly to the real life situations of youth, and in particular, those in at-risk communities. Cheung (2008: 511) maintains that youth entrepreneurship education has the potential to help learners find meaning in life and empower them to change their own destiny.

Calls for accelerated youth entrepreneurship education are abundant in the academic literature. These calls include the urgent need for young people to be educated and trained in entrepreneurship (Co & Mitchell, 2006: 348); calls for young children to be taught to think entrepreneurially (Kroon & Meyer, 2001: 51-52); and the proposition that a “*well-planned, structured and implemented youth entrepreneurial learnership programme*” will promote the development of potential entrepreneurs (Kroon *et al.*, 2003: 322).

Mentoor and Friedrich (2007: 222) contend that investment in entrepreneurial education is one way to create a new economic order, and that the educational system has the potential to play a pivotal role in promoting entrepreneurial activity among young people.

It is evident from the above that youth entrepreneurship education is indeed of crucial importance for the development of youth, but how does it affect young learners if implemented successfully? Firstly, Do Paco *et al.* (2008: 4) accentuate some studies (e.g., Kourilsky & Walstad, 1998) suggesting that early formal entrepreneurship education affects the attitudes of students, influences them in the direction of certain future careers, and improves their propensity for entrepreneurship when they reach adulthood.

Secondly, and closely related to the attitudinal aspect, are research findings indicating that entrepreneurial intentions can be promoted through entrepreneurship education and training (Müller, 2008; Florin, Karri & Rossiter, 2007; Bhandari, 2006; Hmieleski & Corbett, 2006).

Thirdly, entrepreneurial self-efficacy is a crucial component of entrepreneurial behaviour, and entrepreneurial education appears to have a reciprocal relationship with entrepreneurial self-efficacy. Self-efficacy is described as “...*the perception of a personal capability to do a particular job or set of tasks*” (Shepherd & Krueger, 2002: 171), and is deemed to be a consistent forecaster of academic achievement and a reliable predictor of academic outcomes (Martinelli, Bartholomeu, Caliatto & Sassi, 2009: 146). Entrepreneurial self-efficacy may influence an individual’s preference to enrol in entrepreneurial education, whereas entrepreneurial education, in turn, enhances the individual’s entrepreneurial self-efficacy (Rosenblatt, Bergman, Erez & De-Haan, 2008: 4).

Based on the above, it is concluded that the importance of youth entrepreneurship education is endorsed by both the desired outcome (i.e., promoting entrepreneurial activity among young people), and the way in which the desired outcome is achieved (i.e., changing attitudes; promoting entrepreneurial intentions; enhancing entrepreneurial self-efficacy).

4.6 THE IMPORTANCE OF ENTREPRENEURIAL LEARNING

Entrepreneurial learning is the accumulation of experience, skills, knowledge and the development of attributes resulting from learning, but at the same time, competent entrepreneurs need to demonstrate a set of behavioural patterns of *effective* learning (Man, 2006: 309).

It is said that competent entrepreneurs have the ability to improve and reflect upon daily experiences in their lives; they are able to evaluate these experiences and develop a longer-term perspective over time (Man, 2006: 316); and they should be able to actively seek further

learning opportunities, even though these opportunities may not be readily available to them (Man, 2006: 314). But how do they learn these competencies?

Effective entrepreneurs are exceptional learners. They learn from everything. They learn from customers, suppliers, and especially competitors. They learn from employees and associates. They learn from other entrepreneurs. They learn from experience. They learn by doing. They learn from what works, and more importantly, from what doesn't work (Smilor, 1997: 344).

Brijlal (2008: 32) agrees that entrepreneurs learn most from informal processes such as learning from other entrepreneurs by sharing ideas and by building useful social contacts. This method of learning may be described as entrepreneurial learning; a process often described as a “...continuous process that facilitates the development of necessary knowledge for being effective in starting up and managing new ventures” (Politis, 2005: 401).

Fayolle and Gailly (2008: 583) maintain that the intention of entrepreneurs is not to learn how to manage a business or to become managers, but rather to learn how to deal with problems as they emerge, as well as dealing with the reciprocation between success and failure. It follows that competent entrepreneurs focus their learning activities on finding quick and appropriate answers to the variety of problems they encounter.

From this perspective, the description of entrepreneurial learning by Minniti and Bygrave (2001: 4) as “...the outcome of a sequence of choices among competing beliefs or actions” seems to be more appropriate, and in support of this notion, Edwards and Muir (2005: 625) recommend that a choice between formal and informal enterprise education is imperative to enable learners to exploit as many avenues as possible. Henderson and Robertson (2000: 280) also support this approach by concluding that owner-managers learn from both formal training and on-the-job cumulative experience, as well as from their personal contact networks.

Gibb (2008: 11) identifies a careful linkage between pedagogy and enterprising outcomes as the key to entrepreneurial learning. Activities such as drama, debating and drawings are given as examples of methods to respectively develop creativity; build capacity to persuade and construct argument; and stimulate innovation and strengthen self-expression in support of attaining entrepreneurial outcomes (Gibb, 2008: 11).

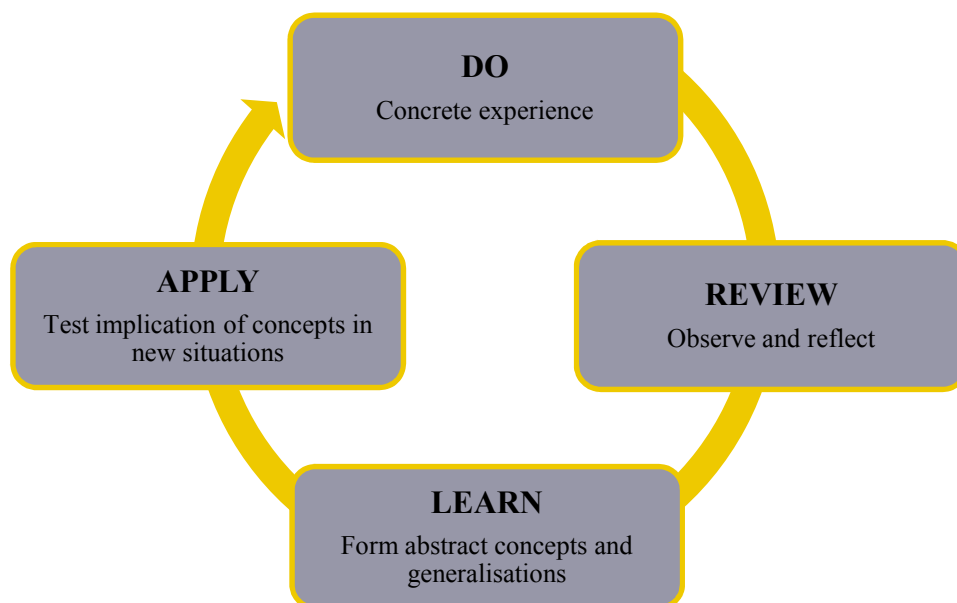
It can be argued extensively that much more than traditional desk-based theoretical learning is required for education and training to qualify as entrepreneurial learning, and consequently, the process of entrepreneurial learning deserves further examination.

4.6.1 The process of entrepreneurial learning

Competent entrepreneurs are ‘experts’ in their own right, and it is acknowledged that expertise appears to be a learnt phenomenon (Krueger, 2007: 123). It follows that learning is an essential element of becoming a competent entrepreneur, but only if the supporting learning processes are effective.

Effective learning, according to Le Roux and Steyn (2007: 331), is an ongoing process comprising many different variables that have to be considered. Entrepreneurial learning is dependent on effective learning and Dwerryhouse (2001: 158) puts forward that this process, particularly for young learners in the 16 to 19 years age group, is continuous with each phase flowing into the next as shown in figure 4.2.

Figure 4.2 The entrepreneurial learning cycle



Source: Dwerryhouse (2001: 158)

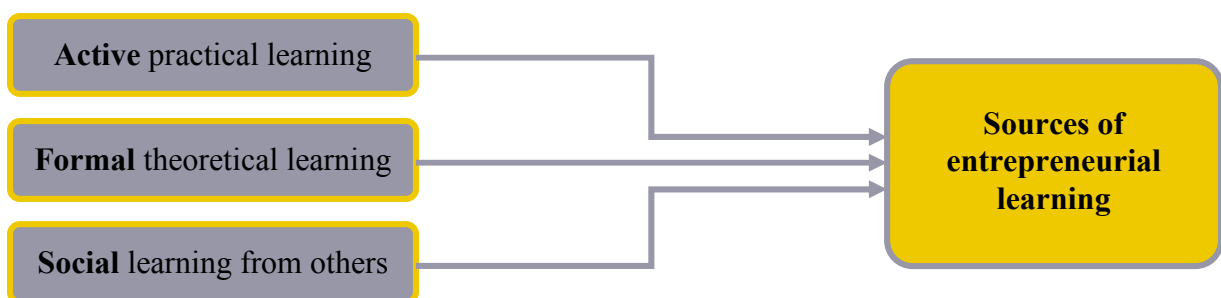
Figure 4.2 clearly shows that entrepreneurial learning is different from traditional listen-and-learn pedagogy. Firstly, it is not characterised by the typical “*stability, consistency, or*

predictability” of traditional learning, but rather flows from “*metamorphosis, discontinuity, and change*”, and secondly, it has ‘critical learning events’ as a unifying theme (Cope, 2005: 392). Pittaway, Hannon, Gibb and Thompson (2009: 76) agree that critical learning events and major setbacks are essential components for enabling transformative learning to occur during entrepreneurial activity.

The extant literature highlights the elements of ‘doing’ and ‘experiencing’ (Pittaway *et al.*, 2009: 75; Man, 2006: 310; Politis, 2005: 415-416) as an integral part of entrepreneurial learning. Hannon (2006: 302) emphasises the need for learning steps, routines and practice in the early stages of entrepreneurial development, and Man (2006: 310) maintains that entrepreneurial learning involves active interpretation of experience by the learner.

Edwards and Muir (2005: 615) concur that entrepreneurial learning relies in part on ‘doing’ and ‘experiencing’ and propose that effective entrepreneurial learning draws from three different, yet complementary sources presented in figure 4.3.

Figure 4.3 Sources of entrepreneurial learning



Source: Adapted from Edwards and Muir (2005: 615)

Figure 4.3 suggests that entrepreneurial learning is dependent on formal theoretical learning (entrepreneurship education), social learning (exposure to other entrepreneurs; networking), and active, practical learning (entrepreneurship training; work-related experience).

Further evidence of the importance of ‘doing’ and ‘experiencing’ in entrepreneurial learning is implicit in the following phrases that have become part of the vocabulary of the concept of entrepreneurial learning:

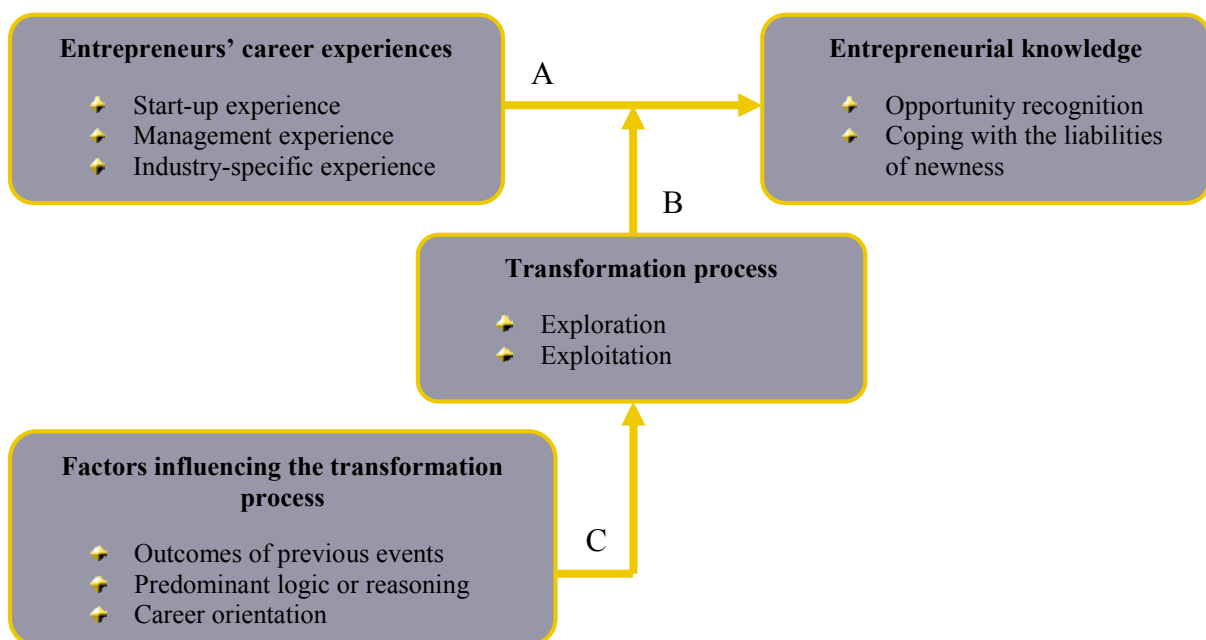
- ✦ Youth entrepreneurship learnership: “...a part-time multi-year programme that combines school and work-based learning in Economic and Management Sciences as [a] learning

area in Curriculum 2005 [South Africa], which can also be extended to a tertiary entrepreneurial learnership programme” (Kroon et al., 2003: 319).

- ✦ Experiential learning: “...a method of learning that involves a variety of a person’s mental capabilities...” (Feinstein et al., 2002: 331).
- ✦ Action learning: “...the result of a combination of experiential learning, creative problem solving, acquisition of relevant knowledge and co-learner group support” (Pretorius & Wlodarczyk, 2007: 512).
- ✦ Student company: “...a pedagogical tool based on practical experience by means of running a complete enterprise project, and on interaction with the external environment (i.e., the business world or the local community)” (EU, 2005: 14).

The prevalence of phrases such as ‘work-based learning’, ‘experiential learning’, ‘action learning’ and ‘practical experience’ in the examples listed above unequivocally points towards the significance of ‘doing’ and ‘experiencing’ in entrepreneurial learning. Politis (2005: 402) further argues for entrepreneurial learning as mainly an experiential process, resulting in a conceptual framework for entrepreneurial learning as shown in figure 4.4.

Figure 4.4 A conceptual framework for entrepreneurial learning



Source: Politis (2005: 402)

The preceding discussion leads to the conclusion that entrepreneurial learning is a reality, but that it is far more than traditional learning or even entrepreneurship education and training.

Not only is the impact of entrepreneurial learning dependent on continuous, effective learning and holistic approaches involving several sources, but the entrepreneur (or aspiring entrepreneur) also has a much greater role to play in the entrepreneurial learning experience.

It can be argued that aspiring entrepreneurs and educators (or facilitators) share equal responsibility in entrepreneurship education and training, but the process of entrepreneurial learning demands so much more from the entrepreneur: It is the entrepreneur (and not educators or facilitators) who has to ‘learn from everything’; find suitable sources to learn from even more; and engage in active, practical learning by doing exactly what entrepreneurs do in order to gain more experience, and eventually, accumulate the required expertise to become a competent entrepreneur.

This proposition presents a major obstacle for entrepreneurial learning insofar the youth is concerned. The challenges and barriers impeding entrepreneurship education and training are discussed later in this chapter, but the particular obstacle discussed below has a direct impact on youth entrepreneurial learning and deserves immediate discussion.

4.6.2 A major obstacle for youth entrepreneurial learning

Experience plays a central role in entrepreneurial learning by enabling entrepreneurs to improve their ability to discover and exploit entrepreneurial opportunities. It further supports learning how to overcome traditional obstacles when new businesses are set-up and managed, in turn developing the capacity to deal with the ‘liabilities of newness’ (Politis, 2005: 415).

According to Martinelli *et al.* (2009: 145), direct experiences have the most profound influences on people’s beliefs of self-efficacy, and entrepreneurial self-efficacy is a crucial component of entrepreneurial behaviour (see section 4.5.3). Dhliwayo (2008: 334) adds that work experience is a primary factor influencing an individual’s ability to identify an opportunity for the formation of a new business venture.

According to Politis (2005: 416), the outcome of previous entrepreneurial events; the entrepreneurs’ predominant logic or reasoning; and the entrepreneurs’ career orientation, are all major factors that are expected to influence the process of transforming experiences into experientially acquired knowledge. Different people learn in different ways, and their experiences, expertise and prior knowledge into new insights and new knowledge vary

considerably. Different learning styles may be more or less effective during different stages of the entrepreneurial learning process (Corbett, 2005: 486).

To the contrary, young learners have very little (if any) entrepreneurial experience; they have little (if any) exposure to the outcomes of previous entrepreneurial events; and the majority are still in the gestation stage insofar their career orientation is concerned. Young learners are not necessarily exposed to other entrepreneurs, and their social contacts are mostly limited to other learners in school and their immediate, personal environment.

This lack of entrepreneurial experience and definitive career orientation among most young learners, as well as the varying learning styles of different people and during different stages of entrepreneurial learning, leave a significant gap in the potential for the development of young entrepreneurs. From the three factors that are expected to influence the transformation of experiences into experientially acquired knowledge, most young learners can only be influenced at the level of logic or reasoning, and this points towards the crucial importance of entrepreneurship education directed at influencing attitudes and intentions towards entrepreneurship.

Perhaps the solution lies in the argument by Sullivan (2000: 162) that entrepreneurial learning entails “...*not only a process of adaptive learning in order to cope with change and survive, but also what has been deemed as ‘generative’ learning which embodies the capacity to create and ‘bring forward’ experience, rather than wait for (and learn from) it.*”

It follows that entrepreneurship education must have the ability to create and expedite the accumulation of real, practical experience in order to be supportive of entrepreneurial learning. Realising this goal will necessitate a major paradigm shift in didactic approaches and requires the involvement of a wide range of stakeholders, the purposeful development of educators and trainers and much more sweat-capital from learners enrolled in entrepreneurship education programmes.

4.7 THE ESSENTIALS OF ENTREPRENEURSHIP EDUCATION

This chapter has thus far shown that entrepreneurship can be taught, and further highlighted the differences between entrepreneurship and enterprise on the one hand and education and training on the other. A ‘new’ definition for entrepreneurship education was presented and

the importance of education, entrepreneurship education, youth entrepreneurship education and entrepreneurial learning was discussed.

Having concluded that entrepreneurship education is indeed of crucial importance for the promotion of entrepreneurial activity, the examination of the drivers of entrepreneurship education; the conditions for such education to be effective; and the objectives and outcomes of providing entrepreneurship education is warranted.

4.7.1 The drivers of entrepreneurship education

What drives entrepreneurship education? Is it driven by its importance emanating from the discussion in section 4.5, or is it driven by the interdependent relationships between entrepreneurship education and entrepreneurial learning discussed in section 4.6?

Three diverging views were extracted from the academic literature reviewed for this study. Firstly, Mwasalwiba (2010: 40), following a literature review of 108 journal articles on entrepreneurship education, concludes that there is relative agreement that the major rationale for entrepreneurship education is more economical than social. Entrepreneurship is believed to be *the* solution to unemployment, and as a consequence, this becomes the driving force behind all other objectives including the promotion of new business start-ups, self-employment, job creation, knowledge advancement and skills development (Mwasalwiba, 2010: 40).

Secondly, Hannon (2006: 300) concurs that entrepreneurship education is value driven, but simultaneously asks what is important and to whom and for what purpose. Hannon (2006: 301) argues that the aim of entrepreneurship education is driven by the values of those influencing its purpose – a driving force that is not neutral. It is said that the aspects of “*culture, faith, freedom, ethics and power*” all contribute to the complexity surrounding entrepreneurship education, and accordingly, that the drivers of entrepreneurship education are those influencing its purpose in different environments and at any given time.

The third approach is based on the unification of the ideas of Allan Gibb and the work of the philosopher Alfred Whitehead. This leads Jones (2006: 336-337) to put forward that two specific factors seldom shown in textbooks on entrepreneurship are vital inputs of the practising entrepreneur: Energy and excitement.

Energy and excitement drive entrepreneurial behaviour, and these factors, it is argued, then emerge as the central drivers of entrepreneurship education (Jones, 2006: 337). This proposition holds significant implications for entrepreneurship education, as it prescribes the need for elevated levels of energy and excitement on the part of learners, educators and trainers, parents and guardians (for young learners), organised business and governments for entrepreneurship education to have any chance of being driven purposefully and successfully.

Is this currently the case in entrepreneurship education programmes, or even possible in the existing paradigm? The reader is urged to contemplate the potential impact of entrepreneurship education driven by high levels of excitement and energy (i.e., ‘want’) among all stakeholders, and particularly, learners set on becoming competent entrepreneurs.

4.7.2 Conditions for effective entrepreneurship education

Mwasalwiba (2010: 20) observes that entrepreneurship scholars seem to be converging towards a single framework for entrepreneurship education. The focus is shifting from a business start-up view to an attitude-changing perspective of entrepreneurship education, yet there are numerous conditions that need to be met for education to constitute effective entrepreneurship education (e.g., Herrington *et al.*, 2010; 2009; Brijlal, 2008; Dhliwayo, 2008; Gibb, 2008; 2006a; 2002a; 2002b; 2000; Yu & Man, 2007; Kirby, 2004; Gibb & Li, 2003; SAIE, n.d.).

Gibb (2002b: 259) calls for a radical ‘Schumpeterian’ shift in entrepreneurship education involving ‘creative destruction’ and the reorganisation of knowledge and pedagogy. It is put forward that business schools may not be the most appropriate environment for learning entrepreneurship in the higher education sector.

The culture of business schools, which are highly focused on the traditional way of organising knowledge around functions, dictates a strong emphasis on conformity and assessment, and these methods stand in the way of effective entrepreneurship education (Gibb, 2002b: 259). The same can be said for the suitability of schools for effective entrepreneurship education, simply because anything other than the traditional method of talk-and-chalk, continuous assessment and administrative overload is frowned upon in the current paradigm.

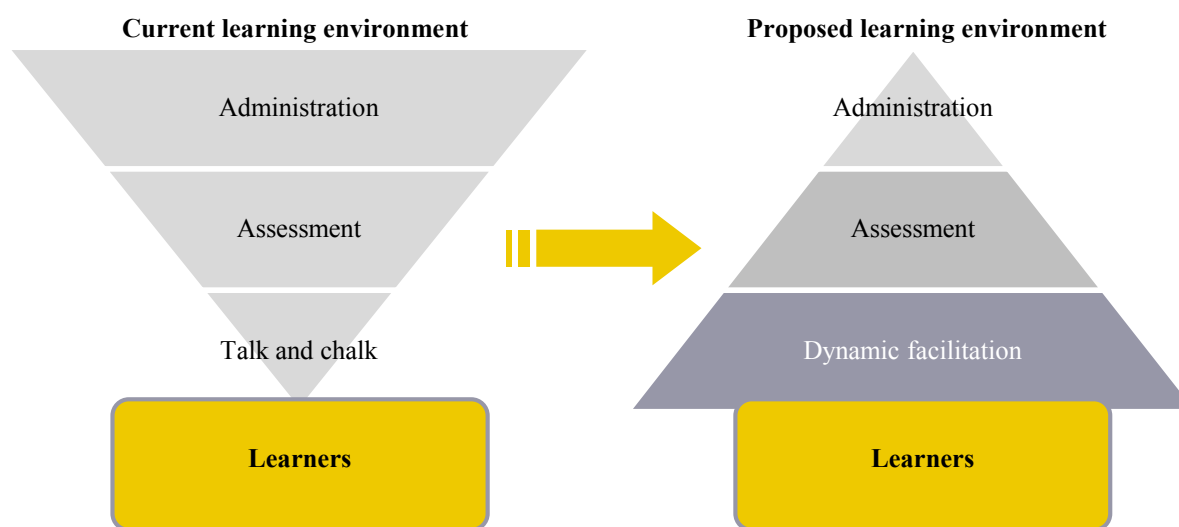
The limitations of short courses and electives in entrepreneurship must be acknowledged. The transfer of knowledge (education) and skills (training) are inherently longer-term strategies (Brijlal, 2008: 32; EU, 2004: 10), and it follows that short courses or electives in education and once-off training interventions may have a limiting effect on the development of competent entrepreneurs.

It should also be considered that not everyone will become a competent entrepreneur as a result of entrepreneurship education. Although it is suggested that all young people should be given the choice to enrol in entrepreneurship education and training programmes, Herrington *et al.* (2009: 110) insist that youth with the potential to become entrepreneurs (“*employment creators*”) should be identified and given the correct form of support to increase their chances of success. Dhliwayo (2008: 334) agrees that only students with a fitting entrepreneurial attitude will be successful in becoming entrepreneurs.

Herrington *et al.* (2010: 28) place entrepreneurship education in the Global Entrepreneurship Monitor (GEM) entrepreneurial framework conditions, and put forward that the extent to which training in creating and managing new, small or growing businesses is incorporated into the education and training system at all levels (including primary and secondary schooling, as well as post-school education and training) has a direct impact on the promotion of entrepreneurial activity.

From this perspective, the development of entrepreneurs in the classroom is viewed as an enterprising environment supported by learning approaches in which entrepreneurial aptitudes and capabilities can flourish alongside business acumen and understanding (Kirby, 2004: 517). Gibb (2002a: 136) interprets such an environment as meaning the “...*bringing forward of the environment in which knowledge will be used, and therefore in which true learning takes place as part of the ‘doing’ process.*”

The South African Institute for Entrepreneurship (SAIE, n.d., b) describes the conditions for entrepreneurial learning in the classroom as one where the educator becomes a ‘dynamic facilitator of learning’; where learners are stimulated to think creatively and critically; and where learners can discover new ideas and ways of thinking by means of experiential action learning. This notion is supported by a graphical presentation of how the typical learning environment is currently structured, as opposed to how it should be as shown in figure 4.5 on the following page.

Figure 4.5 The classroom as it is and how it should be

Source: SAIE (n.d., b)

At the same time, effective entrepreneurship education is also dependent on the provision of appropriate education and training programmes. Yu and Man (2007: 149) propose that suitable programmes will allow students to participate actively in learning; to work in teams; to engage in a real life context; and authentically interact with other people and the environment. Subjects included in the curriculum must lend itself to the identification of opportunities for “...*the use of knowledge, solving problems creatively, involving action modes of learning, demanding initiative, discovery and experimentation as a means of personal development*” (Gibb, 2008: 15).

Perhaps the greatest threat to effective entrepreneurship education is to copy ideas and concepts from other countries and simply ‘paste’ it into the learning environment of a specific culture. Following a study on small and medium enterprise development in the United Kingdom, Gibb (2000: 204) concludes that the process of simply relabeling and transferring concepts without thorough understanding of the various cultural aspects of a given concept may be dysfunctional. Effective entrepreneurship education demands sensitivity to different cultural and ideological contexts, as well as different stages of economic and social development (Gibb, 2006a: 21).

De Faoite *et al.* (2003: 430) agree that many entrepreneurship programmes and initiatives fail to integrate the cultural, social and educational background of learners and emerging entrepreneurs. In concurrence, Dana (2001: 412) argues that “...*a prerequisite to training*

people, is to understand them, their cultural values, historical experiences and mindset.”

These findings re-emphasise the importance of designing local programmes for local people, but with due consideration for the requirements for effective entrepreneurship education and good practices evolving around the world.

Gibb and Li (2003: 412) identify a number of key components necessary for the creation of conditions conducive for effective entrepreneurial behaviour. These components, presented in table 4.1, may then also be necessary for the creation of a learning environment conducive for the promotion of entrepreneurial activity.

Table 4.1 Conditions for effective entrepreneurial behaviour (and learning)

Conditions for effective entrepreneurial behaviour	
Key component	Association
Ownership	Psychological, social and material
Freedom	Freedom to pursue independent initiative
Control	Accepting responsibility to see things through over time
Holistic management	The opportunity to manage an entire business/activity
Personal commitment	As a result of exposure to all aspects associated with a particular behaviour
Network building	Building networks with all relevant stakeholders on the basis of personal contact as the key to building trust
Rewards	Directly linked with effort (or withheld for lack of effort)
Managerial overlap/ambiguity	As the basis for learning and trust
Strategic orientation	‘What if’ scenario building rather than formal corporate planning
Learning	Learning by doing, by making mistakes, and under pressure

Source: Gibb and Li (2003: 412)

It follows that the conditions for effective entrepreneurship education are far more than simply providing education or training programmes with the potential for impact. Effective entrepreneurship education needs spunk; it requires holistic approaches based on ‘creative destruction’ to turn the current paradigm upside down as shown in figure 4.5; it calls for long-term strategies for continuous development; and it demands a fertile entrepreneurial environment and programmes designed to unlock the spirit of enterprise.

In summary, it should be borne in mind that this is Africa, and in particular, South Africa. The country has a distinct culture with unique challenges, and accordingly, it stands to reason that any attempt to promote entrepreneurial activity by means of entrepreneurship education is dependent on unlocking the extraordinary potential of this rainbow nation.

4.7.3 The objectives of entrepreneurship education

The aim of enterprise education is to develop in individuals (particularly the young) a set of skills and attitudes that will allow them to be both job creators and job seekers, and help them contribute to the 'knowledge economy' (Lewis & Massey, 2003a: 197).

The fundamental purpose of entrepreneurship education is to develop abilities, knowledge, skills, attitudes, competencies and personal attributes required for entrepreneurial activity and the exploitation of opportunities in a knowledge environment (Hynes & Richardson, 2007: 734; Hansemark, 1998: 33). According to Elenurm, Ennulo and Laar (2007: 51), even business education in a dynamic market economy should nurture the development of entrepreneurial human resources for the creation of new ventures.

Le Roux *et al.* (2004: 51-52) add that entrepreneurship education should enhance learners' knowledge regarding the possibility of self-employment. It should also create a “*truly student centered [sic] learning experience*” capable of delivering measurable outcomes for future entrepreneurs and innovative employees (Brijlal, 2008: 33).

Fayolle and Gailly (2008: 575), earlier supported by Mentoor and Friedrich (2007: 222), conclude that entrepreneurship education has two main objectives: Firstly, it should be aimed at developing a ‘taste’ for entrepreneurship in the broadest sense and stimulating the spirit of enterprise and value creation (i.e., learning about entrepreneurship). Secondly, it should nurture new career perspectives for part or all of the individual's professional life (Fayolle & Gailly, 2008: 576), and in so doing, prepare individuals for the world of work (Mentoor & Friedrich, 2007: 222).

The general objectives of entrepreneurship education are also highlighted in the academic literature. Following a literature review of 108 articles on entrepreneurship education, Mwasalwiba (2010: 26) concludes that business start-up and job creation (27%); contributions to society (24%); the stimulation of entrepreneurial skills (15%); and increasing

the entrepreneurial spirit, culture and attitudes of participants (34%), are general objectives most frequently listed in the academic literature. Entrepreneurship education should also instil knowledge about the cultures, norms, values and attitudes found in the entrepreneurial arena, as well as develop certain psychological characteristics such as the need for achievement and locus of control (Hansemark, 1998: 33).

UNESCO (2008: 10-11) provides a detailed list of possible aims and objectives for entrepreneurship education, but space does not permit presenting the entire list in this study. It would suffice to say that entrepreneurship education must raise the level of awareness among key stakeholders of entrepreneurship and enterprise as a viable and realistic option for career development; it must have the capacity to promote entrepreneurship through the development of skills and certain personal attributes; it must reach all young people and provide them with the opportunity to acquire the required skills; it must have varied models to suit different countries; it must empower learners so they can become productive citizens; and it must allow learners to demonstrate entrepreneurship through entrepreneurial practice as well as the study of entrepreneurship.

The importance of all these objectives are implicit, but it appears that the modification of attitudes towards entrepreneurship plays a central role in the main objectives of entrepreneurship education. In support of this notion, the EU (2004: 10) describes entrepreneurship as a “*general attitude*” that can be “*...usefully applied in all working activities and in everyday life*”, and then continues to list creativity, a spirit of initiative, responsibility, capacity to confront risks and independence as personal qualities underlying attitude that should be nurtured in young people as the objectives of education.

Do Paco *et al.* (2008: 17) concur by considering changing the attitudes of young learners as the main objective of entrepreneurship education. Personal attitudes are an important element of explaining entrepreneurial intentions, and it is said that entrepreneurship education and training should focus more on changing the personal attitudes of learners than on instilling knowledge. This approach could be more conducive for the process of business creation and to overcome the barriers associated with entrepreneurship (Do Paco *et al.*, 2008: 17).

UNESCO and ILO (n.d.: vi) add that stimulating the entrepreneurial spirit in secondary education should not be only about business and making profit, but also about being connected to community well-being, the reduction of poverty and sustainable development.

The objectives of entrepreneurship for each particular setting must be clear – Mentoor and Friedrich (2007: 222) emphasise that educators must have a clear understanding of what they want to achieve, and then ensure that the design of programmes is conducive for the attainment of those objectives.

In summary, the objectives of entrepreneurship education are seemingly divergent, yet all are interlacing with a common purpose. Too many objectives may cause the perception of impossibility, while too few will not support the development of competent entrepreneurs. The objectives of entrepreneurship education call for an approach that is digestible, yet completely exhaustive. From this perspective, and with the entire discussion up to this point in mind, the objectives of entrepreneurship education may be summarised as follows:

- The first objective of entrepreneurship education is for the objective itself to be clear and appropriate for a given culture, country and environment.
- Secondly, entrepreneurship education must ‘unlock’ the spirit of enterprise (see chapter three; section 3.3) and ‘open up’ the world of entrepreneurship by modifying attitudes; by providing knowledge and understanding of the concept; and by instilling the skills required for entrepreneurial activity.
- Thirdly, entrepreneurship education must instil elevated levels of ‘want’ as the overarching element of entrepreneurial activity (see chapter 2; section 2.4) and source of energy and excitement (see section 4.7.1 *infra*) to promote action in seeking opportunity in the presence of risk.
- Finally, entrepreneurship education must provide a learner-centred environment enabling true entrepreneurial learning (see section 4.6 *infra*) with the capacity to overcome the lack of real-life entrepreneurial experience, especially on the part of young learners (see section 4.6.2 *infra*).

4.7.4 The outcomes of entrepreneurship education

First and foremost, entrepreneurship educators must have clear learning outcomes in mind when developing courses in entrepreneurship and enterprise. There is agreement among researchers in assessment practice that there needs to be alignment between learning outcomes, assessment tasks and the learning opportunities that are created (Pittaway *et al.*, 2009: 75).

The problem is that content, context and educational expectations represent different constituencies of demand for entrepreneurship education, and these differences present very different requirements for the outcomes of entrepreneurship education (Anderson & Jack, 2008: 262). Research findings indeed demonstrate that the outcomes of entrepreneurship education in terms of attitudes, knowledge and skills, do not necessarily match the needs of entrepreneurship learners (Matlay, 2008: 382).

From a socio-economic perspective, the emphasis is placed on economic outcomes: New businesses; new jobs; innovation. From the learner's perspective, the demand requirements for entrepreneurship education may be characterised as awareness of entrepreneurial opportunity; understanding and enrichment of personal capability; and most likely, the establishment of a new small business (Anderson & Jack, 2008: 262).

The end-result of entrepreneurship education should be a “*dynamic mix of process and action*” (Hegarty, 2006: 334). Surrounding this notion are many different views of the desired outcomes of entrepreneurship education. From a theoretical point of view, Politis (2005: 402-403) concludes that increased effectiveness in opportunity recognition and in coping with the ‘liabilities of newness’ associated with the new venture creation process, are two distinct learning outcomes of entrepreneurship education.

There is also the practical point of view, such as the conclusion by Smith, Dalton and Dolheguy (2004: 268) that work placement as a component of entrepreneurship education has significant advantages by giving students more control over their eventual career decisions. This practical outcome of entrepreneurship education is supported by Smith, Henry and Munro (2002: 281) in their conclusion that part-time work placement in the final years of secondary schooling improves learners' completion of studies, employment and career pathways, employment outcomes and post-traineeship employment destinations.

Xheneti (2006: 107) relates to evidence indicating that approximately 20% of learners participating in mini-company activities in secondary school eventually create their own businesses. In support of this finding, the Nærings-Og Handelsdepartementet (2007: 7) found that 22% of students who had participated in Norway's Junior Achievement-Young Enterprise (JA-YE) programme had established their own businesses. In a similar finding, Klinger and Schündeln (2007: 40) conclude that participation in a particular training

programme had increased participants' probability of starting a business or expanding an existing business respectively by nine to 11 percentage points and 23 to 26 percentage points.

Practical entrepreneurship education has the ability to maximise the accumulation of experience and understanding of the entrepreneurial process (Yu & Man, 2007: 146-147); it enables the progression of learners through the various phases of entrepreneurship (Matlay, 2008: 393); it may decrease both start-up turbulence and failures (Matlay, 2008: 393); and it increases interest and positive attitudes towards entrepreneurship among learners (Hegarty, 2006: 322; Westhead, Storey & Martin, 2000: 272).

It also enables socially deprived individuals to gain the confidence and skills required for the creation and maintenance of social networks in support of new business development (Slack, 2005: 454; Taylor, Jones & Boles, 2004: 232); it has a significant effect on learners' abilities to notice opportunities (SBRC, 2010: 35; DeTienne & Chandler, 2004: 254); and it has the potential to create positive learning experiences, influence learners' confidence in their entrepreneurial potential, stimulate entrepreneurial activity and increase learners' exposure to both entrepreneurship and business (Vinten & Alcock, 2004: 193).

The third point of view is more related to the abstract concept of creativity. Dana (1993: 86) sees the outcome of entrepreneurship education as a creative individual who understands how to bring an idea from conception to starting and managing a new business. Hegarty (2006: 327) interprets this as an intellectual quality that will enable learners to recognise the central role of creativity and innovation in entrepreneurship. In support of this interpretation, DeTienne and Chandler (2004: 254) suggest passive search models emphasising creativity as a possible method of opportunity, and argue for this approach as one appropriate content area and specific pedagogy for entrepreneurship education.

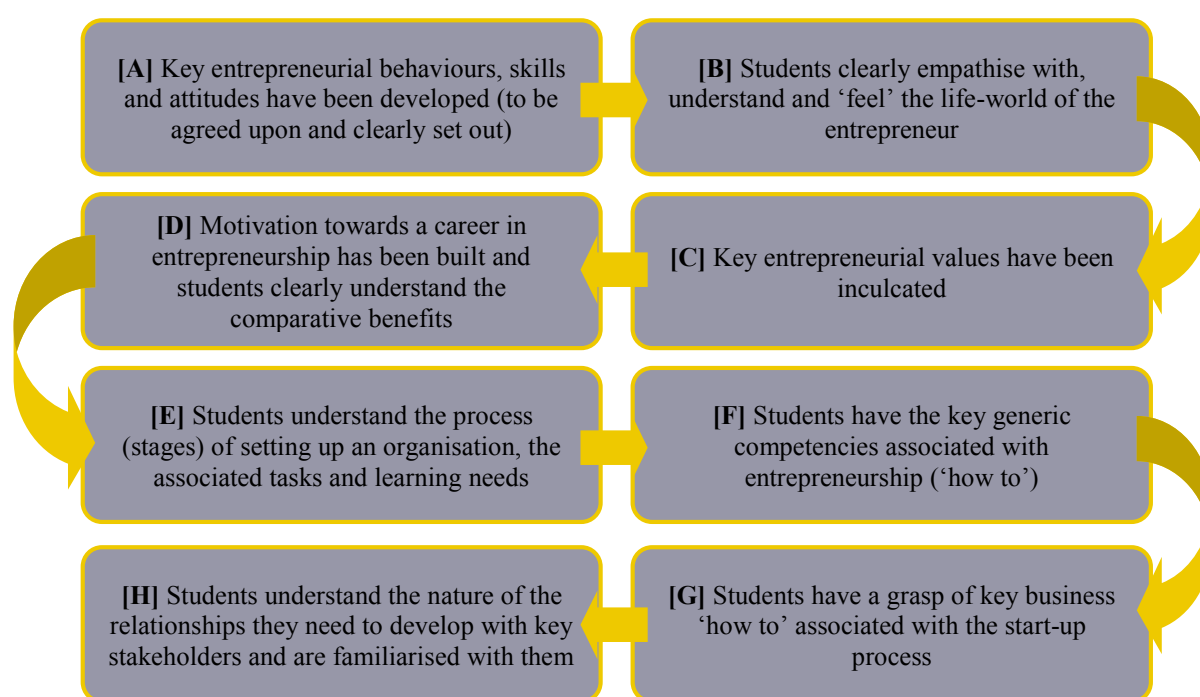
In general, practical entrepreneurship training promotes the acquisition of skills, autonomy, innovation, achievement orientation, risk-taking and personal initiative (Isaacs *et al.*, 2007: 619), but of similar importance, is the finding that practical entrepreneurship training has the capacity to transfer entrepreneurial skills and knowledge to learners. As an example of such an outcome, participants in the Women Entrepreneurship Programme (WEP) examined by Botha *et al.* (2007: 163) reported an increase in their number of employees, turnover, productivity and profit.

Connell, Gambone and Smith (2002: 287) highlight three indicators of the long-term outcomes of entrepreneurship education as economic self-sufficiency, healthy family and social relationships, and contributions to the community. These positive indicators go hand-in-hand with negative markers that should be targeted as outcomes of entrepreneurship education, such as meaningful decreases in welfare dependency, behaviour-based mental and physical health problems, child neglect and abuse, and incidence of violent crimes.

Gibb (2008: 6) describes the required outcomes of entrepreneurship education also under three headings, but these outcomes appear to be more ‘immediate’ and relate to enterprising behaviour and the world of business. It includes the development of enterprising capability, the promotion of financial literacy, and the instilment of understanding of economics and business.

These outcomes find their origin in a benchmarking template of the potential key outcomes of entrepreneurship training proposed by Gibb (2007b; 2006a: 32) shown in figure 4.6 below.

Figure 4.6 Potential key outcomes of entrepreneurship training



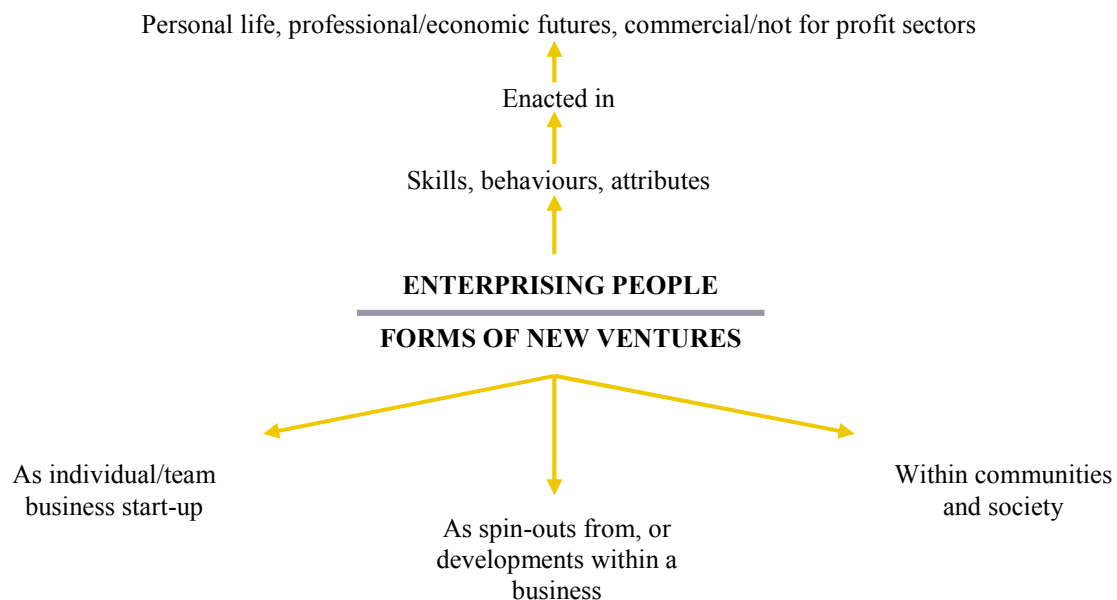
Source: Adapted from Gibb (2007b; 2006a: 32)

Figure 4.6 demonstrates that entrepreneurship education has the capacity to advance learners through eight stages in the development of competent entrepreneurs, with each stage

representing an outcome in its own right. The desired outcomes of entrepreneurship education are not limited to instilling entrepreneurial behaviours, skills and attitudes, but also include experiencing the concept and being motivated (instilling ‘want’) to pursue a career in entrepreneurship, and being brought to the point where learners are comfortable with the ‘how to’ of new venture creation and the formation of networks.

From another perspective, Hartshorn and Hannon (2005: 619) see the purpose of enterprise within the education curriculum as a matrix of outcomes. Each of these outcomes provide an enterprise environment context in which enterprising approaches at either the individual or the venture level can be enacted as shown in figure 4.7.

Figure 4.7 Outcomes matrix of entrepreneurship education



Source: Hartshorn and Hannon (2005: 620)

From figure 4.7 it is evident that entrepreneurship education has two distinct outcomes: Firstly, the development of enterprising people with the skills, behaviours and attributes to contribute meaningfully to all aspects of their personal, professional and commercial lives, and secondly, the formation of new businesses as start-ups, spin-outs from existing businesses and ventures supporting communities and societies.

The outcomes matrix of Hartshorn and Hannon (2005) encompasses the crux of the desired outcomes of entrepreneurship education: Not only does it designate what true entrepreneurs

do (i.e., new venture creation) as a required outcome of entrepreneurship education, but it also facilitates the development of enterprising people as the means (i.e., the ‘how to’) to create these new ventures.

For a country such as South Africa, the creation of jobs and the eradication of unemployment would constitute the ultimate long-term outcomes of entrepreneurship education. These outcomes have, at least partially, been realised in countries such as the United States of America (USA) where the promotion of centres and institutions for entrepreneurship resulted in job creation and the reduction of unemployment (Ndedi, 2009: 466), but is this possible for a developing country such as South Africa?

4.8 IMPACT ASSESSMENT, CHALLENGES AND BARRIERS

The preceding sections confirmed that entrepreneurship education is indeed a reality, and furthermore, that it is supported by identifiable drivers, conditions, objectives and outcomes. At the same time, and although the importance of entrepreneurship education is recognised, it is poorly embedded in the education system and often has no meaningful impact (Nkirina, 2010: 154).

It is said that one cannot manage something which has not been measured, and the same rule applies to education. It is crucial that the impact of entrepreneurship education and training interventions on learners be measured accurately to ensure that supporting programmes are conducive for the attainment of goals, but the delivery of effective entrepreneurship education is hindered by numerous challenges and barriers that need to be highlighted.

4.8.1 Assessing the impact of entrepreneurship education and training

...much of the entrepreneurship research to date has not provided empirical support for the claim that completion of formal courses in entrepreneurship and small business management increases the likelihood that an individual will start a business (Cox, Mueller & Moss, 2002: 230).

Not only does the academic literature suggest the lack of evidence to support the outcomes of entrepreneurship education (Cox *et al.*, 2002: 230), but it also acknowledges that the evaluation of these outcomes is fraught with challenges (Smith, Collins & Hannon, 2006: 560). Flexibility to adapt to the learning capacities of participants is an important design

consideration for entrepreneurship programmes, but at the same time, flexibility may pose challenges for accurate assessment. An assessed unit is described as consistent, replicable and similar in delivery, and as a result, programmes bent on duplicating the ‘real-world’ experiences of entrepreneurs may be extremely difficult to assess (Smith *et al.*, 2006: 564-565).

Gibb (2008: 10) concurs that the assessment of entrepreneurial behaviours, attributes and skills is a formidable task. The measurement of development progress over time is handicapped by the lack of a code for recognition and a satisfactory measurement system that allows for behaviours to be coded comparatively and weighted. Jones and Iredale (2010: 15) support this notion and put forward that a robust means of evaluating the impact of entrepreneurship education has yet to be determined.

Against these challenges, some indicators generally used for impact assessment include business performance, resulting innovations, business start-ups by graduates, student/alumni satisfaction, academic standards of students and attitudes and intentions to act on entrepreneurial opportunities (Mwasalwiba, 2010: 34).

At the same time, entrepreneurship educators still appear to be uncertain about both the effectiveness and impact of entrepreneurship education as whole (Matlay, 2006: 706). The lack of large scale evidence of the influence of entrepreneurship education and training on entrepreneurial activity is stressed by several scholars in the academic literature (e.g., Steenekamp *et al.*, 2011b: 316; Levie *et al.*, 2009: 2; Pittaway *et al.*, 2009: 72; Botha *et al.*, 2007: 164; Hartshorn & Hannon, 2005: 617; EU, 2004: 35; Lewis & Massey, 2003a: 199).

Hartshorn and Hannon (2005: 617) acknowledge the increase in enterprise activities offered in higher education learning, but point out that there have been few discussions concerning the appropriateness and effectiveness of the pedagogies that underpin these offerings. Lewis and Massey (2003a: 199) suggest that the focus on the ‘ideal’ delivery model has distracted researchers from acknowledging contextual diversity and evaluating how well entrepreneurship education programmes meet their objectives. These shortfalls in assessing the impact of entrepreneurship education cause significant lacunae in academic research on entrepreneurship (Steenekamp *et al.*, 2011b: 316).

In an attempt to redress these shortfalls, Gibb (2008: 20) proposes that the key question to be addressed in an assessment frame at the learning and behaviour level is the degree to which a

programme enables participants to “...*behave like an entrepreneur, think like an entrepreneur, feel like an entrepreneur, communicate like an entrepreneur, organise like an entrepreneur and learn like an entrepreneur.*”

Admittedly, much work needs to be done to explore these issues, as well as to formulate methods and means to determine whether these issues are indeed measurable, both for purposes of assessment and evaluation.

4.8.2 Challenges and barriers for entrepreneurship education

The common barriers preventing the start-up of new businesses, such as financial risk; the lack of self-confidence; the perception that entrepreneurship relies on too much hard work; the lack of a business idea or opportunity; and the lack of work experience (Robertson, Collins, Medeira & Slater, 2003: 313-314) in itself present major challenges for effective entrepreneurship education and training.

Add to the above the difficulty of accessing capital; limited exposure to entrepreneurship education and training in schools and tertiary institutions; highly bureaucratic procedures associated with starting a new business (Devonish, Alleyne, Charles-Soverall, Young Marshall & Pounder, 2010: 152); the inability of senior secondary school learners to attain satisfactory grades in financial literacy (Morris, 2001: 40); and the education system’s lack of support for personal financial responsibility (Morris, 2002: 4), and it becomes clear that entrepreneurship education faces immense challenges in the contemporary environment.

Research on entrepreneurship education exposes a wide array of shortfalls in entrepreneurial learning, including the lack of entrepreneurial skills (Bawuah, Buame & Hinson, 2006); more need for the development of interpersonal skills and social interaction (Man & Yu, 2007); more focus on creativity and prior entrepreneurial experience (Hamidi, Wennberg & Berglund, 2008); and the need for increased resources, the development of effective training material and the purposeful training of teachers (Birdthistle, Hynes & Flemming, 2007).

In response to these shortfalls, Gibb (2006a: 4) identifies the dominant need in education as the development of a model of entrepreneurship/enterprise education that has “...*wide appeal from primary, through secondary and further to higher education, that fits with broad educational goals, and allows for embedding in the curricula, ownership by teachers and allows for notions of progression.*” As a matter of course, the need for such a model in

entrepreneurship education is long overdue, but what are the underlying challenges and barriers preventing the development and implementation of such a model?

4.8.2.1 Stages of educational and economic development

Entrepreneurship education in South Africa is in its developmental stage (Co & Mitchell, 2006: 348), and on a global scale, entrepreneurship education research is still at the exploratory stage (Zampetakis, Kafetsios, Bouranta, Dewett & Moustakis, 2009: 612; Kuratko, 2005: 583; North, 2002: 24; Brazeal & Hebert, 1999: 29).

Although entrepreneurship education is supposed to form part of the secondary school curriculum, it is taught neither widely nor effectively enough (Herrington *et al.*, 2008: 32; Isaacs *et al.*, 2007: 621). The Umsobomvu Youth Fund (UYF, 2004: 31-32) found that almost 60% of South African schools (based on a sample of 39 leading schools in the nine provinces) could not produce any evidence of entrepreneurship training programmes being presented. Isaacs *et al.* (2007: 621) affirm this finding by concluding that no entrepreneurship training programmes were offered in almost 60% of the South African high schools evaluated in their study.

This phenomenon is not isolated to South Africa. The EU (2004: 32) concludes that ongoing and planned initiatives in Europe do not seem sufficient for making entrepreneurship education widespread in the school system and generally available to students. Hannon (2007: 204) concurs by pointing out that the higher education sector in England is not sufficiently focused on producing more entrepreneurs or promoting entrepreneurial activity.

The extent of this particular challenge goes deeper than a country's stage of development in entrepreneurship education and research. The level of economic development also has an influence as factor and efficiency-driven economies do not benefit from entrepreneurship education and training in the same way as innovation-driven economies (Martínez *et al.*, 2010: 43). This may be as a result of identifiable bottlenecks in the provision of basic requirements, certain efficiency enhancers and other entrepreneurial framework conditions. It follows that education and training may not have the desired impact until such time as there is adequate infrastructure, economic stability and market and technological readiness, as well as much improved quality of training.

4.8.2.2 Traditional approaches to teaching

The traditional approach to teaching is the antithesis of the entrepreneurial approach to teaching entrepreneurship (Smith *et al.*, 2006: 564). In its current form, entrepreneurship education appears to be mainly traditional with no emphasis on imagination, creativity and innovation (Dhliwayo, 2008: 331) and Smith (2005: 357) argues that it is disconnected from practice. Entrepreneurship education should be supported by three pillars consisting of industry, academics and public policy, and funds should be obtained to support these linkages, but no evidence of this support is forthcoming (Tan & Ng, 2006: 417).

Of equal concern are findings that academic business schools appear inadequate to teach entrepreneurship. Johannison (1991: 79) noted years ago that “...*to teach individuals to become not only more enterprising but businessmen as well...is an undertaking that in both time and scope is beyond the capabilities of an academic business school.*” A decade later, Gibb (2002b: 243) wrote that “[T]he ability of schools to plan strategically, look for niches, link closely with their local environment and yet still pursue an international dimension in their work and embrace a broader view of society and of related people skills may be beyond the capacity of the traditional school.”

Anderson and Jack (2008: 266) concur, and argue that typical business schools may be good at teaching formalised management methods, but are less well equipped to deal with the entrepreneurial aspects of education. This problem is not isolated to higher education, as the same can be said for both primary and secondary schooling where listen-and-learn and talk-and-chalk methodology remains deeply entrenched.

4.8.2.3 Policy development for young learners

Effective entrepreneurship education is dependent on the development and application of specific policies which take account of the needs of participants, and particularly, the needs of young learners. Entrepreneurial activity cannot be encouraged among young people by simply applying generic policies suitable for the wider population (Xheneti, 2006: 104). As a consequence, entrepreneurship education programmes cannot fall into a ‘one size fits all’ category (Hytti & O’Gorman, 2004: 15).

Thompson (1999: 210) rightly argues that people with entrepreneurial potential need to be engaged at a very young age to identify and exploit any entrepreneurial talent they might

have, and continues to say that this is *the* challenge for educationalists and the education system.

4.8.2.4 Resources for entrepreneurship education

The availability (or lack) of resources has a significant influence on entrepreneurship education. Cheung (2008: 511-512) lists insufficient time, insufficient teachers, and the lack of sufficient capital as three factors hindering the successful delivery of entrepreneurship education.

According to Gibb (2008: 9), one of the most critical barriers in the way of moving closer to the entrepreneurial process and its outcomes is time. Using the United Kingdom as an example, Gibb (2008: 9) argues that timeslots of 35 minutes are inadequate to transfer entrepreneurial behaviours and skills to learners, and maintains that the organisation of the curriculum in schools into small delivery slots is a major shortfall in entrepreneurship education. Delivering entrepreneurship education is a time consuming process; it requires high energy to deliver a programme successfully; it is complex; and the skills-set required for delivery is non-standard (Smith *et al.*, 2006: 565).

4.8.2.5 Poverty, unemployment and segregation

Countries where poverty, degradation and unemployment are pervasive and home to many youths lacking the skills and aptitude for independent living, hold unique challenges for entrepreneurship education. These restless young people often resort to violent and criminal behaviour in order to survive, and redressing this situation calls for purposeful programmes to redirect their energy towards productive ventures (Asuru, 2009: 28; Gibb, 2007a: 5).

The practice of separating learners based on their nationality, ethnicity, religion and social circumstances presents a special type of barrier for entrepreneurship education (Pollak, 2008: 401). In South Africa, the remnants of a highly differentiated education system are still clearly visible in the high concentration of socially disadvantaged learners in the lowest educational tracks. The associated problem is that an impoverished teaching and learning environment, such as is the case in many South African schools, is unlikely to provide any opportunities for personal development (Chell & Athayde, 2009: 11).

4.8.2.6 Pedagogy and the learning environment

Entrepreneurship education faces numerous challenges, including the lack of consensus about appropriate content and curricula; methodology vested in the ‘know-what’ approach rather than ‘know-how’; lack in the transfer of competencies, the development of skills and positive influences on attitudes; lack of funding; and lack of champions in the educational arena to drive the process of entrepreneurial education (Mentoor & Friedrich, 2007: 223).

According to Gibb (2007a: 7), the basic challenge worldwide is that entrepreneurship is mostly an ‘add on’ to existing curricula sometimes taught by visiting business mentors, or as extra-curricular activities at the primary and secondary levels of education (EU, 2004: 17). It is commonly believed that this situation constitutes an obstacle to the dissemination and availability of entrepreneurship education programmes (EU, 2004: 17).

The challenge is to embed entrepreneurship in the education system in such a way that it is reflected in the culture of the educational institution, the organisation of the classroom and the ability of the teacher (Gibb, 2007a: 7). Even if these goals are achieved, the enhancement of learners’ confidence in their abilities and perceptions of entrepreneurship cannot guarantee that they will indeed succeed as entrepreneurs, but at least it increases the likelihood that they will consider and try an entrepreneurial career (Kickul, Gundry, Barbosa & Whitcanack, 2009: 442).

Béchar and Grégoire (2005: 38) advance the single most important challenge for the future of entrepreneurship education as the need to develop scholarly expertise in the dual fields of entrepreneurship and education. It is said that without at least minimal expertise in education, the literature on entrepreneurship education will probably continue to be driven by practical and contextual concerns without cognisance of what is already known theoretically and empirically.

Hytti and O’Gorman (2004: 14) support this notion in their argument that the need for action-learning in practice has been over-interpreted in primary, secondary and tertiary educational institutions as running mini-businesses or virtual companies in the school curricula. Béchar and Grégoire (2005: 38) insist that practical and contextual concerns are important, but concur by emphasising the need for closer integration of relevant, established knowledge in education with the practical and contextual aspects of entrepreneurial learning.

The design of pedagogy to develop entrepreneurial behaviours, skills and attributes often combine behaviours that can be observed, skills that can be developed, and attributes that are deemed to be part of a person's personality. These aspects are open to influences from the environment, and the challenge is to create a learning environment that provides opportunities for practising and developing these behaviours, develop the required skills and reinforce attributes (Solomon, 2007: 168; Gibb, 2002a: 139). As a result, educators are challenged with designing effective learning opportunities for entrepreneurship students (Solomon, 2007: 173).

Jones (2006: 346) adds that the challenge for entrepreneurship education would seem to be “...*the development of a learning space where students feel comfortable to fail, excited by the simplicity and focus of the literature used, motivated by the freedom afforded to them, yet challenged by the need to engage in various activities through which their personality is drawn out.*” Put simply, the challenge for both the design and delivery of effective entrepreneurship education is to ensure the “*imaginative acquisition of knowledge*” (Whitehead, 1929: 96).

4.8.2.7 Striking a balance between freedom and discipline

Another barrier for effective entrepreneurship education is failure to create a balance between freedom in learning and discipline to learn (Jones, 2007: 602). Learners need to have freedom to experiment with and experience entrepreneurship, but at the same time, effective learning requires discipline in the associated curriculum. Failure to strike an optimal balance between freedom and discipline threatens the educational processes that Whitehead (1929) so aptly described as the ‘rhythm of education’.

4.8.2.8 The educational contract

Gibb (2008: 14) advances the notion of the educational contract as a significant barrier to entrepreneurial learning. The educational contract commences when a learner enters primary school and carries through secondary to higher education with significant implications for entrepreneurial learning as shown in table 4.2 on the following page.

Table 4.2 The educational contract as a barrier to entrepreneurial learning

The educational contract as a barrier to entrepreneurial learning		
Level	Contract	Personal development aspect
Primary	Strong focus upon personal development and child-centred learning; culture of testing is steadily encroaching	Enterprise education is easily built into the contract, provided that it has wider variety
Secondary	Increasing change towards preparation for subject centred examinations and eventual specialisation	Personal development aspect is weakened in favour of an instrumentation approach (the learner as a vehicle for transmission and regurgitation of knowledge)
Further education and vocational sector	Stronger focus upon preparation for the world of work within a 'profession' or 'craft' context	Stronger personal development element, but in a more focused context
Higher education	Focus upon delivery of disciplinary based education and research based on explicit and academically defined knowledge	Personal development is diminished in favour of the pursuit of knowledge and the acquisition of a degree

Source: Gibb (2008: 14)

Table 4.2 reveals that primary schooling and the further education and vocational sector are suitable vehicles for entrepreneurial learning. Entrepreneurship education can easily be built into primary schooling for reasons relating to the receptiveness of young children and the focus on child-centred learning. The further education and vocational sector is also conducive for entrepreneurial learning due to the strong element of focused personal development.

One would expect secondary and higher education to provide similar benefits, but table 4.2 indicates that personal development is sacrificed respectively for creating 'robots' capable of regurgitating knowledge and pursuing knowledge to acquire a degree. Acquiring a degree is in itself a significant personal achievement, but more importantly and distinctly omitted from Gibb's conception, is what graduates should be able to do with these qualifications.

4.8.2.9 Future challenges for entrepreneurship education

To conclude this section on the challenges and barriers for effective entrepreneurship education, some future challenges warrant a brief examination. Kuratko (2005: 586-589) highlights ten future challenges that will impact on entrepreneurship education shown in table 4.3 on the following pages.

Table 4.3 Ten future challenges for entrepreneurship education

Ten future challenges for entrepreneurship education	
Challenge	Dilemma
Maturity/complacency/stagnation trap	➤ Real maturity and complete academic legitimacy of the entrepreneurship field still lacking ➤ Young entrepreneurship faculty needs to be ignited ➤ Collective leadership needed to inspire next generation of faculty to take entrepreneurship education to the next level
Research/publications dilemma	➤ Too many academic journals chasing too few quality articles on entrepreneurship ➤ Respected journals should be promoted to open more quality research venues for young faculty ➤ Research drives business schools, therefore, research in entrepreneurship should become part of this drive
Faculty pipeline shortage	➤ Shortage of entrepreneurship faculty at every academic rank ➤ The lack of doctor of philosophy (PhD) programmes to provide pure entrepreneurship faculty ➤ Entrepreneurship needs to move into a leadership position within business schools
Technology challenge	➤ Negative trend regarding the use of technology in entrepreneurship education ➤ Limited use of distance-learning technologies ➤ Entrepreneurship education must recognise and apply technology in the educational setting
‘Dot-com’ legacy	➤ The ‘dot-com’ burst collapsed the true entrepreneurial talent of building a dream into an enduring entity ➤ Re-focus needed on the true goals of entrepreneurs and the motivation that permeates from them ➤ The mission of entrepreneurship education should return to the ideal of developing true entrepreneurs
Academia vs. business incongruence	➤ Entrepreneurs need to be integrated with academics in the classroom ➤ Practising entrepreneurs must present more than interesting stories and delve into the real problems of their ventures ➤ Students need exposure to those entrepreneurs who have paid the price, faced the challenges, and endured the failures
Dilution effect	➤ Danger of diluting the real meaning of entrepreneurship ➤ The term ‘entrepreneurial’ is often used for purposes other than enhancing the field of entrepreneurship education ➤ Entrepreneurship educators must be the guardians of the true meaning and intent of the word ‘entrepreneurship’

Table 4.3 Cont.	Ten future challenges for entrepreneurship education
Challenge	Dilemma
Security-risk dilemma	➤ Students are encouraged to take risks while faculty pursues security and stability for their curricula ➤ The flame of risk and challenge should not be extinguished in entrepreneurship education ➤ Senior faculties should support younger, more aggressive entrepreneurship professors in promoting entrepreneurial activity through truly entrepreneurial education
Administrative leadership revolving door problem	➤ Entrepreneurship education has grown exponentially, yet administrative support remains sporadic at best ➤ Position changes in educational institutions causes changes in values and vision, often to the detriment of entrepreneurship education ➤ Entrepreneurship education needs to be put in a leadership role at educational institutions to prevent this
'Power of one' challenge	➤ Entrepreneurship programmes are often started and driven by a single, determined educator ➤ Critics argue that such programmes are weak as they hinge on that one person's drive and determination ➤ This may actually be a strength, as the power of one to make a difference is more apparent in the entrepreneurship field of study than in any other academic discipline

Source: Extracted from Kuratko (2005: 586-589)

Table 4.3 exposes deep-rooted challenges for entrepreneurship education mainly at the tertiary level, but it can be argued successfully that these problems permeate to all levels of education in which entrepreneurship finds application. Although these challenges are put forward as futurities, it stands to reasons that it already has severe negative implications for the development of more true entrepreneurs in the here and now.

4.9 CHAPTER SUMMARY

Chapter four set out to determine whether entrepreneurship education is a reality or a myth. The paradoxes underlying an entrepreneurial lifestyle were highlighted, and the capacity of educators and other stakeholders to instil sufficient levels of tolerance for the ambiguities surrounding entrepreneurship and the knowledge to overcome the associated uncertainties and risks was questioned.

Notwithstanding several arguments that true entrepreneurs are born, sufficient evidence was extracted from the academic literature to conclude that entrepreneurship can indeed be learnt. This finding produced further impetus not only for the importance of this particular study, but also for renewed efforts to develop an entrepreneurial mindset in learners through effective entrepreneurship education.

Examination of the words ‘entrepreneurship’ and ‘enterprise’ revealed conceptual similarities with contextual differences, but showed that both approaches are needed for a holistic approach towards entrepreneurship education. On the other hand, distinct differences were identified between entrepreneurship/enterprise education and management or business studies. It was concluded that entrepreneurs need business and management knowledge to survive and prosper in the world of business, and that learning in support of attaining such knowledge should be included in curricula. At the same time, it was concluded that entrepreneurship is much more than managing a company, and this finding reiterated the call for a broader concept of entrepreneurship education.

Differences were also highlighted between the words ‘education’ and ‘training’ that are often used interchangeably in the academic literature. It was concluded that education is more concerned with producing a product (i.e., an entrepreneurial person), whereas training is more concerned with the process of entrepreneurship (i.e., instilling the skills needed for entrepreneurial activity). Consequently, it was argued that both methods of tuition are required to transfer general knowledge and critical thinking skills through entrepreneurship education as preparatory for the subsequent infusion of practical skills and process capability through entrepreneurship training.

Based on these findings, it was concluded that the words entrepreneurship, enterprise, education and training are interdependent and integral components of entrepreneurship education. Rather than attempting to propose a new universal catch-phrase for an all-inclusive term for the development of entrepreneurs, it was concluded that the current vocabulary may be used interchangeably and appropriately in the broader context of promoting entrepreneurship through education under the inclusive banner of entrepreneurship education.

The exploration of existing definitions for entrepreneurship education culminated in the formulation of a new definition embracing both education and training. It described

entrepreneurship education as a pedagogy that will enable individuals and groups to participate meaningfully in all aspects of life, create something of value, and gain either financial independence, or personal satisfaction, or both.

Following the construction of this new definition, the importance of education was discussed proving beyond doubt that it is an integral part of individual, collective, economic and social progress. Evidence of the link between general education and entrepreneurial activity was presented and the importance of both entrepreneurship education and youth entrepreneurship education was highlighted.

The concept of entrepreneurial learning and its crucial role in the development of competent entrepreneurs were explored. The discussion showed that entrepreneurial learning is dependent on effective learning from theoretical, practical and social sources, and it was concluded that this type of learning is far more than traditional learning or learning from entrepreneurship education and training in its current form. The role of the learner in entrepreneurial learning was escalated to that of bearing the responsibility to ‘learn from *everything*’ in search of becoming a competent entrepreneur.

Concerns were raised regarding the lack of entrepreneurial experience and exposure to entrepreneurs, particularly on the part of young learners. These concerns emphasised the need for a major paradigm shift in didactic approaches, the involvement of a wide range of stakeholders, the purposeful development of educators and trainers, and much more sweat-capital from participating learners.

The subsequent examination of the essentials of entrepreneurship education produced sufficient evidence of valid drivers, in particular *energy* and *excitement* (the ‘want’-component), as well as clear conditions, objectives and outcomes. It was concluded that the objectives of entrepreneurship education must be clear; it must ‘unlock’ the spirit of enterprise and instil elevated levels of ‘want’; and it must provide a learner-centred environment enabling true entrepreneurial learning to have any chance at being truly successful. In essence, entrepreneurship education must have the development of enterprising people and the formation of new businesses as both its main objectives and outcomes.

Examination of the impact assessment of entrepreneurship education exposed a lack of evidence supporting its value, as well as many shortfalls requiring urgent attention. It seems as if the drive towards an ‘ideal’ model of delivery has distracted researchers from evaluating

how well entrepreneurship programmes meet their objectives. As a consequence, it was concluded that much work needs to be done to explore these issues in depth (such as is the objectives of this study).

Numerous challenges and barriers obstructing effective entrepreneurship education were presented. Evidently, these challenges and barriers are deeply embedded in current policies and educational approaches, but for a country such as South Africa, also in poverty, unemployment and the aftermath of many years of political, social and educational segregation. The chapter concluded with ten future challenges (table 4.3), but it was clear that these challenges already have significant implications for entrepreneurship education in the current context.

Three aspects of entrepreneurship education that emanated from this chapter need to be exclaimed: Firstly, the incapacity of definitions to prescribe in detail what should be taught in entrepreneurship education, and the presence of some contradictions relating to both differences and complementary interdependencies between education and training; entrepreneurship and management; and entrepreneurship and the concept of profit in varying forms of entrepreneurship present in more than just the economic domain, reaffirm the challenges associated with capturing the true essence of entrepreneurship education.

Secondly, and closely related to the first point, there is cause for the statement by Lewis and Massey (2003a: 204) that the term ‘best practice’ has no place in the vocabulary of entrepreneurship education. The rigidity of best practice limits the translation of theory into practice, simply because agents of delivery have a “...*heightened awareness of the uniqueness of their own context.*”

Instead, the term ‘good practice’ is put forward as being more appropriate for entrepreneurship education as it allows for differentiation in delivery to suit different learners, cultures and contexts (Lewis & Massey, 2003a: 204). Entrepreneurship education is *anything* and *everything* that will support learning, as well as transform such learning outcomes into entrepreneurial activity and reality within a given context and environment.

Thirdly, and notwithstanding the recognised importance of all stakeholders in entrepreneurship education as evident from this chapter, two role players are clearly designated as the main constituents of successful entrepreneurship education: Learners and educators. It is those learners consciously deciding to learn from *everything* who will move

on to become competent entrepreneurs, and it is those educators with enough confidence in their own abilities and determination to take on the ‘power of one’ challenge who will make the much needed difference in entrepreneurship education.

Chapter four concludes that entrepreneurship education is no myth, but also that it can only be deemed a reality to the extent in which measurable evidence of its positive impact on learners exists.

CHAPTER FIVE

LITERATURE REVIEW: ENTREPRENEURSHIP EDUCATION AND THE ‘EUREKA’-FACTOR

5.1 INTRODUCTION

Chapter four concluded that entrepreneurial capability is a learnt phenomenon and that entrepreneurship education is no myth, but failed to disclose in detail what should be taught, how it should be taught and who is responsible for teaching it in order to release the spirit of enterprise and promote entrepreneurial activity.

This shortfall leaves a significant gap in the design and implementation of *effective* entrepreneurship education programmes, and consequently gives rise to the following research questions: What is being taught in existing entrepreneurship programmes? What should be taught and how should it be taught to constitute effective entrepreneurship education? How should teachers and educators be developed to enable them to deliver programmes with the desired impact on learners? What are the roles of other stakeholders in effective entrepreneurship education?

Chapter five aims to address these questions and provide a benchmarking template for the inculcation of good practices in entrepreneurship education and training, especially in South Africa and for young learners. The chapter concludes with a proposition for something this study calls the ‘eureka’-factor in entrepreneurship education. This factor, which emanated from extensive reading in preparation for this study, will be presented as the crucial element required to transform *anything* and *everything* that is taught in entrepreneurship education into *effective* entrepreneurship education (i.e., true entrepreneurial learning) and attain the overriding goals of developing enterprising people and promoting the formation of new, entrepreneurial ventures.

For the time being, the reader is cautioned not to advance to the discussion of the ‘eureka’-factor at the end of this chapter before digesting the contents of the sections to follow. The reason for this admonition is that the current content and recommendations for curriculum development in entrepreneurship education, combined with methods of tuition, the development of teachers and educators, and the influences of other stakeholders, are in fact the basis for delivering entrepreneurship education (i.e., the ‘what’, ‘how’ and ‘who’ of

teaching entrepreneurship). The 'eureka'-factor, on the other hand, is key to transforming what is learnt and how it is learnt into entrepreneurial capabilities and action, and resultantly, into the development of competent entrepreneurs.

5.2 ENTREPRENEURSHIP EDUCATION: THE CURRENT PARADIGM

What is being taught in *ad hoc* entrepreneurship education and training programmes, and particularly, insofar young learners are concerned? This question was put forward in the introductory section and calls for the examination of entrepreneurship programmes to determine the scope of past and present education and training interventions.

In search of answers, both the academic literature on entrepreneurship education and the World Wide Web (www) were consulted using keywords such as 'youth', 'entrepreneurship', 'education', 'training', 'organisation' and 'provider'. The results were voluminous and provided insight for the discussion below on both the content of existing entrepreneurship education and training programmes and the methodology and course content employed by specific entrepreneurship training providers.

5.2.1 Entrepreneurship education and training curricula in general

One illuminating approach to entrepreneurship education is that of the University of Derby in the United Kingdom - it uses 'YOMP'-methodology to educate young entrepreneurs (Beizsley, 2007). The term 'YOMP' was coined by the Royal Marine Core to describe a long distance march carrying full kit, and the relationship between entrepreneurship and a 'YOMP' emanates from the following explication by Beizsley (2007: 1):

A YOMP is a long march at speed, to a defined goal over rough terrain, in a given time period, carrying a heavy backpack. The backpack represents the responsibilities inherent in a business. Each team must set a goal, give it a timeframe and using the YOMP methodology, plan the quickest and easiest route to achieve the goal.

A 'YOMP' seems to be a fitting description for effective entrepreneurship education: Not unlike a long march, entrepreneurship is a long journey in a fast, vibrant environment over rough terrain, and the entrepreneur has to carry a heavy backpack containing a vast array of responsibilities and risks inherent to the world of entrepreneurial business formation. The

question is whether these similarities are indeed present in current youth entrepreneurship education and training programmes.

In general, there seems to be three complementary approaches to youth entrepreneurship education and training. The first approach is focused on different methodologies employed in formal entrepreneurship education, whereas the second approach is to expose aspirant entrepreneurs to coaching, mentoring and networking, as well as to provide the much needed resources to stimulate new venture creation. The third approach is based largely upon the concept of action-learning, and is vested in using games, simulation and the establishment of mini-companies as part of the educational process.

5.2.1.1 Methodologies in formal entrepreneurship education

Various methods are used across the globe to transfer entrepreneurial knowledge and skills to young learners. Formal entrepreneurship education is generally mainly materials-based, and entrepreneurship awareness, education and training are often designated as the first pillar of youth entrepreneurship development initiatives (such as the 2010 Youth Entrepreneurship Campaign of the now defunct Umsobomvu Youth Fund) (UYF, 2010).

In some instances general business studies have been replaced with entrepreneurial development packages to stimulate entrepreneurial learning. As an example, the Windhoek Vocational Training Centre (WVTC) in Namibia incorporated the International Labour Organisation (ILO) 'Start and Improve Your Business' (ILO-SIYB) programme as an entrepreneurial development package to replace its general business studies curriculum. The SIYB-programme is materials-based and provides learning matter for both potential and existing entrepreneurs ranging from idea generation, business start-up and developing a business plan, to manuals for improving businesses, costing, planning, marketing, stock control, people and productivity (WVTC, 2007).

Calls for improved vocational education and training (VET) are aimed at making education systems more responsive to labour market needs and boosting economic growth (OECD, 2009), and may also emerge as a contributor to entrepreneurship education. In support of this proposition, Woods (2008: 465) puts forward that VET aims to provide students with the technical knowledge and skills required to enter the workforce for the first time, to re-enter the workforce, to retrain for a new job or to upgrade their skills for an existing job.

In other instances new teaching strategies have been introduced into the classroom to stimulate entrepreneurial learning. As an example, Cheung (2008: 512-513) found similarities between the objectives and content of entrepreneurship programmes in China (Hong Kong) and Western countries, as well as a systematic shift from the traditional classroom setting with teachers receding into the background, while learners are expected to become more independent in their learning activities.

The proliferation of internet-based learning resources for entrepreneurs is another method to bring entrepreneurial knowledge and skills to the masses (Ueckermann, 2006; Posthumus, 2001: 68-69). As an example, the 'ebio'-website (www.ebio.co.za) is a materials-based resource for learning to improve aspiring entrepreneurs' skills in communication and business language, as well as promote access to the economic and social infrastructure in South Africa (Ueckermann, 2006).

Private businesses in the country are also attempting to redress the problems of high unemployment, low economic growth and sub-standard entrepreneurial activity: The South African Breweries (SAB), as part of its SAB KickStart Programme, presents a two week live-in training module in business management as the formal learning component of its programme to establish and grow entrepreneurial businesses among young South Africans (Swanepoel *et al.*, 2010: 58).

Other programmes abroad, such as the Young Enterprise Graduate Programme, the Science Enterprise Challenge (SEC) and the Discovering Entrepreneurship Programme in the United Kingdom, are respectively informed by a corporate and functionalist view of enterprise; aimed at increasing the exploitation and commercialisation of world-class science and technology (Hartshorn & Hannon, 2005: 617); and based upon a tripartite approach to teaching entrepreneurial behaviour by pooling undergraduate students, entrepreneurs and academics in a collaborative learning environment where all participants can learn with and from each other (Smith *et al.*, 2006: 556).

5.2.1.2 Coaching, mentoring, networking and access to resources

Fears of rising unemployment have heightened the importance of entrepreneurship and small business development, in particular for developing countries such as South Africa. One enterprise established to address this issue by developing entrepreneurs and business owners from inception by way of personal coaching, business mentorship, networking workshops

and the provision of access to its team of professional resources and products, is the Cape Town-based Entrepreneur Incubator. It creates a supporting network of information, products and services to smooth the rocky road of business and finance for aspiring entrepreneurs (Anon., 2009).

Previously, and before its incorporation into the newly formed National Youth Development Agency (NYDA) in 2009, the Umsobomvu Youth Fund (UYF) supported initiatives to promote the provision of access to finance, procurement and business support by encouraging businesses and organisations to develop policies and programmes accessible by the youth. These initiatives were flagship categories underlying the activities of the UYF such as 'Y-Procure™', 'Y-Finance', 'MyMentor™', 'Y-Startup™' and 'Y-Support' to promote and support entrepreneurial activity among young South Africans (UYF, 2010; also see Ka Modada, 2007; Anon., 2006; 2005; Ndebele, 2005; Daniels, 2004; Kekana, 2003; NYDA, n.d., a & b).

Whereas formal entrepreneurship education and training is aimed at arming young entrepreneurs with the awareness, knowledge and skills to engage in entrepreneurial business venturing, the provision of coaching, mentoring, networking and access to resources play an integral role in transforming such awareness, knowledge and skills into practical entrepreneurial activity.

5.2.1.3 Games, simulation and mini-companies

Games are often used in enterprise education to produce useful learning outcomes. As an example, the Resource Allocation Game developed in Australia (Jones, 2007) is designed to first confuse learners before allowing them to develop a greater sense of understanding of the theory within a given learning module. Learners must overcome the confusion resulting from the game as a test of their persistence and ability to manage ambiguity and enable them to experience the trade-off between incorporating risk into their behaviour and playing it safe (Jones, 2007: 598, 603).

One of the main benefits of games in entrepreneurship education is that it advances learning outcomes by forcing learners into a zone of discomfort or significant challenge. Learners who are willing to fail in order to succeed can experience failure, misjudgement and the effects of overconfidence in a relatively safe environment (Jones, 2007: 603). Le Roux and Steyn (2007: 335) maintain that simulation games have distinct benefits for entrepreneurship

education and describe the Successneur™ Business Decision Simulator (SBDS) as a basic business start-up simulation board game that forces constant decision-making on the part of learners.

As another example of the evolution of simulation games in education, the author met with the developers of the Small Business Accounting Simulator board game (www.profin.co.za) during the writing of this chapter. The purpose of the meeting was to evaluate this newly-developed game's relevance for contemporary entrepreneurship education. Although the purpose of the simulator is focused on developing accounting skills for new and established small business owners, the benefits of bringing such a practical, financial instrument into the domain of youth entrepreneurship education should be implicit.

Lastly, the concept of establishing, running and liquidating mini-businesses or practice enterprises as part of action learning is also well-embedded in global entrepreneurship education. Learners participating in entrepreneurship programmes are often required to set up and run their own business, write business plans and deal with the success factors of real business venturing (Cheung, 2008: 513).

5.2.2 Entrepreneurship education and training providers

The discussion in the preceding section suggests the prevalence of a vast number of programmes and training providers aimed at promoting entrepreneurship globally. From an organisational point of view, the internet search keywords presented earlier identified eight established entrepreneurship education and training providers abroad, including Enterprise North Shore (ENS), Junior Achievement (JA), Junior Achievement-Young Enterprise (JA-YE Europe), New Entrepreneur Scholarships (NES), the Prince's Scottish Youth Business Trust (PSYBT), Young Achievement Australia (YAA), the Young Enterprise Scheme (YES) and the Young Enterprise Trust.

The leading youth entrepreneurship education and training providers in South Africa are (in alphabetical order) the Education with Enterprise Trust (EWET), the Foundation for Economic and Business Development (FEBDEV), Junior Achievement South Africa (JASA) and the South African Institute for Entrepreneurship (SAIE) (Friedrich *et al.*, 2005: v; UYF, 2004: 27). Both EWET and JASA are of particular interest to this study as the former participated in the pilot study of the empirical research (see chapter seven) and the latter in the main study (see chapters eight and nine).

The discussion to follow briefly examines the teaching methodologies and course content of each of these training providers.

5.2.2.1 The Education with Enterprise Trust (EWET)

The Entrepreneurship Development Conference (EDC, 2008: 10) earlier concluded that challenges facing entrepreneurship in schools include the lack of resources, the lack of learner commitment and the low levels of skills and confidence on the part of teachers involved in teaching entrepreneurship. Against these challenges, schools play a major role in shaping young people's lives, and the EDC (2008: 10) found that the Youth Enterprise Society (YES) clubs run by the Education with Enterprise Trust (EWET) provide an opportunity for young people to be exposed to entrepreneurship as a viable career option.

EWET, a “...unique, non-profit development organisation, with a proven track record, which through collaborative alliances, proudly contributes to the cultivation of entrepreneurship within marginalised communities in South Africa” (EWET, 2011: 7), was established in 1992 as an educational trust with the aim of helping the South African youth to make more of their lives (EWET, 2009a). The YES-programme involves whole communities, including local business people, trade union representatives, educationalists and other community members to create awareness and interest in free-market entrepreneurship as a career option for young people (EWET, 2009b).

The main objective of YES is to empower young people through enterprise and the programme, once adopted by a target school's leadership, is structured as set out below (Anon., 2010: 33):

- ✦ Each YES society consists of 45 learners under the leadership of their YES advisor (a participating teacher). The group meets to discuss and adopt their society's constitution.
- ✦ Members of the society set about canvassing for votes and hold an election for the leadership positions within the structure. The members then separate into three groups known as YES Pioneers (15 grade nine learners), YES Champions (15 grade 10 learners) and YES Entrepreneurs (15 grade 11 learners) to duplicate the society leadership positions and elect their team committees.
- ✦ Each YES society has three to six specially trained YES Advisors assisting the society with the facilitation of proceedings.

- ✦ YES societies meet twice a week after school, both as the entire society and in their respective teams. Meetings are chaired by the Society President and focus on the society's particular business undertaking.
- ✦ YES members receive training in practical skills through action-learning in 17 YES business competencies in which they have to obtain a pass-grade. Teams present their work to panels of growth agents comprising local business people and their YES advisor who rate and grade their activities against set criteria.
- ✦ The YES advisor acts as secretary during team presentations and carries the responsibility for delivering the assessment panel's grading to the local YES Programme Assistant for recording and the issue of competency credit stickers. These stickers are placed on members' Competency Certificates (Anon., 2010: 33), and successful 'graduates' are referred to as YES Alumni (EWET, 2009b).

A highlight of EWET's activities is the annual Entrepreneurship Education Simama Ranta competition ('Simama' meaning empowerment) in partnership with the South African Electricity Supply Commission (ESKOM) (EWET, 2010). The competition is open to all secondary schools in the country, and nine provincial finalist schools (Provincial Entrepreneurship Education Schools – PEES) are selected annually. A panel of judges, representing the Department of Education (DoE), the private sector and experts in entrepreneurship education, selects the national winner (National Entrepreneurship Education School – NEES) from the nine provincial winners (ESKOM, 2010).

The key components of the Simama Ranta competition are contained in EWET's 'Eleven Principles of Effective Entrepreneurship Education' listed below (EWET, 2010):

- ✦ Principle one: *“Effective entrepreneurship education is based upon a clear understanding and communication of what the word entrepreneurship (operational definition) means for the schools, as it is applied to all the related initiatives of the school. Such an understanding is comprehensive to include thinking, feeling, and behaviour.”*
- ✦ Principle two: *“Effective entrepreneurship education utilises good content syllabi materials within the classroom, across various subjects as it relates to the Learning Outcomes and Assessment Standards linked to the particular National Curriculum Statement.”*

- ✦ Principle three: *“Effective entrepreneurship education is depended [sic.] on the educator’s ability to follow innovative teaching approaches that align itself to facilitation rather than instruction.”*
- ✦ Principle four: *“Effective entrepreneurship education ensures continuous educator development within the field of entrepreneurship education and provides incentives for those educators who are in pursuit of such excellence.”*
- ✦ Principle five: *“Effective entrepreneurship education links in-school curriculum work with extra-mural activities where learners are able to apply and practice the theory through practical activities.”*
- ✦ Principle six: *“Effective entrepreneurship education involves parents, community members, business people, and other relevant stakeholders as partners in the development of the learners in pursuit of the creation of a culture of entrepreneurship.”*
- ✦ Principle seven: *“Effective entrepreneurship education has clearly defined aims and objectives that it intends to achieve in a particular school, and measures itself regularly against these aims and objectives to evaluate progress made and to devise strategy.”*
- ✦ Principle eight: *“Effective entrepreneurship education supports initiatives that have been initiated by learners in a manner that enhances the self-motivation of such learners.”*
- ✦ Principle nine: *“Effective entrepreneurship education ensures whole school involvement in a manner that appreciates and enhances the role that the provincial Department of Education (DoE), DoE district offices, the School Governing Body (for government schools), the principal, school management, administrative staff and teaching staff have to play.”*
- ✦ Principle 10: *“Effective entrepreneurship education promotes entrepreneurship as a career choice amongst all the learners of a school.”*
- ✦ Principle 11: *“Effective entrepreneurship education makes use of effective outreach and networking strategies”* (EWET, 2010).

5.2.2.2 Enterprise North Shore (ENS)

Enterprise North Shore (ENS) was established in 1993 by the New Zealand North Shore City Council to add value to the community through the implementation of the city’s Economic

Development Strategy (ENS, n.d., a). The organisation is committed to creating a vibrant, world-class economic environment based on the four pillars of enterprise establishment and retention; education and employment connections; enterprise information, promotion and excellence; and enterprise development and acceleration.

Since 1997 the North Shore has outperformed its regional neighbours and the national rate of New Zealand in growth of gross domestic product (GDP) and employment, and these successes are ascribed to the city's focus on a number of initiatives. These initiatives include, among several other, a business attraction programme, a skills and employment programme, high-growth sector targeting and investment in technology to increase research and development capability in the region (ENS, n.d., a).

Enterprise North Shore is an advocate of programmes that encourage the early development of work-related and entrepreneurial skills among the youth (ENS, n.d., b). As a result, the organisation is involved in a number of school-based programmes including the Lion Foundation Young Enterprise Scheme (YES), the Gateway programme and Education-4-Enterprise. A brief discussion of each of these programmes is warranted:

- The Lion Foundation Young Enterprise Scheme (YES) runs internationally and in New Zealand secondary schools at years 12 and 13. It fosters tomorrow's entrepreneurs by giving young learners the opportunity to form a business, create a business plan, and produce goods and services to sell.
- The Gateway programme is designed to strengthen the pathway for learners from school to workplace learning. Learners are placed with local businesses where they have to work one day per week for a minimum of 20 weeks during the second and third terms of each year. Learners are assessed in the workplace for unit and achievement standards contributing to both the National Certificate of Educational Achievement (NCEA) and industry specific qualifications. The Gateway programme enables young learners to gain practical work knowledge, while businesses are given access to future employees with the necessary skills and experience to excel in their particular industry and alleviate local skill shortages.
- Education-4-Enterprise is neither a separate subject at school, nor is it about setting up a business. The programme is aimed at engaging learners at all levels to ensure their learning is relevant and that they develop as enterprising individuals. Participating

learners are nurtured to develop skills, competencies, understanding and attributes equipping them to be innovative in their behaviour. The outcome of the programme is said to be learners that are able to “...*identify, create, initiate and successfully manage personal, community, business and work opportunities*” (ENS, n.d., b).

5.2.2.3 The Foundation for Economic and Business Development (FEBDEV)

Although the Foundation for Economic and Business Development (FEBDEV) was ranked by the Umsobomvu Youth Fund (UYF) as one of the leading youth entrepreneurship education and training providers in South Africa (UYF, 2004: 27), very little information is available about the activities of the organisation.

Wiser Earth (n.d.), a social network for sustainability, classifies FEBDEV as an activist, educational, non-governmental networking organisation with regional coverage in the Western Cape. The organisation facilitates development only by invitation, and claims to inspire and energise communities to change their socio-economic environment through entrepreneurship and innovation.

FEBDEV focuses on research, programme development and accountable service delivery, and manages and facilitates a dynamic action-learning business development programme claiming to transform the unemployed into employers with growing businesses in a period of two to four years. Another focal point of the organisation is the development of educators, and it is said to have assisted more than 5 000 educators nationally to create enterprising learners through real entrepreneurial activities during and after teaching hours (Wiser Earth, n.d.).

5.2.2.4 Junior Achievement (JA) and Junior Achievement South Africa (JASA)

Entrepreneurship, or the creation of a new businesses, is an integral and significant activity in building strong economies and a growing job market (JA, 2010c: 8). Junior Achievement (JA) has been promoting business education since 1919, first through an after-school secondary programme, and later through in-school partnerships with educators (JA, 2010b; Pratten & Ashford, 2000: 2).

Junior Achievement (JA) Worldwide is a partnership between the business community, educators and volunteers working together to inspire young people to “...*dream big and reach their potential.*” In a 2006 poll of more than 1 400 middle and high school learners, JA

found that almost 71% of these learners would like to be self-employed at some point in their lives (Gangemi, 2007). As a result, 330 000 JA volunteers teach almost 380 000 classes to more than nine million students every year, and the organisation's hands-on, experiential programmes teach the key concepts of work readiness, entrepreneurship and financial literacy to young people all over the world (JA, 2010a).

The organisation's unique delivery system provides training, materials and the support necessary to increase learners' chances for entrepreneurial success (JA, 2010b). Junior Achievement Worldwide and Junior Achievement South Africa (JASA) offer a wide range of tailor-made programmes to young learners at school, and a brief mention of each of these programmes is warranted (JASA, n.d.):

- ✦ 'Banks in Action': Programme exploring the banking sector, how banks function and careers in banking, including a computer simulation exercise of running an actual bank (16 hours; grades 10 to 12).
- ✦ 'Exploring Economics': Focuses on how an economy works, including micro-, macro-, personal- and international economics (seven hours; grades nine to 12).
- ✦ 'JA in a Day': One day programme introducing learners to entrepreneurship through a number of interventions (three hours; grades 10 to 12).
- ✦ 'JA Titan': Introduces learners to critical economic and management decisions using an interactive simulation (seven hours; grades 10 to 12).
- ✦ 'Job Shadow Internship Programme': Holiday internship where learners are rotated throughout a participating business to explore possible careers in a variety of settings (10 days; grades 10 to 12).
- ✦ 'Junior Achievement SA Career Day': Career workshop for parents, learners and educators with direct access to professional advice from career professionals and tertiary educators (one day).
- ✦ 'Mini-Enterprise Programme' (MEP): Intensive business programme where learners start and run their own business after selecting a product or service (36 hours over 11 weeks; grades 10 to 12 and out-of-school youth up to the age of 25; also the programme examined in the main study presented in chapters eight and nine). Learners who have successfully completed the MEP are given the opportunity to write the Cambridge

Examination, an internationally recognised entrepreneurial qualification underwritten by Cambridge University.

- ✦ 'More Than Money': Teaches learners about earning, spending, sharing and saving money, as well as about businesses they can start or jobs they can do to earn money (six hours; grades three to five).
- ✦ 'TTBIZ': Focuses on the tourism business where learners are shown how to conduct market research, learn how to use information and communications technology, and design and operate a small tourism business (10 weeks; grades 11 to 12 and out-of-school youth).
- ✦ 'Be Entrepreneurial': Learners develop the essential components of a business plan, and in so doing, are challenged to launch an entrepreneurial venture while still in secondary school (seven hours; grades nine to 12).
- ✦ 'Enterprise Dynamics Programme' (EDP): Programme introducing learners to the concepts of the economic life of families, communities and countries. Learners explore setting up a mini-business to learn the theory and practicalities of small businesses, and are introduced to the knowledge and skills needed for future employment (42 hours; grades four to nine).
- ✦ 'It's My Business': Strong focus on social studies and reading and writing skills, but with the emphasis on entrepreneurship. During the programme learners are encouraged to use critical thinking to master entrepreneurial skills that support positive attitudes while exploring and enhancing their career aspirations (six hours; grades six to 10).
- ✦ 'JA Success Skills': Preparation for entry into the workplace covering crucial issues such as self-assessment, communication skills, preparing for job interviews, compiling a good *curriculum vitae* (CV), as well as team work, building rapport and influencing others (20 hours; grades 10 to 12).
- ✦ 'JA Youth Council': The JA Youth Council is a youth-led learner body comprising JA graduates who meet monthly to work on a variety of projects such as writing newsletters, attending JA functions, marketing to schools, designing competitions and conducting training (year-long programme; grades 10 to 12).

- ✦ 'Job Shadow Programme': Workplace-based career exploration programme using an activities-orientated learner workbook (one or two days; grades 10 to 12).
- ✦ 'Junior Achievement SA Entrepreneurship Academy Programme': Programme with weekly sessions of three to four hours incorporating a number of the listed programmes and including micro-economics and business ethics. The aim of the programme is to provide a more intensive, longer term intervention in business and entrepreneurial skills, workplace readiness and financial literacy (seven to eight months; grades 10 to 12 and out-of-school youth, but admission to the programme is subject to selection).
- ✦ 'MMBiz': Teaches learners how to manage their financial lives in a responsible way. The programme focuses on developing the ability to analyse motivations about the uses of money and to establish good financial habits (21 hours; grades 10 to 12).
- ✦ 'The Economic Impact of the HIV/AIDS Pandemic': Explores the financial and economic impact of the HIV/AIDS pandemic, including the costs of HIV/AIDS for the family and for local businesses, as well as the exploration of its effects on global economic growth (three hours; grades 10 to 12) (JASA, n.d.).

5.2.2.5 Junior Achievement-Young Enterprise (JA-YE Europe)

Junior Achievement-Young Enterprise (JA-YE Europe) brings together non-profit organisations from 37 European countries to promote an entrepreneurial attitude among young learners. Learners participating in JA-YE Europe organise school programmes at national level by establishing and running mini-enterprises for the duration of one school year. These mini-enterprises are real businesses producing and selling products or services while operating in a protected environment (EU, 2004: 22).

JA-YE programmes were developed mainly for primary and secondary education, but universities may also participate in the programme. As an indication of the magnitude of this particular intervention, the European Commission (EU, 2004: 55) reports that approximately 3 500 mini-enterprises are run by Young Enterprise learners in the United Kingdom each year, while in Estonia, about fifty percent of all primary schools have a Junior Achievement programme.

Athayde (2009a) examined the impact of the programme in six secondary schools in London (United Kingdom) and concludes that participation had increased the enterprise potential of

learners (Athayde, 2009a: 495). Pratten and Ashford (2000: 9) agree that evidence from both Junior Achievement and Young Enterprise suggests that there are immediate advantages for students who participate in these schemes, but maintain that evidence of any long-term impact over the working lives of participants is largely lacking.

5.2.2.6 New Entrepreneur Scholarships (NES)

The New Entrepreneur Scholarships (NES) programme was developed by the British Department for Education and Skills (DfES) in collaboration with national organisations. It is based on the premise of an integrated programme where business colleges work with enterprise agencies to provide training and enterprise schemes helping the disadvantaged into employment (Slack, 2005: 449).

The NES-programme is similar to other entrepreneurship programmes in Britain (such as the Prince's Scottish Youth Business Trust; see 5.2.2.7 below) and provides a modular package of pre-start-up training, start-up funding and on-going mentoring. Participants have access to specific non-repayable start-up funding, but programme selection favours applicants from disadvantaged backgrounds (Rouse & Jayawarna, 2006: 389).

The selection process is also driven by the acknowledgement of limited funding from the British government; the inclusion of applicants with sufficient levels of enthusiasm to benefit from the programme; the existence of genuine barriers to enterprise; and a core business idea capable of being refined and developed into a workable business (Slack, 2005: 449).

The basis of the NES-programme is a part-time course of business skills training aimed at providing core financial, information technology (IT) and marketing skills. Participants are required to complete a business plan at the end of the course, including results of their market research and a financial model of forward trading. Learners are further given support during the early stages of establishing and running their businesses in the form of access to an experienced business mentor (Slack, 2005: 449-450).

According to Slack (2005: 447), the NES-programme is a practical skills programme supported by research indicating that it provides highly practical benefits to participants and that the intervention has been highly effective in achieving its targets.

5.2.2.7 The Prince's Scottish Youth Business Trust (PSYBT)

The Prince's Scottish Youth Business Trust (PSYBT) is part of the Prince's Trust, one of the oldest, most high profile and best-resourced youth venture creation and development programmes in the United Kingdom (Parker, 2006; Greene, 2005: 11; Moody, 1998). The aim of the PSYBT is to provide essential financial and professional support to young people in Scotland to enable them to set-up and run their own businesses, with a particular concern for the disadvantaged (PSYBT, 2010).

The Prince's Trust Enterprise programme supports young people to determine whether their business ideas are viable and whether self-employment suits them. The programme is designed for people who have a business idea they need help to explore, are aged 18 to 30 years and are unemployed or working less than 16 hours per week (Anon., n.d.).

The PSYBT-process is based on the principles of ambition, drive and determination on the part of young people participating in the process. The organisation identifies and arranges the required training, and will provide one-to-one counselling where an appropriate course is not available. Participants receive support with their business plans, and the PSYBT suggests additional sources of support and finance and prepares the learners for the panel interview they have to attend (PSYBT, 2010).

Participants in the PSYBT programme also receive business mentoring once their businesses have been launched. The aftercare support programme is facilitated by trained business counsellors comprising full time professionals affiliated to the Business Gateway, volunteer advisors and some retired executives wanting to put something back into the community. Counsellors work within a structured system using local groups and common materials to enhance managerial visibility within the organisation. By March 2009, the PSYBT had assisted 11 566 young people to start 9 598 businesses, 72% of which had traded beyond one year and 58% beyond three years (PSYBT, 2010).

5.2.2.8 The South African Institute for Entrepreneurship (SAIE)

The South African Institute for Entrepreneurship (SAIE) believes that the creation of an entrepreneurial mindset is a pre-requisite for the development of successful enterprises (Worthington-Smith, 2008: 1). In 2008, the organisation had trained more than 15 000 educators in South Africa, and these educators had used 6 500 SAIE Business VENTURES programmes in more than 5 300 schools. The SAIE works in all school grades, and almost

half a million learners in more than 21 000 classrooms have been exposed to the organisation's training (Worthington-Smith, 2008: 1).

From a teaching perspective, the SAIE Business VENTURES programme places the learner at the centre of the search for knowledge through questioning, discovery learning, listening to the views of peers and putting learning into practice by 'doing'. Teachers act as facilitators, and are guided by relevant content, practical methodologies and effective logistics to ensure enthusiastic learning and turn learners into entrepreneurs (SAIE, 2003: 1).

In contrast with conventional text books that tend to favour a linguistic or verbal learning style, the SAIE claims that its VENTURES materials are designed to appeal to all learning styles. Educators are empowered by learning materials to reach all the learners in a given classroom by offering different learners different kinds of tasks, activities and content to satisfy their particular learning styles (SAIE, n.d., a). Figure 5.1 below presents an illustration of the learning styles facilitated by the SAIE.

Figure 5.1 Different learning styles facilitated by the SAIE



Source: SAIE (n.d., a)

The SAIE (2010) employs a conceptual model for entrepreneurial development at school consisting of six tiers, including problem identification, environmental influences, intervention, immediate outcomes (personal indicators), intermediate impact and ultimate impact (see http://www.entrepreneurship.co.za/files/pdfs/Conceptual_model.pdf for the complete model). A brief overview of the programmes presented by the SAIE is presented in table 5.1 below.

Table 5.1 Overview of programmes presented by the SAIE

Overview of SAIE programmes		
Grade	Course	Theme
GET – Economic and Management Sciences – Foundation phase		
2	Pop-up	Learners follow the adventures of Poppet, an entrepreneurial mouse.
3	Dream Up	Learners follow the adventures of Moola (an entrepreneurial monkey) and Bob (his magical, flying bank note).
GET – Economic and Management Sciences – Intermediate phase		
4	Help Out	Learners follow the story of Bamblela and his seven mentors who show the value of entrepreneurial questioning.
5	Look Out	Six virtual worlds packed with business opportunities and entrepreneurs show learners how to look out for opportunities.
6	Try Out	Learners meet 32 entrepreneurial heroes ('entrepeneheroes') who introduce them to business skills and concepts.
GET – Economic and Management Sciences – Senior phase		
7	Start Out	Learners complete a range of outer-space themed work cards to prepare for a business game and a real business venture.
8	Sort Out	Learners solve business problems for 20 entrepreneurs, and explore ways to turn their own interests into micro-ventures.
9	Break Out	Learners solve business problems for 20 entrepreneurs, and explore ways to turn their own interests into micro-ventures.
FET – Business studies		
10	Team Up	Learners work in teams to explore case studies and resource material, and to complete a 'savvy cycle' of activities.
11	Link Up	Learners work in teams to explore case studies and resource material, and to complete a 'savvy cycle' of activities.
12	Work Up	Learners work in teams to explore case studies and resource material, and to complete a 'savvy cycle' of activities.

Source: SAIE (<http://www.entrepreneurship.co.za/files/pdfs/SAIE%20OBE%20GR2-12.pdf>)

The SAIE uses a holistic approach to develop entrepreneurial skills, motivation, attitudes, knowledge and values in young learners (SAIE, 2006). The organisation's focus on developing an entrepreneurial mindset in learners comprises 18 sequential phases. Space does not permit reproducing the entire model in this study, but it can be viewed on the SAIE website (http://www.entrepreneurship.co.za/files/pdfs/product_bv/EM_Poster.pdf).

5.2.2.9 Young Achievement Australia (YAA)

Young Achievement Australia (YAA) was established in 1977 and is affiliated internationally with Junior Achievement (JA) operations in more than 100 countries. YAA is an independent, non-government (NGO), not-for-profit (NPO) organisation administered by a board of trustees, and generates over 2.2 million Australian dollars in sponsorships and donations annually. As with many (most) NGOs and NPOs, the organisation relies heavily on the commitment of volunteer mentors from sponsoring organisations (Commonwealth of Australia, 2009: 1).

The organisation provides students from a range of backgrounds with the opportunity to gain hands-on business experience, and is supported by Accenture (www.accenture.com) with the mentoring of student teams across Australia (Accenture, 2010). YAA programmes link education with business to provide young people with skills and knowledge and better equip them for their working lives, and the organisation aims to develop business enterprise skills, capacity and understanding in young Australians through partnerships with education and the community (Commonwealth of Australia, 2009: 1).

YAA offers four programmes to learners including the YAA Business Skills programme, the YAA Business Alive programme, the YAA Business Enterprise programme and the Travel and Tourism Business (TTBiz) programme (Commonwealth of Australia, 2009: 2). These programmes are respectively focused on the following aspects:

- ✦ YAA Business Skills: Programme of 16 to 24 weeks involving 12 to 25 senior secondary students guided by three to five advisors from business and industry. The programme is aligned with the Small Business Management Competency Standards to ensure that learners cover the skills and knowledge that underpin real-world commercial success. Learners enjoy the hands-on experience of running their own business, and have to sell shares to raise capital; elect a management team; research, design and produce goods or services; plan and implement quality systems in management areas; prepare business

plans and an annual report; and then liquidate the company to pay dividends to shareholders (Winifred West Schools, n.d.).

- ✦ YAA Business Alive and Business Enterprise: Involves year nine and 10 school learners to develop their enterprising capacities by introducing them to the world of business. The programme is designed to ensure that learners see the relationship between school and their working lives, and the programme includes a student booklet, teacher handbook and Vocational Education Initiative material (Commonwealth of Australia, 2009: 2).
- ✦ YAA Travel and Tourism Business (TTBiz): Programme of 20 weeks involving five to 30 students to encourage entrepreneurship and small business development within the travel and tourism industry. The programme incorporates in-class sessions, on-line computer work, fieldwork and research, and is designed to show learners how to design and manage their own service business focused on local and global travel and tourism (Commonwealth of Australia, 2009: 3).

Young Achievement Australia claims to have trained more than 115 000 young Australians through YAA programmes, with the organisation reaching over 2 000 schools, teachers and principals, and more than 25 000 parents each year (Commonwealth of Australia, 2009: 1). Peterman and Kennedy (2003: 141) examined the impact of the YAA enterprise programme on a sample of secondary school learners, and conclude that participation in the programme had increased learners' perceptions of desirability and feasibility towards entrepreneurship as a career choice.

5.2.2.10 The Young Enterprise Scheme (YES)

The Young Enterprise Scheme (YES) was discussed under section 5.2.2.2 as one of the programmes facilitated by Enterprise North Shore in New Zealand. According to Roffe (2010: 151), the key offering of YES is the Company Programme that requires young students to set-up and run their own business over the course of one academic year. The programme is a 'live' business experience with real money, taxes, products or services and profit, and involves events that reflect business activities in the region and at national level (www.ens.org.nz).

Lewis and Massey (2003b: 7) conclude that YES thrives on the freedom it affords delivery agents such as teachers, mentors and regional coordinators to modify some aspects of programme delivery (not content) to suit specific schools and regions. In terms of the

outcomes of the YES programme, Lewis (2002: 15-16) concludes that learners benefit from the amplification of experience; heightened self-awareness and appreciation for personal limitations and weaknesses; significant personal development; and gaining confidence in teamwork. In a later study, Lewis (2005: 481) concludes that participation in the YES-programme increases learners' confidence in their employability as a result of enhanced personal and business capabilities.

5.2.2.11 The Young Enterprise Trust

The Young Enterprise Trust was originally known as the Enterprise New Zealand Trust formed in 1986 (name changed to the Young Enterprise Trust in 2009). The organisation was established to promote an enterprising and financially literate culture among school learners in New Zealand (Young Enterprise Trust, n.d.).

The Young Enterprise Trust programme portfolio covers both primary and secondary school learners and is presented in table 5.2 below.

Table 5.2 The Young Enterprise Trust programme portfolio

Programme portfolio of the Young Enterprise Trust	
Programme	Theme
Primary school: 'ASB SmartStart' enterprise and financial education initiatives	
Primary Enterprise Programme (PrEP)	Learners aged 5 to 13 design and operate their own functioning community within the school, complete with their own government, businesses and banking services.
Technology Enterprise Learning Link (TELL)	Two to four week programme for year one to eight learners where students use design processes to develop product or service ideas and then form a business. Business plans are compiled, and students produce their products to be sold at a Market Day.
Business for Kids (BfK)	One week holiday programme for learners from years five to eight. During the week learners review their personal skills and attributes, complete a CV and apply for jobs. They appoint managers for their ventures, and products are sold at the end of the week.
Financial Education (FED)	A package consisting of financial literacy and enterprise education resources including board games, story books, economics lessons and teaching and learning tasks. Financial literacy books are included.
Secondary school: Enterprise Education Programmes	
Enterprise Studies Programme (ESP)	Experiential enterprise programme offered at year ten that targets the social studies, economics and technology curriculum areas. Learners are taken through a journey of teamwork, motivation and the experiential approach to learning.

Table 5.2 cont.	Programme portfolio of the Young Enterprise Trust
Programme	Theme
Student Enterprise Learning Link (SELL)	Three day business planning programme for year 11 students. Involves the formation of notional enterprises, researching and deciding on a product or service, writing a business plan and launching it in an oral presentation competition ('Dragon's Den').
Lion Foundation Young Enterprise Scheme (YES)	One year experiential business programme where students set-up a real business, create real products or services, write a business plan, implement marketing plans, earn money and keep the profits.
Secondary school: Financial Education (FED)	
Financial Studies	Course about financial planning and creating wealth aiming to foster financial understanding, improve investing skills, and provide a format for designing a life strategy (year 13 students).
Financial Literacy Programme	Raises awareness about the financial cost of change. Consists of 10 topics such as banking, saving and budgeting to develop personal financial literacy (year 11 to 12 students).
Money Stuff	Financial education for year nine to ten learners integrated into core curriculum learning areas such as Mathematics, English and Art, and includes a unit using an inquiry-based learning approach.
Your Money Sorted	Television New Zealand's 'Your Money Sorted' DVD packaged with accompanying teacher resources and learner worksheets (years 9 to 13).
KiwiSaver	A comprehensive teaching resource designed to give learners an insight into KiwiSaver at their specific level of understanding and relevance. The programme comprises six lessons consisting of the Inland Revenue KS3 employee information pack and the bestselling book 'KiwiSaver: How to make it work for you'.

Source: Young Enterprise Trust (n.d.)

5.2.3 The essence of teaching in the current paradigm

Evaluation of the activities and programme content of existing youth entrepreneurship education and training providers presented in section 5.2.2 confirmed the three general approaches discussed in section 5.2.1 of using materials- and internet-based resources to promote entrepreneurial awareness, skills and knowledge among young people; to provide coaching, mentoring, access to networking and the provision of resources for entrepreneurial activity; and to stimulate entrepreneurial activity using games, simulation and the establishment of mini-enterprises.

It is evident that youth entrepreneurship education and training in the current paradigm is a mix of delivering life skills, practical business skills and financial literacy using both printed and electronic materials-based resources, as well as case studies, dynamic action-learning and experiential work-based learning to achieve the objective of developing more entrepreneurs.

The use of simulation packages and the establishment of mini-enterprises are popular methods of transforming theory into practice, and in many instances, entrepreneurship competitions are used to encourage entrepreneurial activity (e.g., Chapman & Skinner, 2006: 395). Some providers include coaching and mentoring by volunteers and professionals to aspirant entrepreneurs during and after participation in their programmes, and in some isolated instances, learners are given access to much needed resources such as networking and start-up funding as part of the package.

The question, however, is whether these methods are conducive for the development of more *competent* young entrepreneurs.

5.3 ENTREPRENEURSHIP EDUCATION: SHIFTING THE PARADIGM

The mind is never passive; it is a perpetual activity, delicate, receptive, responsive to stimulus. You cannot postpone its life until after you have sharpened it. Whatever interest attaches to your subject-matter must be evoked here and now; whatever powers you are strengthening in the pupil, must be exercised here and now; whatever possibilities of mental life your teaching should impart, must be exhibited here and now. That is the golden rule of education, and a very difficult one to follow (Whitehead, 1929: 6).

Is the process of developing entrepreneurs any different? Entrepreneurship education is a lifelong journey, and every journey has to begin somewhere. According to Thompson (2009: 675), the starting point for the development of entrepreneurs is the realisation by an individual that he/she might have the intention to become an entrepreneur.

Intentions are described as the “*conscious state of mind that precedes action*” (Shook *et al.*, 2003: 80), but these intentions are influenced by underlying attitudes towards target behaviour (Theory of Planned Behaviour by Ajzen, 1991; also see Müller, 2008: 20). It follows that the instilment of a positive attitude towards entrepreneurship appears to be the

starting point for effective entrepreneurship education, especially insofar young learners are concerned.

For the actual training of young entrepreneurs, Rae (2004: 196) proposes the use of 'practical theories of action' gained from successful experience of 'what works' and the development of 'gut-feeling', including intuitive and tacit 'know-how', 'know-what' and 'know-who' solutions. This approach suggests that emergent practical theories formed and shared by entrepreneurs as an ongoing and developing body of knowledge must be transformed into educational theories that "*...retain the qualities of practicality and of being formed from and relevant to lived experience, yet which are also useful and valid in a scholarly sense*" (Rae, 2004: 196).

'Practice-based theory', as proposed by Rae (2004), has its foundation in experience. Chell and Athayde (2009: 9) maintain that innovation is driven by human endeavour, and in particular, through a cognitive process drawing from individuals' experience and their ability to transform their ideas and knowledge into something that will have value for others. The importance of experience is also highlighted in the 'lifelong entrepreneurship education model' of Kroon *et al.* (2003) where the accumulation of experience and participation in advanced training are interjected between the first three developmental phases consisting of basics, competency awareness and creative applications, and the final phases of actually starting a business and growing it.

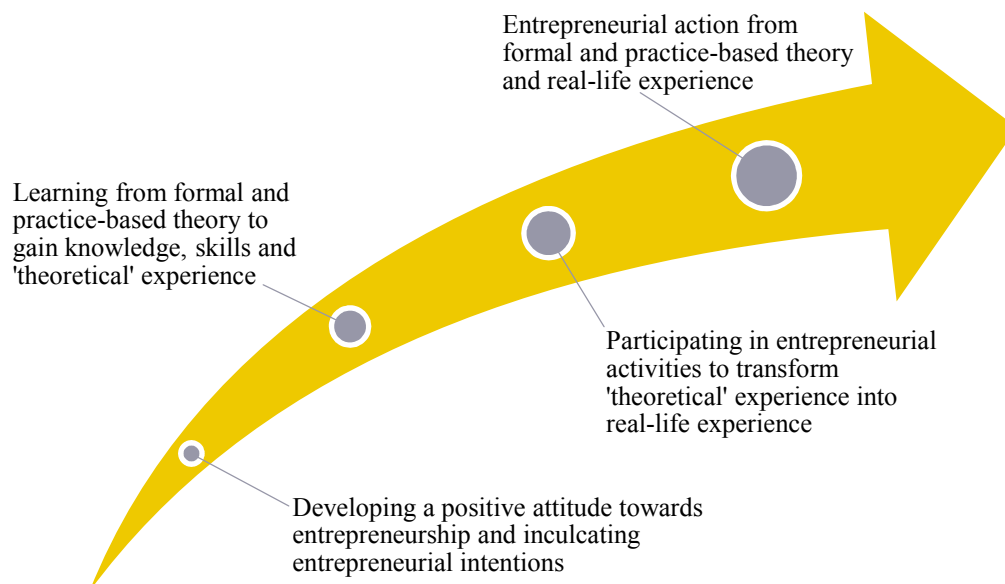
It makes sense that the inculcation of a positive attitude towards entrepreneurship and the formation of intentions to become an entrepreneur may be the foundation for effective entrepreneurship education, moreover in the absence of any entrepreneurial experience on the part of young learners.

It can also be argued that a combination of formal theory (from the body of academic knowledge) and practice-based theory (from the real-life experiences of entrepreneurs) will contribute towards entrepreneurial learning and the accumulation of at least 'theoretical' experience once a positive attitude and the intention to pursue an entrepreneurial career have been instilled. In support of the earlier conclusion by Levie *et al.* (2009: 6) that a combination of enterprise training in formal education (theory) and work placements (practice) could make a measurable difference in the entrepreneurial capacity of a nation, Simrie *et al.* (2012: 46) and Yiannakaris (*in* Simrie *et al.*, 2012: 50-51) respectively agree that education and

training and work experience programmes are important aspects of fostering entrepreneurial activity and development.

'Theoretical' experience must be transformed into real-life experiences and entrepreneurial action – only then will the reciprocal and mutually reinforcing relationship between entrepreneurial activity and entrepreneurial experience be enabled to support the development of competent entrepreneurs. To illustrate this process, figure 5.2 below suggests that entrepreneurial action has its foundation in a positive attitude towards entrepreneurship and the intention to pursue an entrepreneurial career, and it is the outcome of learning from both formal and practice-based theory, as well as from the accumulation of sufficient real-life entrepreneurial experience to excel in the turbulent world of the entrepreneur.

Figure 5.2 Transforming attitude, intentions and theory into entrepreneurial action



Source: Author's own compilation from text

From an educational perspective, however, vagueness still surrounds the appropriate design, content and methodology for *effective* youth entrepreneurship education programmes. Consequently, there is a need to examine the design of suitable programmes; what should be taught; how it should be taught; how educators need to be developed; what roles other stakeholders have in the process; and which support structures and assessment methods are needed to release the spirit of enterprise and promote entrepreneurial activity.

The discussion to follow will attempt to address these issues, but it should be read in conjunction with section 4.8.2 of chapter four as a focal-shift away from staring blindly at the challenges and barriers facing entrepreneurship education towards concerted efforts for the design and development of programmes and curricula conducive for true entrepreneurial learning.

5.3.1 Design and structure of entrepreneurship education and training programmes

The first step in designing effective entrepreneurship education and training programmes (hereinafter referred to as ETPs) is to understand what the objectives or desired outcomes of such programmes are (Hytti & O’Gorman, 2004: 12-13) and to define what implications such programmes will have for entrepreneurial practice and the benefits that should accrue to the youth and their communities (Connell *et al.*, 2002: 283). Curriculum development is an innovative process comprising four cyclic stages, including the identification of needs, the design of a course of study, delivery of the learning programme and the evaluation of outcomes in relation to the initial objectives (Roffe, 2010: 145).

Effective ETPs require an integrated approach “...*linking classroom experience with market experience, student networks with entrepreneur networks, current students with alumni in business, and student entrepreneurs with experienced entrepreneurs*” (Müller, 2008: 21). It should account for the multi-dimensional and sequential nature of the entrepreneurial process (McGee, Peterson, Mueller & Sequeira, 2009: 983), and it must be conversant with the generalised philosophy that the practice of entrepreneurship education is “...*loose, decentralised, non-prescriptive and fluid*” (Jones & Iredale, 2010: 14).

Entrepreneurship is not for everyone – the design and structure of ETPs should take cognisance of the fact that not everyone can or will become an entrepreneur (Herrington *et al.*, 2009: 110; Dhliwayo, 2008: 334; Thompson, 1999: 220). Over and above the need for exposure of all young people to entrepreneurship in basic education, ETPs must be designed and structured to spot those individuals with the aptitude or talent to develop entrepreneurial capacity through education and training (Buys & Havenga, 2006: 36; Thompson, 1999: 220).

Even though all people are born with certain talents, these talents still need to be discovered and developed effectively for an individual to excel (Gibb, 2007a: 3; Thompson, 2004: 246). Harris and Gibson (2008: 577) concur that ETPs designed to meet specifically identified

needs have greater potential to be effective for those already possessing an entrepreneurial temperament.

These ETPs should not necessarily be a numbers-driven process – in some instances, such as the South African Breweries (SAB) KickStart programme, training providers have switched to quality-driven and carefully monitored interventions producing outstanding results (Swanepoel *et al.*, 2010: 61). This approach allows for the selection of fewer participants, while more attention is given to mentorship and assistance even after the programme has run its course.

Another important aspect is the premise that the attitude and skills required for successful entrepreneurial activity are not learned at any one place in time. The earlier young people begin to learn such skills, the more likely they are to become successful entrepreneurs, and as a consequence, the importance of lifelong learning models of entrepreneurship is emphasised (Nafukho & Muyia, 2010: 102). In support of this notion, Man and Yu (2007: 621) propose that ETPs should be made more 'attractive' to stimulate and maintain entrepreneurial learning from a young age.

From a delivery point of view, ETPs should be presented both formally and informally (Burger, O'Neill & Mahadea, 2005: 93), but the content and mode of delivery must suit the context and nature of participants to have any chance at success (Nkirina, 2010: 157; Mentoor & Friedrich, 2007: 223-224; Matlay, 2006: 704; Henderson & Robertson, 2000: 281). Contextualised learning represents one of the ten essentials principles of the American 'School-to-Work' (STW) strategy (AYPF & CWD, 2000: v), and is deemed important for successful school-to-industry strategies based on the premise that it gives reality to education and harnesses vocational motive (Harreveld & Singh, 2009: 92; Howard, 2008: 16).

Although both theory and practice are important aspects in the design and structure of ETPs (Anderson & Jack, 2008: 266-267; Lourenco & Jones, 2006: 9; Raichaudhuri, 2005: 80), the judicious inclusion of experiential learning or action-learning is widely supported by academic research (e.g., Martínez *et al.*, 2010: 44; Mwasalwiba, 2010; Nafukho & Muyia, 2010; Anderson & Jack, 2008; Cheung, 2008; Dhliwayo, 2008; Müller, 2008: 5; Jones, 2007; Le Roux & Steyn, 2007; Man & Yu, 2007; Gibb, 2005: 3; Lumpkin & Lichtenstein, 2005; Jones & English, 2004: 416; Solomon, Duffy & Tarabishy, 2002).

As an example, Gibb (2005: 3) maintains that “[E]ntrepreneurial behaviours, skills and attributes, nurtured by well designed pedagogies and exposure to experience are essential components of being able to ‘feel’ what it is like to be entrepreneurial and are key to the creation of entrepreneurial values.”

Kolb (1984: 41) describes experiential learning as the process whereby knowledge is created through the transformation of experience. It is also the basis of work integrated learning (WIL) as a structured educational strategy that “...progressively integrates academic study with learning through productive work experiences” (Groenewald, 2003: 350) to develop skills and promote employability (HEQC, 2004: 26).

Lumpkin and Lichtenstein (2005: 455) see experiential learning as an important component of ETPs due to its focus on the moment-to-moment correction of misalignments between ‘espoused theory’ (i.e., what individuals and organisations say they do) and ‘theory-in-use’ (i.e., what individuals or organisations actually do). In order to have the desired effect, experiential or action-learning should not only be realistic (Le Roux & Steyn, 2007: 334), but also extremely challenging and personally rewarding (Jones, 2007: 597).

In summary, the design and structure of effective ETPs demand an integrated, quality-driven approach with clear objectives, measurable outcomes and formal or informal delivery methods focused on contextual learning, including both theory and practice that will support the intricate nature of the entrepreneurial process. It should address the specific needs of learners, in particular those with the talent and temperament for entrepreneurial activity, and nurture both a positive attitude and favourable intentions for lifelong entrepreneurial learning.

5.3.2 Programme content and curriculum development

Entrepreneurship education is recognised to have an influence on the entrepreneurial knowledge, skills and attitudes of learners (Roffe, 2010: 140). Does this generalisation mean that *any* entrepreneurship education will have the desired effect on learners? Arguably not, but at the same time, the recommendations for *effective* entrepreneurship education discussed in the academic literature (see discussion below) are so expansive that participation in a single, fully inclusive programme would consume a lifetime.

This study has shown throughout that entrepreneurial learning is a lifelong process, but for obvious reasons, no learner can be involved in any single entrepreneurship education and

training programme for such a long time. The solution to this paradox may lie in the 'inspiration-to-perspiration' sequence of entrepreneurship development described by McGee *et al.* (2009). Nascent entrepreneurs appear to follow this 'inspiration-to-perspiration' sequence in the development of entrepreneurial self-efficacy. Educational activities should facilitate both the up-front inspirational activities such as envisioning success and generating ideas, and the perspiration dimensions including the development of skills in planning, marshalling resources, managing people and managing the financials of a business (McGee *et al.*, 2009: 984). In concurrence, Botha *et al.* (2007: 182) emphasise the importance of both aspects of entrepreneurial motivation ('inspiration') and entrepreneurial skills and performance ('perspiration') as concepts that should be included in education and training programmes.

The question is whether the approach should be 'and' or rather 'followed by' in the development of curricula aimed at cultivating competent entrepreneurs. The reader is referred back to figure 5.2 where the transformation of attitude, intentions and theory into entrepreneurial action is clearly delineated as a planned and controlled step-wise process. It is put forward that the development of programme content must be contextualised with clear objectives and outcomes (see section 5.3.1), and for this purpose, the GENIE is re-introduced as a five-stage approach to *effective* entrepreneurship education.

5.3.2.1 The 'G' in GENIE: Gestation

The gestation-phase is the starting point for effective entrepreneurship education and should be aimed at developing a positive attitude towards entrepreneurship and arming learners with basic life skills. These basic skills and attitudes are essential for individuals to respond to and explore the potential of their surrounding environment (Asuru, 2009: 31).

As an example, the 'Dynamo' suite of teaching materials (www.projectdynamo.com) uses the acronym ACRO (Attitude, Creativity, Relationships, Organisation) to signify the importance of instilling a positive attitude towards entrepreneurship as the starting point for providing a structured approach to entrepreneurship education (Roffe, 2010: 148).

The gestation-phase should include 'learning about oneself' to instil in learners some basic understanding of who they are and how to interact with their immediate surroundings. This approach coincides with five broad areas of significance for entrepreneurial learning proposed by Cope (2005: 380), including learning about [1] oneself; [2] the world of

business; [3] the environment and entrepreneurial networks; [4] small business management; and [5] the nature and management of relationships.

The gestation-phase should be initiated at a very young age (pre-school), and as a result, parents, families and adult role models have an important role to play in developing these positive attitudes and creating an enabling environment for such attitudes to prosper.

5.3.2.2 The 'E' in GENIE: Entrepreneurial intentions

The second phase is a continuance of the gestation-phase, but is more concerned with inculcating entrepreneurial intentions in young people. Parents, families and adult role models still have an important role to play, but the emphasis shifts towards the role of educators during the early years of primary schooling.

Life skills and entrepreneurial encouragement are crucial elements for the stimulation of entrepreneurial activity (Herrington *et al.*, 2010: 36). Connell *et al.* (2002: 287) propose that young people must learn to be productive, to connect and to navigate as they move from childhood through adolescence. Achieving these outcomes improves their prospects for adulthood dramatically, and it stands to reason that these outcomes are also important for effective entrepreneurship education and training.

It follows that the intentions-phase should build on the positive attitudes instilled during the gestation-phase by cultivating entrepreneurial motivation (Botha *et al.*, 2007: 182) through the development of aspects such as the need for achievement, the ability to inspire, and the capacity to overcome obstacles and learn from both success and failure (Ladzani & Van Vuuren, 2002: 157).

The intentions-phase should also facilitate the provision of basic business skills as a precursor to entrepreneurial activity (Yiannakaris *in* Simrie *et al.*, 2012: 50; Herrington *et al.*, 2010: 36), and include course elements such as basic business planning, role modelling, student-oriented teaching and feedback processes as efficient components of increasing entrepreneurial intentions through its antecedents (Müller, 2008: 1).

5.3.2.3 The 'N' in GENIE: Nurturing potential entrepreneurs

The nurture-phase is again a continuance of the previous phases, but should focus on entrepreneurial learning from formal and practice-based theory to instil knowledge, skills and

mainly 'theoretical' experience (see figure 5.2). It represents the second pillar (i.e., entrepreneurial skills) of the recommendation by Botha *et al.* (2007: 182) for effective entrepreneurship education and should commence during primary schooling for acceleration in both secondary and tertiary education.

Entrepreneurship development requires an element of skill-building in addition to knowledge-based programmes. Certain entrepreneurial competencies are listed more frequently in the academic literature, including performance motivation, creativity and innovation, opportunity identification, business plans, financial skills, marketing skills and general management skills (Pretorius & Włodarczyk, 2007: 509-510).

Alongside these competencies are a myriad of expanded knowledge-based competencies and practical skills that are deserving of inclusion in entrepreneurship education and training programmes, including among others:

- business knowledge and awareness (Vinten & Alcock, 2004: 191);
- communication (Do Paco *et al.*, 2008: 17; Vinten & Alcock, 2004: 191);
- decision making under uncertainty (Gibb, 2007a: 3);
- digital competencies (Do Paco *et al.*, 2008: 17), information management (Vinten & Alcock, 2004: 191) and use of the Internet (Solomon, 2007: 179);
- mitigation of risk (Chell & Athayde, 2009: 7; Ladzani & Van Vuuren, 2002: 157);
- interpretation of successful role models (Ladzani & Van Vuuren, 2002: 157);
- leadership, management abilities (Chell & Athayde, 2009: 7; Ladzani & Van Vuuren, 2002: 157) and transformational leadership (Visser *et al.*, 2005: 60);
- mathematical skills (Do Paco *et al.*, 2008: 17) and literacy (Vinten & Alcock, 2004: 191);
- negotiating skills (Gibb, 2007a: 3);
- networking (Gibb, 2007a: 3);
- persuasion skills (Gibb, 2007a: 3);
- problem solving (Gibb, 2007a: 3; Vinten & Alcock, 2004: 191);
- social and civic skills, as well as cultural awareness (Do Paco *et al.*, 2008: 17); and
- strategic thinking (Gibb, 2007a: 3).

It is also during this phase that potential entrepreneurs must acquire competencies in the field of forecasting that are usually associated with artistic endeavours. Fontela, Guzmán, Pérez and Santos (2006: 3) maintain that the key entrepreneurial functions of pro-activeness and

innovation are more art than science, and that the development of these functions require a specific set of operational (educational) tools (e.g., games and simulation).

5.3.2.4 The 'I' in GENIE: Initiation

Learning can only be considered to be effective if the knowledge and skills gained from the learning process are put to use (Man, 2006: 316). This is the purpose of the initiation-phase where the positive attitudes, entrepreneurial intentions, knowledge, skills and 'theoretical' experience accumulated from the previous phases are transformed into real-life entrepreneurial experience (see figure 5.2).

Although theoretical (but more advanced) entrepreneurship education is set to continue during this phase which will probably occur during the years of secondary education, the emphasis shifts towards the accumulation of real entrepreneurial experience from participation in entrepreneurial activities.

These entrepreneurial activities may include exposure to real entrepreneurs, part-time work placement and setting up and running mini-enterprises to enable learners to experience entrepreneurial activity firsthand and 'feel' what it is like to be an entrepreneur. Role play will change during the initiation-phase when formal educators make space for entrepreneurial role models to elevate entrepreneurial learning to a higher, experiential level alongside the provision of more advanced entrepreneurship theory and practice.

5.3.2.5 The 'E' in GENIE: Entrepreneurial action

The action-phase is both the culmination and continuance of all the previous phases in the GENIE-approach, and also the starting point for continuous regeneration and lifelong entrepreneurial learning. It represents the third and final pillar of entrepreneurship education and training of Botha *et al.* (2007: 182) known as entrepreneurial performance.

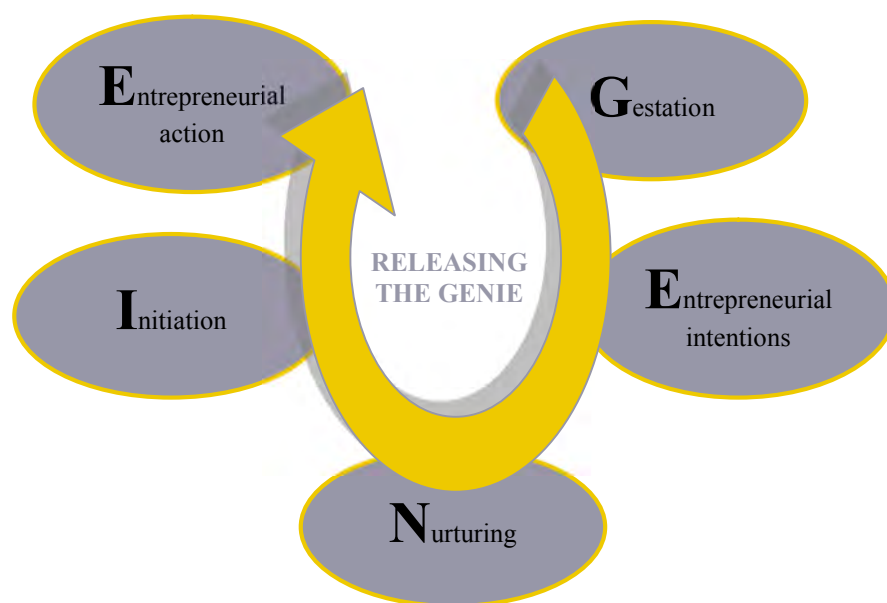
During this phase, which should commence during the senior stages of secondary education, entrepreneurial action should follow from the accumulation of formal and practice-based theory, as well as the real-life entrepreneurial experience gained from the initiation-phase. The successful learner (now nascent entrepreneur) is expected to embark on a lifelong journey of entrepreneurial venturing with the continued support of educators (in tertiary education, vocational education, or further education and training), specialist trainers

(providing advanced entrepreneurial skills), entrepreneur networks, entrepreneurial role models, professional coaches and mentors.

5.3.2.6 The GENIE-model for effective entrepreneurship education

The five stages of the preceding approach are combined in figure 5.3 below to present a visual representation of the GENIE-model for effective entrepreneurship education and training.

Figure 5.3 The GENIE-model for effective entrepreneurship education



Source: Author's own compilation from text

5.3.3 Teaching methodology

When I began my university teaching career... I was basically unprepared for the task. Using as my frame of reference the mainly didactic teaching approaches modeled [sic.] for me in my formal education, I did lots of lecturing to and testing of learners who I 'arranged' in straight rows of chairs facing me. It would actually be more accurate to say that the institution 'arranged' the physical setting for me, as the 'tradition' against rearranging rooms was very strong due to time constraints, learner expectations, and expectations of colleagues who also used the spaces. I survived that first year but did not feel very successful as a teacher. The

evaluation forms completed by the students in my class confirmed this judgment. The result for me was a sudden awareness that I must think about the learning environment in a much broader way (Hiemstra, 1991 in Hannon, 2006: 303).

Not unlike Hiemstra's early experiences, entrepreneurship is a difficult topic to teach due to its complexity, variability and contingency (Anderson & Jack, 2008: 259). It has remained, for the most part, mainly 'science'-based and 'about' entrepreneurship (Edwards & Muir, 2005: 616). Passive teaching methods such as lectures, guest speakers, business plans, case studies and class/group discussions remain the most popular methods in entrepreneurship education (Mwasalwiba, 2010: 31; Matlay, 2008: 387; Solomon, 2007: 177; Co & Mitchell, 2006: 354). In many (most) instances the focus of educational models is on the delivery and receipt of knowledge, rather than the development of the person (Gibb, 2002a: 136).

The manner in which entrepreneurship education is taught and nurtured will determine its impact and significance (Nafukho & Muyia, 2010: 102) and young people cannot be expected to think entrepreneurially without being shown how (Kroon & Meyer, 2001: 51-52), or to have the capability to act entrepreneurially without wanting to and knowing how (Fínez, 2008: 102).

Entrepreneurial learning is driven by practical needs because entrepreneurs learn selectively and purposefully to master aspects that are really useful to their job roles and future development (Man, 2006: 315). As a consequence, the content, approach and teaching techniques used in entrepreneurship education must embrace the complexities, variability and contingencies associated with entrepreneurship in order to promote true entrepreneurial learning (Anderson & Jack, 2008: 259).

Gibb (2008: 15) adds that the introduction of entrepreneurial learning into schools and other educational institutions demands that educators explore the curricula in search of pedagogical innovation to identify opportunities for the “...*use of knowledge, solving problems creatively, involving action modes of learning, demanding initiative, discovery and experimentation as a means of personal development.*”

Such an approach demands a shift from traditional teaching to learning in an environment similar to real life events (Gibb, 2008: 142; Heinonen & Poikkijoki, 2006: 83) and where much of the learning is done by 'doing' rather than 'thinking' (Hynes & Richardson, 2007:

735; Gibb, 2002a: 137). It requires the use of mixed teaching methods (Vij & Ball, 2008), which may include concepts such as explorative teaching (Müller, 2008: 21); work related activities (Dwerryhouse, 2001: 153); spread options that offer exposure to different teaching methods over the duration of a programme; distance learning (Hegarty, 2006: 327); ‘team teaching’ (Smith *et al.*, 2006: 563); and internet-based learning (Solomon, 2007: 179).

There are significant differences between the traditional/conventional approach to teaching and an environment conducive for entrepreneurial learning as shown in table 5.3 below.

Table 5.3 Conventional and entrepreneurial teaching approaches

Conventional and entrepreneurial teaching approaches	
Conventional approach	Entrepreneurial approach
Major focus on content	Major focus on process delivery
Led and dominated by teacher	Ownership of learning by participant
Expert hands-down knowledge	Teacher acts as fellow learner/facilitator
Emphasis on ‘know what’	Emphasis on ‘know how’ and ‘know who’
Learners passively receiving knowledge	Learners actively generating knowledge
Heavily programmed sessions	Sessions flexible and responsive to needs
Learning objectives are imposed	Learning objectives are negotiated
Mistakes frowned upon	Mistakes accepted as to be learned from
Emphasis on theory	Emphasis on practice
Subject/functional focus	Problem/multidisciplinary focus

Source: Gibb (1996: 315)

It is clear from table 5.3 that a major paradigm shift is needed in educational approaches to release the spirit of enterprise and promote entrepreneurial activity. In essence, the design of methodology for “...teaching entrepreneurship needs to produce a combination of the creative talents of the artist, the skills and ability of the artisan, yet include the applied knowledge of the technician with the know-what of the professional” (Anderson & Jack, 2008: 260).

5.3.4 Teacher and trainer development

Teaching pigeons to dance requires the pigeons to learn a set of skills. The pigeons do not know what it means to be a dancer. The challenge is to

create dancers, not only individuals who have the capability to dance
(Hannon, 2006: 307).

Both the quality (Simrie *et al.*, 2012: 66; Herrington *et al.*, 2010: 62) and quantity (Hartshorn & Hannon, 2005: 624) of entrepreneurship educators need to be improved if 'pigeons' (young individuals) are to be taught to become successful 'dancers' (entrepreneurs). Isaacs *et al.* (2007: 622) agree that suitably qualified educators will make a positive contribution to the development (and release) of the entrepreneurial spirit, but the European Commission (EU, 2004: 7) identifies the insufficient provision of training to entrepreneurship teachers as a major obstacle to bringing the subject into the classroom.

One problem is that little is known about the perceptions held by educators regarding the nature of entrepreneurship. These perceptions are of crucial importance as teachers' interpretations of entrepreneurship have the potential to affect the ways in which the subject is brought to learners (Bennet, 2006: 166). Sexton and Bowman (1984: 21) complained about these influences when stating that "*...the content of a typical entrepreneurship course varies according to the teacher's personal preferences as to definition and scope.*"

In general, it is said that the transfer of management skills takes priority over the development of personal attributes such as creativity and innovativeness, and even more so in cases where particular educators have been involved in managing businesses for long periods of time (Bennet, 2006: 183). Although the transfer of management skills is an important component of entrepreneurship education, it is obviously necessary that broader issues are included in the educational process (Bennet, 2006: 185). These broader issues are "*...subject matter, resources and experiences that will prepare entrepreneurship students to cope with the myriad of expectations and demands they will face as they start their new ventures*" (Solomon, 2007: 169).

Against these requirements, the role of educators in entrepreneurial learning is discussed at length in the academic literature (e.g., Devonish *et al.*, 2010; Jones & Iredale, 2010; Xaba & Malindi, 2010; Chell & Athayde, 2009; Heck, 2009; Robinson & Wenwu, 2009; Anderson & Jack, 2008; Fayolle & Gailly, 2008; Müller, 2008; Gibb, 2007; Mentoer & Friedrich, 2007; Bennet, 2006; Corbett, 2005; Le Roux *et al.*, 2004; Sexton & Bowman, 1984).

Le Roux *et al.* (2004: 52) argue that knowledgeable teachers are needed to bridge the gap between "*...the content on paper and the actual transference of the skills and attitudes*" to

learners, and continue to say that “...*highly motivated, competent and committed*” teachers are needed to teach entrepreneurship and develop an entrepreneurial orientation.

The effectiveness of individual successive teachers, as well as collective teacher effectiveness and the stability of a school's teaching staff are all positively related to the achievement levels of learners (Heck, 2009: 227). It stands to reason that entrepreneurship educators need to be trained on the materials they are expected to present, as well as the philosophy behind such materials, and to have the benefit of exposure to and collaboration with both colleagues and experienced entrepreneurship practitioners (Vinten & Alcock, 2004: 192).

Fayolle and Gailly (2008: 580) maintain that it is the responsibility of educators to create the right conditions for more effective and efficient entrepreneurial learning. They also carry the responsibility to help learners uncover their personal learning style strengths (Corbett, 2005: 488). Müller (2008: 21) concurs by adding that entrepreneurship education is not only about teaching and training, but also about personal enablement and creating an environment where learners can discover their own potential.

From this perspective, the educator needs to assume the role of a facilitator focused on enabling learners to gain relevant experiences (Devonish *et al.*, 2010: 167; Müller, 2008: 21) and affording them the opportunity to think and act independently (Jones & Iredale, 2010: 12). The underlying challenge is for educators to allow young learners to ‘feel’ the concept of entrepreneurship rather than just learning about in the conventional sense (Gibb, 2007: 8).

In order to achieve this, educators need to develop a teaching style that encourages learning by doing, exchanging, experimenting, positive mistake-making, calculated risk-taking, creative problem solving and interacting with the ‘outside’ world (Jones & Iredale, 2010: 12; Mentoor & Friedrich, 2007: 223).

According to Chell and Athayde (2009: 3), educators in schools and colleges can do a great deal within the curriculum and through extra-curricular activities to develop young people's innovative skills. In this regard, the main potential for influence is described as teaching styles that are conducive for creating a culture tolerant of experimentation to enable learners to be adventurous in their thinking and learning processes.

In conclusion, Gibb (2007: 8) describes the excellent entrepreneurship teacher as one who will “...*take easily to the entrepreneurial concept and will see it as central to educational*

objectives.” Such teachers will master the art of knowing how much ownership and control of learning to give to students, and they will promote social learning, encourage student networking, nurture perseverance to see things through, encourage calculated risk-taking, pursue opportunities innovatively and involve students in taking responsibility for the development of their own learning (Gibb, 2007: 8).

5.3.5 The role of stakeholders

The role of various stakeholders is implied by Gibb (2002a: 140) in stating that the “...*bulk of lifelong learning takes place in an uncontrolled pedagogical environment*”, meaning that most of entrepreneurial learning takes place through informal processes and relationships with relevant stakeholders such as peers, family, customers, suppliers, banks, government and accountants (also see Brijlal, 2008: 32; Edwards & Muir, 2005: 625; Henderson & Robertson, 2000: 280).

These relationships, and therefore, the need to engage with external stakeholders in the design and implementation of entrepreneurship education programmes, demand commitment from educational institutions, and require educators to change their teaching perspective (Hynes & Richardson, 2007: 732). As a consequence, a brief discussion of each of these external stakeholders is deserving.

5.3.5.1 Parents and family businesses

Entrepreneurial education and training should begin at home (Mmotlane, Winnaar & Wa Kivilu, 2009: 527; Ladzani & Van Vuuren, 2002: 159). Parents are favourably positioned to teach their children to be opportunity-oriented and to think entrepreneurially, as well as help them develop basic entrepreneurial skills from a very young age (Kromberg, 2006: 43; Kroon & Meyer, 2001: 52). At the heart of the relationship between parents and children should be respect for one another's strengths and weaknesses, as well as shared openness towards making mistakes and taking positive risks. These aspects are conducive for the creation of a shared culture of enterprising initiative at home (Chigunta *et al.*, 2005: 49).

Parental occupation appears to have an influence on young people's subsequent career choices (Chell & Athayde, 2009: 11). Many entrepreneurs follow in the footsteps of entrepreneurial parents, and growing up in a family business has the capacity to influence children's perceptions of entrepreneurship (Krueger, 1993b: 80). Research has indeed shown

that family business involvement has a significant positive effect on the entrepreneurial attitudes of children (Harris & Gibson, 2008: 575).

Later in life, young entrepreneurs often engage in business partnerships with a parent or other family member to capitalise on some of the many benefits associated with family-owned businesses. These advantages include access to social and financial capital that might otherwise not have been accessible due to their age (De Bruin & Lewis, 2004: 644).

5.3.5.2 Society and communities

...[A] given social order is an integrated pattern evolved over time, sometimes in close relation to the physical setting. It is peculiar to its own context, is powerful within it, and is not synthetically available (Checkland, 1975: 187).

Within the 'power' and 'peculiarity' of a given social order described by Checkland (1975), rests a genuine belief that a society's commitment to hard work is associated with economic development and competitiveness (Ali, Falcone & Azim, 1995: 26).

Young people need a connected community infra-structure providing them with a strong social safety net filled with opportunities to interact in their community, develop skills, gain knowledge and build robust relationships with people both in- and outside their homes and schools (Broadbent & Ovens, 2004: 90; Connell *et al.*, 2002: 284). Against this, underdeveloped and unstable social structures are often dominant in conditions of extreme poverty, which in turn, present a significant barrier to entrepreneurial activity (Wadhwa, Aggarwal, Holly & Salkever, 2009: 10).

Supporting entrepreneurial communities are the concepts of social assets and capital (Chigunta *et al.*, 2005), social interaction (Yu & Man, 2009; Man & Yu, 2007), social learning (Chell & Athayde, 2009), intercultural education (Luciak, 2006) and pluralism (Panjwani, 2005). Social capital is defined as the "*...mechanisms, structures and norms or institutions in place, which are supportive or constrain youth enterprise and entrepreneurship development*" (Chigunta *et al.*, 2005: 70).

Social interaction supports entrepreneurship education by playing an important role in the formation of entrepreneurial characteristics in young learners (Yu & Man, 2009: 605). These

characteristics include both task-oriented aspects such as planning, decision-making and personal risk management, and conceptual-oriented personal attributes like openness, patience and independence (Yu & Man, 2009: 601). Social interaction is deemed just as important as experience or action-learning, simply because it allows participants to act in different ways in response to stimuli raised in the social unit to create a new level of learning on the basis of each individual's stimulus (Man & Yu, 2007: 621, 623-624).

Social learning, on the other hand, is important for youth development due to its foundation in experience and its support for the development of attitudes and values consistent with expressed behaviour (Chell & Athayde, 2009: 10). As an example, community networks consisting of entrepreneurs can play a significant role in positive reinforcement by supporting emerging entrepreneurs with encouragement and practical advice (Gatewood, Shaver, Powers & Gartner, 2002: 202).

Intercultural education, according to Luciak (2006: 75), is aimed at deepening learners' knowledge and appreciation of different cultures; it reduces prejudices; it highlights the interdependencies of a global community; and facilitates critical awareness of discrimination and societal inequalities. Pluralism is more concerned with a positive attitude towards diversity, and is important for entrepreneurship education in a world where 'others' cannot be ignored any longer (Panjwani, 2005: 376).

An important consideration for the inclusion of social interaction and learning in entrepreneurship education is the need for a broader societal model of entrepreneurship to create a "*wider stakeholder enterprise culture*", as well as a supportive institutional environment dealing with organisations and communities of all kinds (Gibb, 2006a: 12).

5.3.5.3 Role models and mentors

Role models serve in a supportive capacity as mentors (Nkirina, 2010: 163) and play an important part in both the selection or rejection of self-employment (Mentoor & Friedrich, 2007: 223) and entrepreneurship as a viable career path (SBRC, 2010: 26). Research suggests that entrepreneurial role models may channel emotional self-efficacy for proactive behaviour to aspiring entrepreneurs (Zampetakis *et al.*, 2009: 612).

Educators in general are suitably qualified to teach knowledge, skills, abilities and competencies, but are less well equipped to transfer practical means, methods and

entrepreneurial approaches to learners. For this reason, Anderson and Jack (2008: 269) insist that 'surrogates' must be used to arm nascent entrepreneurs with experience. These surrogates are entrepreneurial personalities with a deep-rooted understanding of the complex nature of entrepreneurship, and are well suited to mentor prospective entrepreneurs in pursuing an entrepreneurial career and starting a business (Chen *et al.*, 2010: 28).

Modern mentoring is an extremely complex process whereby an experienced person exerts considerable influence over a protégé (Bisk, 2002: 263). Mentors give entrepreneurs real-time intensive coaching on how to build a successful business; they share expertise gained the hard way over many years; and they are deeply involved in strategic thinking to refine the business model, attract talent, source funding and build a strong, efficient organisation (Leonard & Swap, 2000: 82; also see Swanepoel *et al.*, 2010: 75).

There are a number of aspects that are crucial for effective mentoring in entrepreneurship development. Firstly, it should be noted that entrepreneurial mentoring programmes are not the sole catalyst for growth in entrepreneurial activity (Bisk, 2002: 265), and as a consequence, entrepreneurs only need mentoring when 'they need it' (Columbine, 2005: 71; Sullivan, 2000: 172-173).

Mentoring should not be provided merely because it is seen as an integral component of entrepreneurship education to increase the business start-up rate, but rather as a timely support intervention to reduce the failure rate of new businesses (Sullivan, 2000: 173). This may be construed as meaning that mentoring is more appropriate during and after the launch of a new venture, rather than during entrepreneurship education and training before the fact.

Secondly, the selection of mentors must be a voluntary process, as the freedom to choose to be a mentor underpins the success of the entire process (Hartshorn & Hannon, 2005: 625). Thirdly, mentors need not be entrepreneurs themselves, as the study by Bisk (2002: 267) revealed that successful mentors also originate from free professions (mainly accountants) and retired executives from large organisations.

Fourth and finally, entrepreneurial mentoring has a number of elements or stages which are different for informal and formal mentoring as shown in table 5.4 on the following page.

Table 5.4 Stages of the entrepreneurial mentoring process

Stages of the entrepreneurial mentoring process		
Stage/function	Informal	Formal
Awareness	Need for advice	Need for advice/assistance
Initiation	Through network	Through third party agency
Contact	Network referral	Selection of third party
Engagement	Informal	Formal meetings
Frequency	Random, when needed	Fixed and random
Term	Indefinite (2 to 10 years)	Definite (by agreement)
Comfort level	Immediate	Evolving
Expectations	Stress relief, encouragement	Suspect, grant aid, loan(s)
Termination	Outgrow mentor	End of engagement

Source: Bisk (2002: 264)

These stages or elements need to be considered prior to engaging in the mentoring process to ensure that the approach followed is best suited to the particular protégé and the particular circumstances.

5.3.5.4 Organised business and partnerships

Kroon *et al.* (2003: 322) conclude that business people in South Africa recognise the role they have to play in developing the next generation of entrepreneurs, but that they do not feel any obligation towards involvement with schools in order to achieve this. Yet, Faris (2004: 6) calls for increased focus on small-business education and the incubation of fledgling entrepreneurs to promote new business creation, and one objective of entrepreneurship education is to increase the involvement of organised business in schools, colleges and universities (Jones & Iredale, 2010: 9).

Hynes and Richardson (2007: 735) propose that entrepreneurship education is a process involving a number of stages and stakeholders who need to be an active part of the process. It is argued that entrepreneurship education should be extended into industry where both the learner and the owner/manager of a business can be beneficiaries of the learning process.

Examples of activities that may promote collaboration between business and educational institutions or training providers include work placements, mock interviews, research and

consultancy projects, business idea generation, mentoring, business planning (Jones & Iredale, 2010: 9-10), business incubators (Ndedi, 2009: 468), and technology transfer projects such as direct training, support services and action research (Hynes & Richardson, 2007: 740).

Partnerships between education and organised business are encouraged based on the premise that it is conducive for making education more relevant to life and work (Jones & Iredale, 2010: 9); it is an integral component to progressing knowledge of entrepreneurship and maximising its potential (Hegarty, 2006: 325); and it raises awareness of young people's needs (Henderson, 2005: 200-201).

The European Commission (EU, 2004: 7, 33) agrees that partnerships between educational institutions and international networks, NGOs, private-public partnerships, external organisations and the private sector are crucial for the development of entrepreneurship education.

5.3.5.5 Governments

The role of governments in entrepreneurship education is implicit: The desired outcome of entrepreneurship education and training programmes is the promotion of entrepreneurial activity and new business formation. Ultimately governments all over the world are the policy makers, and much of what happens in every country is regulated within the confines of such policies.

As a consequence, the potential for the realisation of entrepreneurial education outcomes is dependent on governments creating an enabling environment for investment, enterprise creation and the provision of the required institutional infrastructure for entrepreneurship development (Xheneti, 2006: 121). Governments exercise choice over whether to facilitate or stifle the entrepreneurial spirit (Nafukho & Muyia, 2010: 102-103), notwithstanding the fact that they can play a major role in influencing both present and future entrepreneurial ventures (Devonish *et al.*, 2010: 167).

Apart from adopting policies conducive for effective entrepreneurship development and providing the required infrastructure to support such policies, governments worldwide have a significant impact on entrepreneurship development via the allocation of national resources for education (Afonso & St.Aubyn, 2005: 232), and by either pursuing or ignoring the

development of regional and local authorities in support of entrepreneurship education (EC, 2006) by way of strategies that will target schools, businesses and organisations to gain support for the development of entrepreneurship education programmes (EU, 2004: 8).

Considering the South African government's policies on education and its perceived neglected role as an important stakeholder in youth entrepreneurship development, the question arises whether this incapacity should continue to be put forward as an excuse by anyone for not pursuing an entrepreneurial lifestyle. The perceived obstacles and shortfalls associated with government policies have a severe impact on the entrepreneurial capacity of the masses, yet, there are many who have risen and will still rise to become successful entrepreneurs in all walks of business and life.

Perhaps the passive role of the South African government in entrepreneurship development should be seen as the perfect catalyst for competent entrepreneurs to assume the position and become the government's surrogate stakeholder for entrepreneurship development in the country.

5.3.6 Funding for entrepreneurs

The issue of funding for nascent and established entrepreneurs is a topic deserving of an entire study. Much has been published in the academic literature about the funding of entrepreneurs (e.g., Simrie *et al.*, 2012: 48; Swanepoel *et al.*, 2010; Herrington *et al.*, 2009; Herrington, 2008; Rouse & Jayawarna, 2006; Xheneti, 2006; Chigunta *et al.*, 2005), but more important for this study, is where entrepreneurs in reality obtain funding to launch their business ventures.

Swanepoel *et al.* (2010: 73) conclude that the primary source for start-up funding is entrepreneurs' own savings and income, followed by funding from personal networks including family and friends, and lastly from institutions (e.g., banks) or venture capitalists. The risks involved in using one's own money and savings, or borrowing money from family and friends, or involving a venture capitalist demanding a suitable return on investment (ROI), should elevate the determination to make a success of a new venture to the highest possible level, as opposed to funding obtained merely on the premise of entrepreneurship development with no payback or threat of personal loss.

The importance of taking responsibility for one's actions in entrepreneurial venturing is supported by Ashton (2010) in stating that entrepreneurs, when making use of funding by a venture capitalist, must 'suck it up' and share some of the risk with the venture capitalist. Notwithstanding the acknowledgement that funding always has been and always will be a crucial resource for new venture creation, this statement leads to the conclusion that access to entrepreneurial funding should be an outcome of effective entrepreneurship education, and not the topic for extensive debate as to why insufficient numbers of young people are engaging in entrepreneurial business venturing.

This means that young, aspiring entrepreneurs need to learn effectively about envisioning (ideas, opportunities, products or services, value for others), designing (business approach, entry, markets, resources) and structuring (key staff, infrastructure, support systems) a new, sustainable entrepreneurial business on a shoestring-budget, rather than being educated about the obstacles associated with new venture funding as a deterrent for entrepreneurial activity.

This is not to say that entrepreneurial funding should not be an integral component of effective entrepreneurship education and training – indeed, it is a crucial aspect. However, Aldrich and Martinez (2001: 43) define nascent entrepreneurs as individuals who “...*not only say they are currently giving serious thought to the new business, but also are engaged in at least two entrepreneurial activities, such as looking for facilities and equipment, writing a business plan, investing money, or organising a start-up team.*”

The interpretation of this definition may be construed as meaning that external funding can only follow something tangible such as the completion of the initial stages of the actual formation of an entrepreneurial venture, or at least, sufficient evidence that the emerging entrepreneur has invested enough time and (own) money towards the development of a viable business plan with enough checks and balances to satisfy the criteria set by banks, investors and venture capitalists.

The author calls this approach the 'fff'-principle (funding-follows-formation), and it is proposed that entrepreneurship education and training based on this approach will ensure that aspiring entrepreneurs understand exactly what they are in for, but also that funding will be available, albeit eventually, as a matter of course following hard work, determination and perseverance on the part of the emerging entrepreneur. Unfortunately, and far too often, the 'fff'-equation is rearranged to read 'formation-follows-funding', and as a consequence, the

inability to obtain funding based merely on the 'idea' of a viable venture is then used by many claiming to be entrepreneurs as an excuse for failing to pursue an opportunity.

The reader is referred back to chapter two (section 2.2.2.4) where John Stuart Mill proposed long ago that financial help for education be limited to those who have proven themselves worthy of the investment (Texeira, 2006: 5). This study argues that funding for aspirant entrepreneurs should be based on the same principle, and as a consequence, another important objective of entrepreneurship education and training is exposed as creating individuals worthy of the investment in time, resources and attention.

5.3.7 Reflection, feedback and assessment

The preceding sections examined the importance of various aspects for effective entrepreneurship education and training, and revealed that a far-reaching, integrated approach is required to attain the desired outcome of developing more competent entrepreneurs. Three aspects remain as equally important constructs in effective entrepreneurship education and training: Reflection, feedback and assessment.

Firstly, reflection is an important component of entrepreneurship education and training providing learners the opportunity to pause and reflect on how they – as individuals – are contributing to the learning process and to the success of their team, as well as to take stock of their behaviours and consider what personal changes are required to maintain their individual entrepreneurial outcomes (Jones, 2006: 341, 342).

As part of the reflection-process, critical reflection appears to create an 'ah-ha' moment which can be considered to be the completion of the experiential learning process for a given aspect of understanding (Le Roux & Steyn, 2007: 345). It coincides with the final "cementing" of knowledge and the transformation of learning into an actual, real-life experience. Critical reflection during experiential learning is said to have the capacity to improve the standard of learning, and even more importantly, that it has an immediate effect on the behaviour of the learner (Le Roux & Steyn, 2007: 330).

Feedback involves an environment that *"...returns some measure of the outputs of a system back to the system which produced that output. The feedback then allows the system to compare its present state with an ideal state, to adjust itself in light of that comparison and bring itself closer to that ideal state"* (Doherty & Balzer, 1988: 163). Le Roux and Steyn

(2007: 334) maintain that feedback plays an important role in 'learning from mistakes by making mistakes'. The feedback process highlights the error made by the learner, but also shows why the mistake had been made and its consequent result. Feedback usually occurs some time after an activity had been completed (Feinstein *et al.*, 2002: 736), and helps reinforce the learner's experience and the translation thereof into entrepreneurial knowledge (Politis, 2005: 402).

The approach to feedback is critical to ensure that it has the desired effect on learners. The provision of positive feedback is always an easy and pleasant task, but negative feedback should be communicated in such a way that the learner accepts responsibility for sub-standard performance, but without having any negative impact on his/her self-concept (Gatewood *et al.*, 2002: 202). Feedback should be aimed specifically at the venture or activity in question, and not at the abilities of the participating learner/entrepreneur.

Lastly, the aspect of assessment is a continuation of the discussion in section 4.8.1 of chapter four where the challenges associated with accurate measurement of the impact of entrepreneurship education were expounded. Continuous assessment of entrepreneurship education programmes is crucial to determine whether the desired outcomes have indeed been achieved.

The problem is that a significant portion of current entrepreneurship education initiatives is largely unsupported by empirical evidence of its practical effects (Honig, 2004: 270). The European Commission (EU, 2004: 60) acknowledges that comprehensive quantitative data on entrepreneurship education will not be available in the shorter term, and accordingly, proposes that qualitative as well as quantitative indicators relating to a limited number of specific and well-known programmes be used for the purpose of monitoring progress.

The recommendations for programme assessment from the academic literature are wide ranging: Pittaway *et al.* (2009: 75) argue that assessment methodology should be based on the understanding of how students learn, whereas Asuru (2009: 34) proposes effective and periodic evaluation of programmes using different techniques and feedback for review, redesign and effective implementation. Both Rae (2004: 196) and Fayolle and Gailly (2008: 586) present expansive lists including the 'why', 'what', 'when', 'how' and 'whom' of entrepreneurship education as the proposed method of assessment.

Vinten and Alcock (2004: 193) base their recommendations for assessment methodology on the approach of the National Foundation for Teaching Entrepreneurship (NFTE) in the United Kingdom as an example of good practice in evaluation studies. The NFTE groups its research and evaluation studies on the outcomes of its activities into four areas including:

- academic impact (the relationship between learners' experiences in the NFTE and their overall academic achievement);
- teacher impact (the impact of the NFTE on teachers through its teacher education programmes);
- the psychology of entrepreneurship (evaluation to determine whether the NFTE programmes are conducive for the development of critical thinking, leadership skills, tolerance of ambiguity, problem-solving, self-efficacy and collaboration); and
- alumni impact (the short- and long-term impact of the NFTE's alumni services programme (Vinten & Alcock, 2004: 194).

In summary, reflection is important to enable learners to make personal changes to maintain their personal entrepreneurial outcomes and embed real-life experience in their being; feedback helps these learners reinforce their experiences and translate it into entrepreneurial knowledge and expertise; and assessment ensures that programmes are continuously evaluated and adjusted to stay the course and achieve the desired outcomes.

5.4 THE 'EUREKA'-FACTOR IN ENTREPRENEURSHIP EDUCATION

The preceding sections of the current chapter examined what is being taught in entrepreneurship education and training (section 5.2); what should be taught and how it should be taught; how teachers and trainers need to be developed; the roles of a range of stakeholders in the process; the concept of funding for entrepreneurs; and the importance of reflection, feedback and continuous assessment (section 5.3).

Something remains missing – something with the capacity to transform *anything* and *everything* that should be taught in entrepreneurship education and training into *effective* entrepreneurship education and training, or more appropriately, true entrepreneurial learning. The introductory section of this chapter anticipated the introduction of the 'eureka'-factor in entrepreneurship education and training – a crucial aspect that is key to transforming what is learnt and how it is learnt into entrepreneurial capabilities and action, and as an outcome, the development of competent entrepreneurs.

The 'eureka'-factor in effective entrepreneurship education and training is deliberate practice – a concept that has its origin in applied psychology and that has been researched extensively in the fields of sport and medicine (see Ford, Ward, Hodges & Williams, 2009; Ericsson, 2007; Ericsson, Roring & Nandagopal, 2007; Ward, Hodges, Starkes & Williams, 2007; Ericsson, 2004; Baker, 2003; Baker, Côté & Abernethy, 2003). Although the principles of deliberate practice were developed through research with musicians, it has been shown to have applicability to the acquisition of expertise in all areas of human endeavour (Baker *et al.*, 2003: 13).

Deliberate practice is characterised as “*structured activity with the primary goal of improving an important aspect of current performance*” (Ford *et al.*, 2009: 65; Baker *et al.*, 2003: 13), and includes practice activities which [1] are performed in a daily, work-like manner, [2] require effort and attention, [3] do not lead to immediate social or financial rewards (also a key component of the early Protestant work ethic in the USA; see Porter [2005]), and [4] are frequently not enjoyable to perform (Baker *et al.*, 2003: 13).

There are three general types of activities in life, namely work, play and deliberate practice (Ericsson, Krampe & Tesch-Römer, 1993: 368). Whereas work includes public performance, services rendered for pay and other activities directly motivated by external rewards, and play involves inherently enjoyable activities that have no explicit goal, deliberate practice includes activities that have the sole purpose of improving performance.

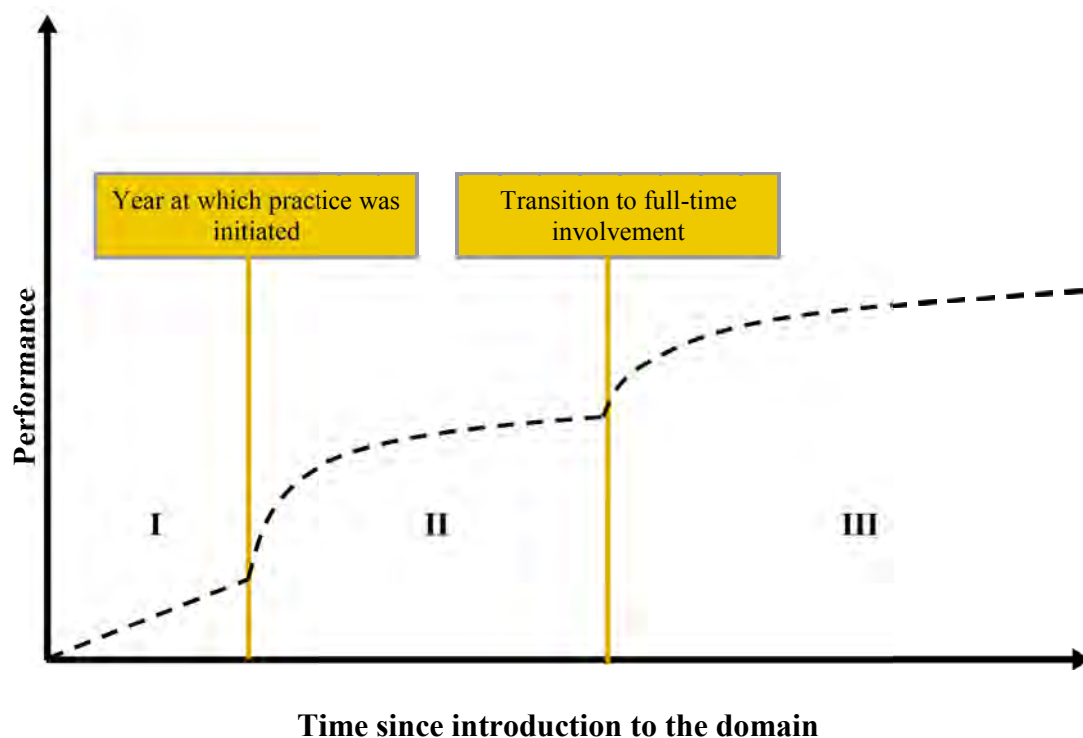
It follows that deliberate practice is highly structured; it includes specific tasks to overcome weaknesses and it is carefully monitored to find ways to improve performance; it requires effort and is not inherently enjoyable; and it generates no immediate monetary rewards, but does involve costs associated with access to suitable teachers and training environments (Ericsson *et al.*, 1993: 368).

But why is deliberate practice identified in this study as the 'eureka'-factor in *effective* entrepreneurship education? Many characteristics once believed to reflect innate talent have in recent years been shown to be the result of intense practice for a minimum period of 10 years (Ericsson *et al.*, 2007: 16; 1993: 363). The 'ten-year' rule of engagement in domain-related activities is acknowledged as the most compelling evidence for the necessity of experience to attain high levels of performance (Ericsson, 2004: S72), and it is said that even

those individuals considered to be naturally gifted require extensive deliberate practice to acquire a level of expert performance (Ericsson *et al.*, 2007: 41; Ericsson, 2004: S70, S79).

It follows that expert performance is developed over an extended period of time and the corresponding expert performance approach provides the explanation for elite performance in several domains of expertise, including music, ballet, chess and medicine (Ericsson, 2007). From this approach, adult expertise is developed over time in three sequential phases presented in figure 5.4.

Figure 5.4 Three phases of development to adult expertise



Source: Ericsson *et al.* (1993: 369)

Figure 5.4 shows that performance is related to the elapsed time since the introduction to a given domain, and that performance is accelerated significantly when practice in the domain is initiated, as well as when transition to full-time involvement occurs. It is evident that the significant increases in performance at the start of the second and third phases eventually flatten towards a plateau, again emphasising the importance of continued learning and deliberate practice to escalate performance to yet another higher level.

In most domains of expertise, people engage in effortful activities (i.e., deliberate practice) in their early childhood to improve personal performance. As time progresses, individual

differences, even among elite performers, are closely related to assessed amounts of deliberate practice (Ericsson *et al.*, 1993: 363). Research has shown that the difference between expert and non-expert pianists and violinists was due to the amount of time spent practicing alone (more than 10 000 hours as opposed to 7 000 hours) (Baker, 2003: 87).

Research by Ericsson *et al.* (2007: 17) produced similar results by revealing that the most accomplished expert musicians in their study spent around 25 hours in solitary practice every week, as opposed to the 10 hours of the least accomplished group. In a similar study, Baker *et al.* (2003: 12) found that experts in hockey, netball and basketball accumulated more hours of sport-specific practice from the age of 12 than their non-expert counterparts, spending in the region of 13 years and 4 000 hours on concentrated sport-specific practice before reaching international standards.

Supporting these findings, is data collected by Ward *et al.* (2007: 136) suggesting that the time spent in team practice throughout development, combined with early experiences in match-play, individual practice and playful activities, provide a suitable vehicle for the progression of skills. More important for this study, is the conclusion by Baron and Henry (2010: 63) that there are sufficient empirical grounds for proposing that the basic principles established by research on deliberate practice and expert performance are applicable to the domain of entrepreneurship.

For entrepreneurial learning the importance of deliberate practice is embodied in the finding by Ford *et al.* (2009: 65) that experts acquire domain-specific skills as a result of the activities in which they participate throughout their development. Its value lies in the differentiation from mere experience and mindless drill through repeated attempts to reach beyond the current level of competency while enduring frequent failures, and by focusing on improving specific aspects of performance requiring problem-solving and successive refinement with feedback (Ericsson *et al.*, 2007: 18-19).

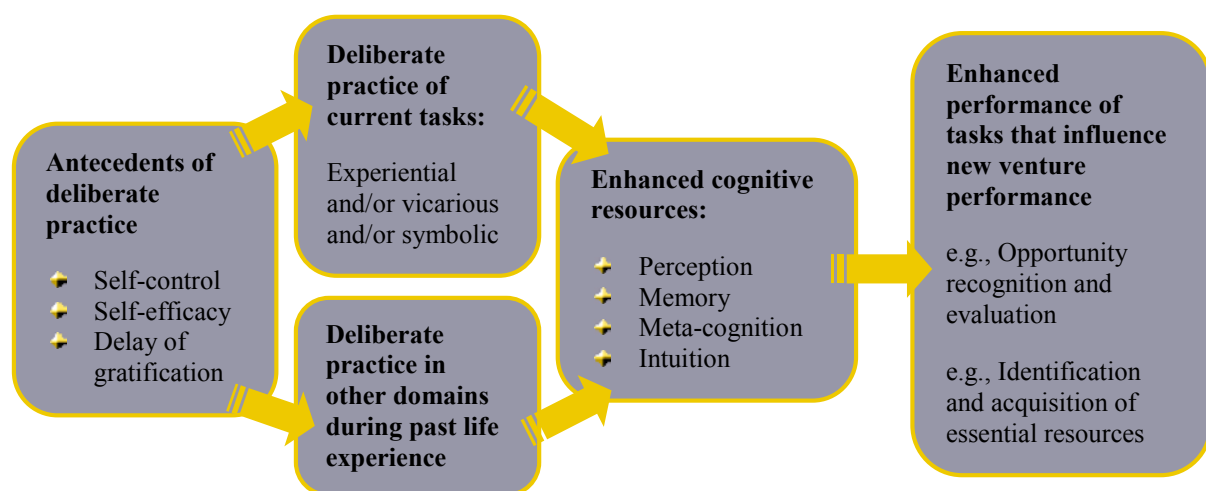
Within such a framework, future experts (or in this case, future entrepreneurs) participate in training that develops “...*required skills under continuously evolving conditions where training stress and recovery are optimally balanced so that maximal training adaptations occur and training plateaus are minimised*” (Baker, 2003: 87). Baron and Henry (2010: 49) agree that the capacity of entrepreneurs to perform tasks relating to new venture success is

enhanced through deliberate practice consisting of “...*intense, prolonged, and highly focused efforts to improve current performance.*”

The enhancement of cognitive abilities such as perception, memory, meta-cognition and intuition resulting from deliberate practice are general in nature, and can be used in situations other than those in which it was acquired (Baron & Henry, 2010: 54-56, 58). For the entrepreneur, this means that abilities such as recognising important information, increased memory or improved understanding of one's own performance can be used to take on the challenging tasks associated with new venture creation. Allinson, Chell and Hayes (2000: 32) and Holcomb, Ireland, Holmes and Hitt (2009: 182) support the notion that judgmental processes have an influence on the development of expertise and expert performance in entrepreneurial settings.

The role of deliberate practice in the enhancement of cognitive resources for new venture performance is shown in figure 5.5 below.

Figure 5.5 The role of deliberate practice in new venture performance



Source: Baron and Henry (2010: 60)

Embedding deliberate practice as an integral component of entrepreneurship education and training is not without challenges. The key challenge for both educators and developing entrepreneurs is to “...*avoid the arrested development associated with automaticity and to acquire cognitive skills to support their continued learning and improvement*” (Ericsson, 2004: S73). This challenge has greater impact on the learner than on educators and trainers,

and as a result, the importance of a positive attitude towards entrepreneurship and high levels of achievement motivation and determination amongst learners are again brought to the fore.

Educators also have a major role to play as they carry the responsibility to design activities in line with the principles of deliberate practice to prevent experience from peaking and end up becoming a barrier to opportunity identification (Ucbasaran, Westhead & Wright, 2009: 111). Future elite performers tend to seek out suitable teachers and coaches and engage in supervised training, as opposed to amateurs who reach an acceptable level of performance and then merely maintain it in subsequent years (Ericsson *et al.*, 2007: 34). This finding again highlights the role of competent educators, trainers and mentors and the importance of educator development and training for effective entrepreneurship education.

Another challenge is that considerable care needs to be exercised when bringing deliberate practice into the domain of entrepreneurship, and in particular, the domain of entrepreneurship education. Ucbasaran *et al.* (2009: 112) warn that “[*T*]asks performed by entrepreneurs need to be clearly identified and measures of performance relating to each task need to be operationalized...” for deliberate practice to be successful.

Deliberate practice is mentally demanding and requires high levels of focus and concentration; it must continue for extended periods of time; it must be repeated; it requires continuous feedback; it demands the setting of appropriate goals; it involves self-observation and self-reflection; and it needs careful reflection on performance after each session (Baron & Henry, 2010: 51). It follows that the approach to deliberate practice must be just right for this important aspect of entrepreneurship education and training to have the desired outcome.

In conclusion, a strong case can be made for the role of talent and hereditary characteristics in successful entrepreneurial activity – indeed, the theory of deliberate practice does not completely rule out the role of these factors (Ward *et al.*, 2007: 120). At the same time, the preceding discussion showed that talents need to be developed for an individual to be really successful (i.e., an expert) at anything, and Baron and Henry (2010: 63) agree that innate talents are far less crucial in attaining unusually high levels of performance than persistent and purposeful application of the basic principles of deliberate practice.

There will always be the few who seem to appear from nowhere and rise to become ‘elite’ entrepreneurs admired by many, but these entrepreneurs, although an obsession of the author, are not the focus of this study. This study is focused on releasing the spirit of enterprise

among the 'many', but the problem is that most people show relatively rapid increases in performance up to levels deemed acceptable by themselves and by society, followed by a plateau and no further gains (Baron & Henry, 2010: 51).

Therefore, and notwithstanding the importance of everything discussed in this chapter for effective entrepreneurship education and training, this study argues for the importance of deliberate practice as the single, all-embracing concept that will in time distinguish the competent, successful entrepreneur from both the 'wannabe' and the average entrepreneur.

Deliberate practice builds expertise through experience, but “[E]xperience is not what happens to you, experience is what you do with what happens to you” (Epictetus in Krueger, 2007: 129). Aspiring entrepreneurs need to embrace the ‘rage to master’ the art of entrepreneurship and practice it relentlessly, for success belongs not to those who are gifted or lucky, but to those who are willing to work long and hard.

It is concluded that the distinguishing factor between entrepreneurship education and training and *effective* entrepreneurship education and training is the extent to which the combined knowledge, skills, abilities and experiences accumulated during the learning process is practiced – deliberately, continuously and relentlessly.

It follows that the success of any entrepreneurship education and training programme depends largely on the extent to which the concept of deliberate practice is embedded into the programme from two perspectives: Firstly, from a design perspective to ensure that it forms an integral part of programme delivery, and secondly, from a motivational perspective to instil in learners sufficient levels of ‘want’ to accept responsibility and engage in prolonged and focused deliberate practice in their pursuit to become expert entrepreneurs.

5.5 CHAPTER SUMMARY

Chapter five set out to examine the design and content of existing entrepreneurship education and training programmes for comparison with the recommendations for effective entrepreneurship education from the academic literature. The methodologies generally employed in current programmes were described as mainly materials-based education, supplemented by the provision of mentoring, networking opportunities and access to resources, as well as games, simulation and the establishment of mini-companies to enhance practical learning.

Examination of the current curricula of leading youth entrepreneurship education and training providers both in South Africa and across the globe confirmed that these programmes are indeed based upon the three general approaches identified at the outset of the chapter. This finding raised the question whether these methods are conducive for the development of more competent young entrepreneurs.

The continuation of the chapter examined the requirements for effective entrepreneurship education and training and highlighted the importance of attitudes and intentions as the starting point for youth entrepreneurship development. It also highlighted the importance of practice-based theory for entrepreneurship education and training, and the subsequent discussion examined the appropriate design and structure of programmes; programme content and curriculum development; teaching methodology; teacher and trainer development; the role of stakeholders; funding for entrepreneurs; and the importance of reflection, feedback and assessment as integral components of a holistic approach towards releasing the spirit of enterprise and stimulating entrepreneurial activity.

The importance of experiential learning was highlighted, and the GENIE was re-introduced from chapter three to present a five-stage approach to effective entrepreneurship education, including gestation, the inculcation of entrepreneurial intentions, nurturing of potential entrepreneurs, initiation, and finally, entrepreneurial action. The desired outcome of this approach was described as one where successful learners embark on a lifelong journey of entrepreneurial venturing, supported by educators and trainers in subsequent education and training activities, as well as entrepreneur networks, role models, coaches and mentors.

Funding for nascent entrepreneurs was set aside as a topic deserving of a separate study, but the primary source of funding for entrepreneurial venturing was identified as entrepreneurs' own income and savings, followed by loans from personal networks including family and friends, and lastly from institutions such as banks or from venture capitalists. This finding led to the proposition that external entrepreneurial funding follows the formation of an entrepreneurial venture, or at least, sufficient evidence that the entrepreneur has invested enough deliberation and sweat-capital in pursuit of a viable opportunity.

This means that external funding for entrepreneurial venturing belongs to those who have proven themselves worthy of the investment. From this perspective, an important objective of

entrepreneurship education and training was exposed as the creation of enterprising individuals worthy of such investment in time, resources and attention.

Reflection, feedback and assessment were also earmarked as crucial components of effective entrepreneurship education and training to assist learners in maintaining their personal entrepreneurial outcomes and reinforcing their experiences, as well as ensure that programme delivery remains contemporary and appropriate with the capacity to attain the desired outcome of bringing competent entrepreneurs to the market.

The final section of chapter five introduced deliberate practice as the 'eureka'-factor in effective entrepreneurship education. In conjunction with the explication of the concept of deliberate practice, the concomitant discussion revealed that intense and highly focused practice over an extended period of time is more important for expert performance than innate talent or hereditary characteristics.

The challenges associated with embedding deliberate practice in entrepreneurship education and training were explained, the most important of which was described as the need to ensure that entrepreneurial learning continues indefinitely and prevents development from reaching passive plateaus. It was acknowledged that talent and transmissible characteristics do play a role in expert performance and entrepreneurial activity, but simultaneously put forward that even the most talented individuals need to develop such endowments to become experts in any given domain.

This study's focus on releasing the spirit of enterprise and promoting entrepreneurial activity among the masses was reiterated, and based on this premise, deliberate practice was proposed as the single, all-embracing component of entrepreneurship education and training that has the capacity to transform aspirant entrepreneurs into competent, and even elite entrepreneurs. For this reason, deliberate practice was earmarked as the distinguishing factor between entrepreneurship education and training and *effective* entrepreneurship education and training.

Chapter five concluded that entrepreneurial activity is not about being gifted or lucky enough to encounter some 'ready-to-harvest' opportunity – it is about hard work, endurance and relentlessly pursuing entrepreneurial opportunities that may (or may not) eventually provide substantial personal rewards. For the same reason, effective entrepreneurship education and training is not about wealthy schools and having all the desired resources at one's disposal –

it is an equally hard and relentless process of continuous learning and using experiences to build experience and eventually create something that will have value for others.

This study has shown that entrepreneurship can be learnt, and moreover, that it can be learnt in such a way that it will promote entrepreneurial activity, even among 'ordinary' people. The challenge is that effective entrepreneurship development demands an integrated approach and uncommon commitment from each and every person involved in the process, but in particular, from those learners who realise that they might have the intention to become an entrepreneur.

CHAPTER SIX

THE RESEARCH APPROACH, MEASURING INSTRUMENTS AND DATA CODING

6.1 INTRODUCTION

Chapter four concluded that entrepreneurship can be taught, but questioned whether it can be taught successfully, and in particular, to young people in South Africa. This question remained unanswered throughout chapter five, notwithstanding a further conclusion that entrepreneurship is indeed a learnt phenomenon.

Surrounding the questionable impact of entrepreneurship education and training is the lack of large scale empirical evidence to support its effectiveness. According to the expert group on 'Education for Entrepreneurship' (EU, 2004: 35), “...*no major activities of data collection are expected in the short term...*”, and it is proposed that “*partial quantitative indicators*” be used to assess the application of some identifiable entrepreneurship programmes available in schools.

From a South African perspective, Steenekamp *et al.* (2011a: 48) confirm the lack of empirical evidence regarding the attitudes of young learners towards entrepreneurship and their future career plans, and subsequently argue that more research is needed for the development of suitable interventions to promote entrepreneurship. Matlay (2006: 711) concurs, and suggests that entrepreneurship research should include “...*empirically rigorous quantitative, qualitative and longitudinal studies.*”

In response to these propositions, chapter six signifies the transition from the literature review to the empirical part of this study. The chapter serves as a prelude to the pilot study (chapter seven) and the longitudinal main study (chapters eight and nine) which examine the impact of *ad hoc* entrepreneurship education and training on young learners in South Africa. It describes the research approach to the empirical study, the research design, the compilation of the research instrument and the procedures employed for the coding of data.

6.2 THE RESEARCH APPROACH

The research approach to this study has its origin in an exploratory study by Steenekamp (2009) on the entrepreneurial attitudes of secondary school learners. Steenekamp (2009: 40)

concludes that academic research has focused largely on the personality traits, characteristics and ‘special’ skills of entrepreneurs (e.g., Rosenblatt *et al.*, 2008: 3; Bjerke, 2007; Moen *et al.*, 2004; Lüthje & Franke, 2003; Nieman, Hough & Nieuwenhuizen, 2003; Cromie, 2000; Caird, 1991; Hisrich & Brush, 1986; Cromie & Johns, 1983), but highlights the notion that trait approaches to entrepreneurship research have not sufficiently contributed to the body of knowledge on entrepreneurship and the distinctive behaviour of entrepreneurs (e.g., Athayde, 2009a; Johnston *et al.*, 2009; Bjerke, 2007; Van Wyk & Boshoff, 2004; Keh *et al.*, 2002: 126; Cromie, 2000; Krueger *et al.*, 2000: 413; Robinson *et al.*, 1991; Gartner, 1989) (Steenekamp, 2009: 47).

Trait approaches are useful for simplistic tests based on traits for exploration and for descriptive purposes (Caird, 1991: 179), as well as to explain some aspects of why people become entrepreneurs (Cromie, 2000: 24). However, both Gartner (1989: 47) and Robinson *et al.* (1991) maintain that behavioural approaches provide a more productive perspective for entrepreneurship research. According to Visser *et al.* (2005: 54), the behavioural approach focuses on what entrepreneurs do and how well they do it, or in other words, how “...attitudes, behaviours, management skills and experience combine in determining entrepreneurial success.”

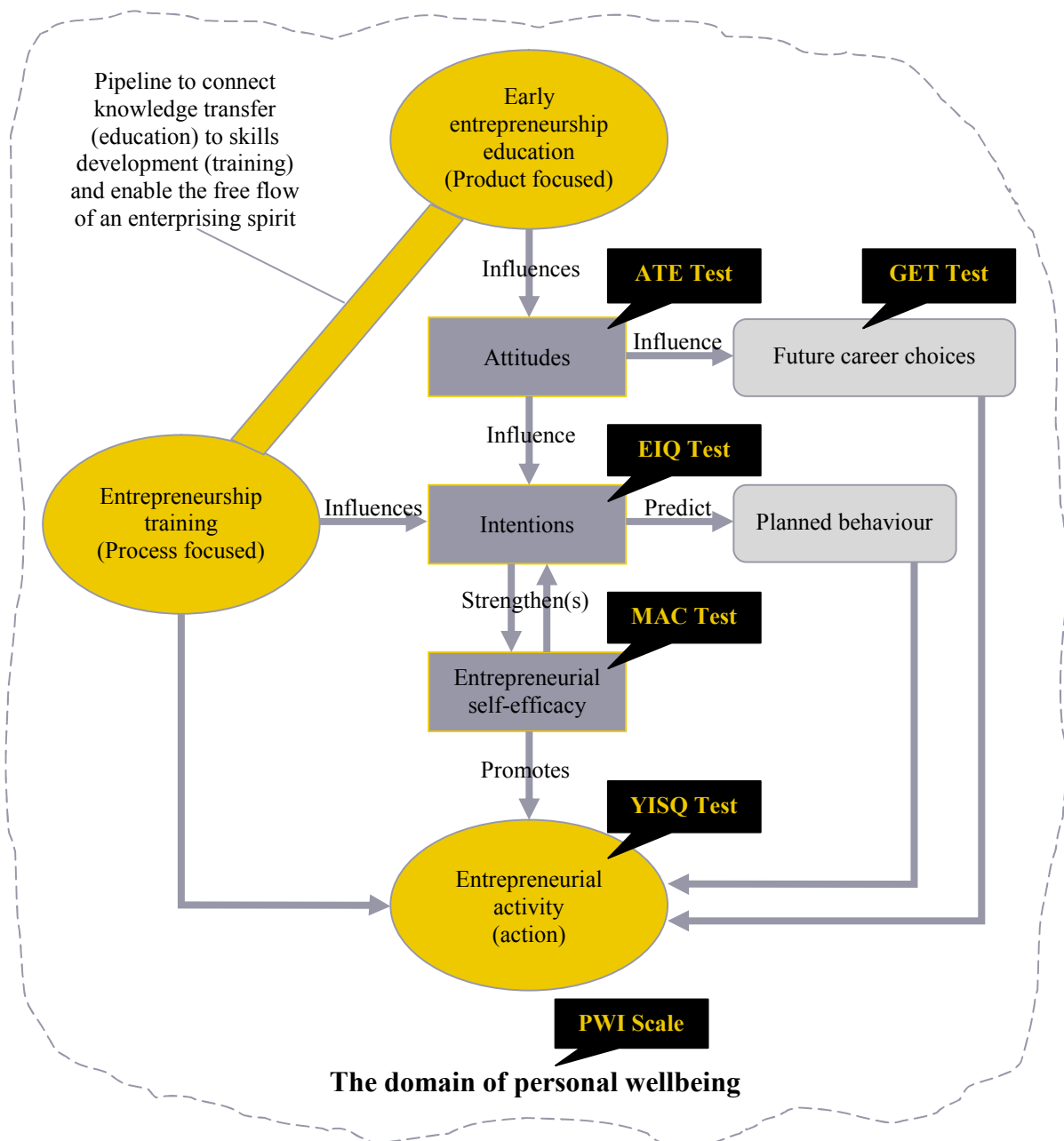
One problem with the trait approach is that it may result in the exclusion of potential entrepreneurs from entrepreneurship education based on their prior-to-learning personality characteristics being seen as ‘unfit’ for development (Littunen, 2000: 304). Lüthje and Franke (2003: 135, 143) found that ‘attitude towards entrepreneurship’ produced the strongest explanation for the entrepreneurial intentions of students, in contrast with research by Urban, Van Vuuren and Owen (2008: 2) and Johnston *et al.* (2009: 41) where the trait approach respectively produced mixed results and no significant relationship between specific personality types and potential entrepreneurial ability.

Following this notion, and based on the assumption that entrepreneurial personality traits, characteristics and ‘special’ skills are at best latent in young learners, the research approach employed in this study is aligned with the attitude-approach to entrepreneurship research discussed by several scholars in the academic literature (e.g., Athayde, 2009a; 2009b; 2004; Gird & Bagraim, 2008; Moen *et al.*, 2004; Van Wyk & Boshoff, 2004; Peterman & Kennedy, 2003; Van Wyk *et al.*, 2003; Douglas & Shepherd, 2002; McCline *et al.*, 2000; Krueger & Brazeal, 1994; Krueger, 1993a; Robinson *et al.*, 1991). A distinct advantage of using the

attitudinal approach to research is that it can be more domain-specific, thereby increasing the correlation with actual behaviour and reducing unexplained variability (Harris & Gibson, 2008: 569).

This attitude-approach, supported by the preceding chapters and further evidence from the academic literature (see discussion to follow), led to the incorporation of the research model depicted in figure 6.1 as the research approach employed in the empirical part of this study.

Figure 6.1 The research approach



The components of the research model and its underlying relationships warrant further examination, and as a result, the remainder of this chapter should be read in conjunction with figure 6.1 above.

6.2.1 Early entrepreneurship education and entrepreneurship training

Evidence suggesting a positive link between education and entrepreneurship appears to be robust (Dickson *et al.*, 2008; Do Paco *et al.*, 2008: 4; Müller, 2008: 2) and research indicates that education has the most profound effect on the propensity of students to start a business (Raposo *et al.*, 2008; Ferreira *et al.*, 2007; Frank *et al.*, 2005: 259). In support of these findings, some empirical studies (e.g., Athayde, 2009a; 2009b; 2004; Lewis, 2005; Peterman & Kennedy, 2003) suggest that early entrepreneurship education has a positive impact on individuals' potential for entrepreneurial activity.

In figure 6.1 entrepreneurship training is placed in a position below early entrepreneurship education to illustrate the potential for early entrepreneurship education to develop an entrepreneurial product (i.e., an enterprising person), followed by entrepreneurial training to provide the skills required for refinement of the entrepreneurial process (i.e., entrepreneurial action) (Feinstein *et al.*, 2002: 739).

The importance of debating whether entrepreneurship education or entrepreneurship training is more conducive for new business formation is downplayed by Steenekamp *et al.* (2011a: 51), and consequently, the pipeline shown in figure 6.1 is suggested to connect knowledge transfer (entrepreneurship education) to skills development (entrepreneurship training) and enable the free flow of an enterprising spirit among young people in South Africa.

6.2.2 Attitude, future career choices, intentions and entrepreneurial activity

An attitude towards something is posited to have three components: Firstly, a behavioural component relating to how an individual behaves towards a given environmental stimulus; secondly, a belief component revolving around what the individual thinks about such stimulus; and thirdly, an emotional component concerned with how the individual feels about the stimulus (McCline *et al.*, 2000: 82).

Attitudes and personality traits evolve over time, particularly during and after important life events, and these impacts play an important role in future career choices (Krueger, 2007:

129). Attitudes are seen as significant contributors to entrepreneurial activity and include not only personal attitudes, but also social and cultural attitudes designated by Accenture (2001) as the most significant factors in encouraging entrepreneurship.

Fínez (2008: 99) includes attitude ('desire to make or produce something') as an essential entrepreneurial competency along with aptitude ('ability, knowledge or skill to make or produce something') and capacity ('being able to make or produce something'). The importance of the attitude-aspect for new venture creation is implicit in the conclusion by Lüthje and Franke (2003: 135) that entrepreneurial attitude is strongly linked with the intention to start a new business.

Moen *et al.* (2004: 192) add that a positive attitude towards entrepreneurship elevates an individual's ability to imagine outcomes and to extend effort, as well as engage in deliberation and maintenance in managing a business. Consequently, Mentoor and Friedrich (2007: 223) identify the topic of attitude as of paramount importance in shaping people's innovative and behavioural patterns, and Nieuwenhuizen and Groenewald (2008: 128) emphasise the development of a positive attitude towards entrepreneurship as an essential component of entrepreneurship training.

Also important for this study is the conclusion that attitudes towards entrepreneurship can be measured and changed (Harris & Gibson, 2008: 570; Robinson *et al.*, 1991: 24), as well as some research findings suggesting that early formal entrepreneurship education influences the attitudes of learners, thereby directing them towards certain future careers (Do Paco *et al.*, 2008: 4). Attitudes are proven to be important for predicting entrepreneurial aspiration (Schwarz *et al.*, 2009: 286) and the early stimulation of these attitudes has the potential to encourage entrepreneurial activity (Kourilsky & Walstad, 1998). Yu and Man (2009: 610) concur that attitudes towards entrepreneurship have been identified as playing an important role in the development of entrepreneurial characteristics.

Attitudes are known to influence behaviour by impacting on intentions (Krueger *et al.*, 2000: 412; Ajzen, 1991: 189), and research by Gird and Bagraim (2008: 717) indicates that attitudes towards entrepreneurship have a significant impact on entrepreneurial intent. It follows that entrepreneurial attitudes have a strong influence on entrepreneurial intentions (Krueger, 2007: 124). This finding, according to Gird and Bagraim (2008: 720), has important policy implications for education as it suggests that attitudes concerning the value

of an entrepreneurial career need to be enhanced in addition to the deliverance of entrepreneurial skills.

6.2.3 Intentions, planned behaviour and entrepreneurial activity

Entrepreneurial intent is defined from two perspectives in the academic literature: Firstly, Thompson (2009: 676) defines individual entrepreneurial intent as a “...*self-acknowledged conviction by a person that they intend to set up a new business venture and consciously plan to do so at some point in the future.*” From a team perspective, Shepherd and Krueger (2002: 170) define a team’s entrepreneurial intention as “...*the motivational attitudes to bring into existence future goods and services.*”

The importance of entrepreneurial intentions for entrepreneurial activity is explicit in the academic literature. Devonish *et al.* (2010: 150) note that entrepreneurial intentions are essential for understanding the dynamics of entrepreneurship and Liñán and Chen (2009: 593) conclude that there is a growing body of literature arguing that intentions play a very relevant role in the decision to start a new business. In a similar finding, Krueger *et al.* (2000: 413) relate to evidence suggesting that much of what is considered entrepreneurial activity is in fact intentionally planned behaviour.

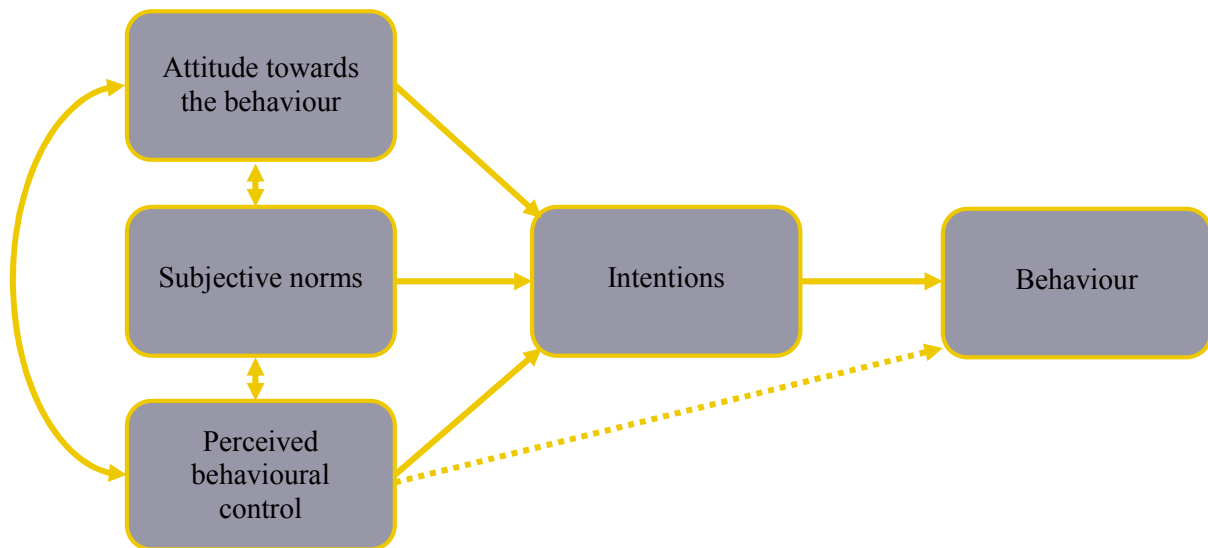
Krueger and Brazeal (1994: 91) argue that the potential for entrepreneurship must exist for entrepreneurship to be possible. This potential for entrepreneurship is interpreted by Gird and Bagraim (2008: 711) as indicating that the study of entrepreneurial intentions (‘potential’) is vital for attempts to encourage entrepreneurial activity. Schwarz *et al.* (2009: 284) observed low entrepreneurial intent among young students just finishing high school, and this finding provides further impetus for the study of entrepreneurial intentions in search of sustainable solutions to promote entrepreneurial activity.

Thompson (2009: 670) adds that entrepreneurial intent is substantially more than merely a proxy for entrepreneurship – it is said to be a “...*legitimate and useful construct in its own right that can be used as not just a dependent, but as an independent and a control variable.*” According to Krueger *et al.* (2000: 411), intention models offer a “...*coherent, parsimonious, highly-generalizable, and robust theoretical framework for understanding and prediction.*”

The link between intention and action is explained by the social psychological theory of planned behaviour (TPB) developed by Ajzen (1991) (Zampetakis *et al.*, 2009: 596). A

central theme in this theory, depicted in figure 6.2 below, is an individual's intention to perform a given behaviour. Intentions are a gauge of how much effort an individual will exert to perform the behaviour, and as a general rule, the stronger the intention to engage in a behaviour, the more likely should be its performance (Ajzen, 1991: 181).

Figure 6.2 The theory of planned behaviour (TPB)



Source: Ajzen (1991: 182)

Underlying performance in behaviour are attitudes towards the behaviour and subjective norms associated with the behaviour, as well as volitional control (i.e., whether the person can decide at will to perform or not perform the behaviour) (Ajzen, 1991: 181). The performance of most behaviours depends at least to some degree on non-motivational factors such as the availability of opportunities and resources (e.g., skills, money, time, support structures), and these factors combine to represent the individual's perception of control over the behaviour (Ajzen, 1991: 182).

Accordingly, Ajzen (1991: 182) proposes that individuals should succeed in performing a given behaviour to the extent at which they have the required opportunities and resources, as well as the intention to perform the behaviour. In its simplest form, intentions predict behaviour, while in turn, certain specific attitudes predict intentions (Krueger *et al.*, 2000: 413) along with beliefs and motives (Urban *et al.*, 2008: 1).

It follows that attitudes influence intentions towards target behaviour, and more importantly for the research approach to this study, that known entrepreneurial attitudes influence both

future career choices (Liñán & Chen, 2009) and entrepreneurial intentions (Krueger, 2007: 124). Entrepreneurial intentions, in turn, have a direct influence on planned entrepreneurial behaviour (Ajzen, 1991: 181), and intentionally planned behaviour plays an important role in the manifestation of entrepreneurial activity (Liñán & Chen, 2009: 593; Krueger *et al.*, 2000: 413).

The theoretical sufficiency of the TPB was examined by Gird and Bagraim (2008: 711, 719) and the results showed significant support for the theory as a model for predicting entrepreneurial intent (explaining more than 27% of the variance in entrepreneurial intent). Research by Müller (2008: 8) confirms this finding by concluding that the results of their study provided strong support for the influence of attitudes, subjective norms and perceived behavioural control on entrepreneurial intention.

The inclusion of intentions in the research approach to this study is based on evidence that intentions are the best predictors of planned behaviour, especially in circumstances where the particular behaviour is difficult to observe or unpredictable (Müller, 2008: 3; Krueger *et al.*, 2000: 412). Entrepreneurial activity is known to be both unpredictable and difficult to observe (Krueger *et al.*, 2000), providing a strong case for the inclusion of intentions as a variable in entrepreneurship research (see Peterman & Kennedy, 2003: 129).

Entrepreneurial intentions can be strengthened through both entrepreneurship education (Florin *et al.*, 2007; Bhandari, 2006; Hmieleski & Corbett, 2006) and entrepreneurship training (Müller, 2008: 20), subject to course content and teaching methods being conducive for targeted and effective learning.

6.2.4 Entrepreneurial self-efficacy, intentions and entrepreneurial activity

The belief in personal efficacy constitutes a key factor in human agency theory (Le Roux, Pretorius & Millard, 2006: 57). In general, the concept of self-efficacy is concerned with people's judgements of what they can do with the skills they possess (Kickul *et al.*, 2009: 441), and it refers to the conviction people have in their ability to execute behaviour as well as the levels of faith entrepreneurs have in their ability to succeed (La Pira & Gillin, 2004: 272). Self-efficacy is considered to be a learning regulator that directly or indirectly influences the success attained in specific tasks (Martinelli *et al.*, 2009: 145).

Alongside self-efficacy is the concept of emotional self-efficacy (also known as trait EI), and higher trait EI is associated with the belief of having the ability to feel, recognise, regulate, control and evaluate one's own as well as other people's emotions (Zampetakis *et al.*, 2009: 614). From this perspective, Zampetakis *et al.* (2009) conclude that students are more likely to formulate the intentions of starting their own business if they have high levels of trait emotional self-efficacy.

Entrepreneurial self-efficacy (ESE) is defined as “...*the strength of a person's belief that he or she is capable of successfully performing the various roles and tasks of an entrepreneur*” (Chen, Greene & Crick, 1998: 301), or a “...*construct that measures a person's belief in their ability to successfully launch an entrepreneurial venture*” (McGee *et al.*, 2009: 965). Specifically, ESE is the confidence to discover an opportunity, to evaluate its potential, to secure the resources required to implement it, and finally, successfully found a new business venture (Rosenblatt *et al.*, 2008: 3).

ESE is said to be a prerequisite for potential entrepreneurs (Krueger & Brazeal, 1994), and it is seen as an important explanatory variable in the determination of both the strength of entrepreneurial intentions and the likelihood that such intentions will result in entrepreneurial action (Boyd & Vozikis, 1994: 66). From this perspective, ESE is commonly modelled as a key antecedent to entrepreneurial intentions that leads to nascent behaviour and ultimately to entrepreneurial action (McGee *et al.*, 2009: 970).

Entrepreneurial self-efficacy is widely regarded as a moderator of the relationship between individual perceptions and the development of entrepreneurial intent (Le Roux *et al.*, 2006: 58). It follows that individuals with higher levels of ESE have higher entrepreneurial intentions, and as a result, such individuals are more likely to engage in entrepreneurial activity than those with low ESE (Rosenblatt *et al.*, 2008: 22).

Also important is the finding that entrepreneurial self-efficacy has a direct and reciprocal relationship with entrepreneurial intentions (Rosenblatt *et al.*, 2008: 4). Entrepreneurial intentions strengthen entrepreneurial self-efficacy, but at the same time, entrepreneurial intentions are a key outcome of the development of emotional (entrepreneurial) self-efficacy and related attitudes (Zampetakis *et al.*, 2009: 598).

6.2.5 The domain of personal wellbeing

The concept of personal wellbeing lives in the domain of life satisfaction, commonly measured as an aggregate of a range of individual life domains (Cummins, 1996: 303). These individual life domains were initially grouped under seven headings, including material wellbeing; health; productivity; intimacy; safety; community; and emotional wellbeing as the domains of life satisfaction (Cummins, 1996: 309) originally used in the Comprehensive Quality of Life Scale (ComQol) (Cummins, 1997; 1996).

Shortfalls in the objective scale of the ComQol-instrument (Cummins, 2002) led to the development of the Personal Wellbeing Index (PWI) (Cummins & Lau, 2005; Cummins, 2002). The instrument has been researched extensively within reviews of scales and in survey reports, articles and chapters (see Cummins, 2010) and has contributed to the construction of a cumulative psychometric record published as the ‘Australian Unity Wellbeing Index’ (Cummins, Eckersley, Lo, Okerstrom, Hunter & Davern, 2003).

Personal wellbeing on the PWI-scale contains seven areas of satisfaction each corresponding to a quality of life domain, including standard of living; health; life achievement; personal relationships; personal safety; community-connectedness; and future security. These seven items are theoretically embedded and represent the first level deconstruction of the global question “*how satisfied are you with your life as a whole?*” (Cummins & Lau, 2005: 4).

Is this concept of personal wellbeing applicable to research on *ad hoc* youth entrepreneurship education as the focus of this study? A strong case can be made that it is indeed applicable, simply because almost anything (if not everything) that happens in life has an influence on the wellbeing of individuals, communities and societies. The potential for entrepreneurship to reduce unemployment and poverty in South Africa has been recognised throughout this study. Entrepreneurship education and training can have a significant positive impact on personal wellbeing, not only for entrepreneurs taking charge of their own destiny, but also for the many beneficiaries created in the process.

6.2.6 The overall significance of the research approach

If you plan for tomorrow, sow rice; if you plan for a decade, plant a tree; if you plan for a lifetime, educate people (Chinese proverb in Bokova, 2010).

Such is the importance of education, and for this particular study, the importance of entrepreneurship education and training as the ‘magical genie’ capable of addressing so many of South Africa’s ills. The overall significance of the research approach employed in this study (figure 6.1) is supported by Steenekamp *et al.* (2011a: 51) in concluding that entrepreneurship education (and training) can promote new business development and economic growth on at least three levels:

- ✦ Firstly, at the attitudinal level where it has the capacity to direct learners towards certain career choices;
- ✦ secondly, at the intentional level where planned behaviour can be predicted and strengthened; and,
- ✦ thirdly, at the practical level where it promotes entrepreneurial activity or action.

The concept of entrepreneurial self-efficacy (ESE) adds a fourth dimension and is included in the research approach for its significance in providing people with the confidence in their abilities to engage in entrepreneurial activity, as well as for its reciprocal relationship with entrepreneurial intentions as part of the model.

Finally, the domain of personal wellbeing constitutes the fifth dimension, and is incorporated in the research approach based upon the train of thought that entrepreneurship education and training promotes entrepreneurial activity; entrepreneurial activity promotes economic and social development; and economic and social development increases personal wellbeing for individuals living in communities and societies.

6.3 THE RESEARCH DESIGN

The design of the empirical study is based, in part, on the recommendations by Steenekamp (2009) and Steenekamp *et al.* (2011a; 2011b). Following the failure of a study in the Sedibeng District of the Gauteng Province in South Africa to produce conclusive evidence of the impact of entrepreneurship education on young learners (Steenekamp *et al.*, 2011a: 68; 2011b: 328; Steenekamp, 2009: 127), Steenekamp (2009: 147) recommends a national study using a pre- and post test control-group design to measure the impact of different entrepreneurship training programmes on the South African youth.

Based on this recommendation, the research design was approached from a number of important considerations discussed below.

6.3.1 Design considerations for the empirical study

The lack of large scale empirical evidence regarding the entrepreneurial attitudes of young learners in South Africa and their future career plans (Steenekamp *et al.*, 2011a: 48) set the tone for a national study involving all nine provinces in the country. The suggestion by Steenekamp (2009: 102, 147) to employ a pre- and post test control-group design to exclude the potential for self-selection was an important consideration in the research design of this study.

Consequently, the overall research design was approached from the perspective of a study with a national footprint using pre- and post test methodology on test groups (exposed to entrepreneurship training after pre-testing and prior to post testing) as well as control groups (no exposure to entrepreneurship training) to examine the impact of entrepreneurship education and training on young learners over time.

In regard the incorporation of measuring instruments, the recommendations by Rowley (2003) for the design of student feedback questionnaires were considered prior to the selection of suitable instruments for incorporation into the study. Rowley (2003: 148) questions current methodologies employed for student feedback in so far the objectives of the evaluation process, the ability of standard questionnaires to serve a range of purposes, the issues covered by different questionnaires, and the collection, analysis and use of data are concerned.

In an attempt to address these issues, the research design was approached from the perspectives of validity, thorough definition of the study population, the incorporation of suitable (existing and validated) questionnaires and reliable statistical techniques for data analysis (Welman & Kruger, 2001: 250). Moreover, Chandler and Lyon (2001: 103) consider reliability (i.e., “*consistency and stability of a score from a measurement scale*”) and validity (i.e., “*evidence that the measurement is actually measuring the intended construct*”) as the essential psychometrics that need to be reported.

The incorporation of existing, validated measuring instruments was deemed appropriate to ensure validity of the research design, especially when considering that validation may influence the outcome of a research project and inhibit scientific research (Pellissier, 2007: 15). These influences included concerns about cause and effect relationships (i.e., internal validity) and the subsequent generalisation of such relationships to the external environment

(i.e., external validity). It was deemed crucial to incorporate questionnaires with the capacity to measure the concepts that were targeted for research (Hair, Money, Samouel & Page, 2007: 240; Sekaran, 2006: 206; 2000: 207).

Following the identification of a number of instruments (Cummins, 2010; Liñán & Rodríguez, 2010; Athayde, 2009a; 2009b; 2009c; 2009d; 2009e; Chell & Athayde, 2009; Haynie & Shepherd, 2009; Liñán & Chen, 2009; Liñán, Bradley, Basuki & Redford, 2006; Cummins & Lau, 2005; Athayde, 2004; Lau *et al.*, 2004; Cummins, 2002; Caird, 1991; 1988) with the potential to measure the concepts targeted for research shown in figure 6.1, the incorporation of these questionnaires was informed by three important principles for scientific research identified by Sekaran (2006).

These principles, according to Sekaran (2006: 237), include [1] the wording used in existing questionnaires, [2] proper planning for the classification, scaling and coding of data, and [3] general appearance. From this perspective, structured questionnaires were deemed most appropriate for the quantitative approach employed in this study, simply because the responses of participants can be coded into numbers to provide a universal language that can be easily understood (Coldwell & Herbst, 2004: 15).

Resultantly, and as a design requirement, only questionnaires using closed-type questions or statements requiring respondents to make choices from a set of alternatives provided in the instrument, were selected for this study. This method was deemed appropriate for the type of research described in the remainder of this study, as respondents could quickly choose a response from the set of alternatives and the information could be coded for subsequent statistical analysis (Sekaran, 2006: 239). The Likert-scale was identified as best suited for the measurement of entrepreneurial constructs in young learners (Oakshott, 2006: 67; Welman & Kruger, 2001: 150).

6.3.2 Definition of the study population and sample selection

The study population is defined as learners in secondary schools in South Africa, and in particular, those learners in the further education and training (FET) band demarcated by the South African Department of Basic Education (DoBE) at the time of testing.

Education in ordinary schools in South Africa is grouped in terms of the general education and training (GET) band (grades R to nine), comprising the foundation phase (grades R to

three); the intermediate phase (grades four to six); and the senior phase (grades seven to nine), and the further education and training (FET) band that caters for grades 10 to 12, but excluding learners in FET colleges (South Africa, 2010a: 8-9). Although the FET band includes grade 12 learners, these learners were not expected to participate in the study in large numbers (or even at all) due to their academic commitments in the final year of secondary schooling.

The research design facilitated the use of convenience sampling for the selection of samples from the study population. This approach was adopted early on in the design of the empirical research, mainly due to the expectation (and later, confirmation) that a national study of this nature would be associated with significant organisational, financial and logistical challenges.

Convenience sampling was deemed best suited to reach at least 10 to 15 respondents per variable examined in the questionnaires (Field, 2009: 647), or at least 300 cases recommended by Tabachnik and Fidell (2007: 613) for factor analysis. Accordingly, the minimum sample size for each of the test and control groups was set at 300 respondents to comply with the classification by Comrey and Lee (1992) of 300 participants as a ‘good sample’.

6.3.3 The co-optation of research partners

The endeavour to conduct empirical research in all nine provinces of South Africa without any form of external funding soon highlighted the need for reputable research partners. The roles of these partners were identified as the enrolment of learners from secondary schools in the country for both the test and the control groups; consultation with schools’ principals and parents to obtain permission for learners to participate in the study; the gathering of data using the questionnaires supplied by the researcher; and the provision of the training intervention to the test groups between the pre- and post testing phases of the study.

Two of the leading youth entrepreneurship training providers in South Africa identified by Friedrich *et al.* (2005: v) and the Umsobomvu Youth Fund (UYF, 2004: 27) were approached to participate in the study: The Education with Enterprise Trust (EWET; see chapter five, section 5.2.2.1) and Junior Achievement South Africa (JASA; see chapter five, section 5.2.2.4). Successful negotiations with these organisations resulted in EWET facilitating the pilot study in Harrismith (Free State province) (discussed in chapter seven), and JASA

playing a crucial role in the longitudinal main study throughout South Africa (discussed in chapters eight and nine).

6.4 SELECTION OF THE MEASURING INSTRUMENTS

The scope of the research approach (figure 6.1 and the concomitant discussion in section 6.2) called for the compilation of a purposive research instrument comprising a battery of tests to examine the entrepreneurial tendencies of young learners from a number of different perspectives. These perspectives include the concepts of entrepreneurial attitude; future career choices; entrepreneurial intentions; entrepreneurial self-efficacy; skills for entrepreneurial activity; and personal wellbeing as desired outcomes of exposure to effective entrepreneurship education and training programmes.

Consequently, a total of six validated instruments were selected for inclusion in the research instrument, including (in alphabetical order) the Attitude toward Enterprise (ATE) test (Athayde, 2009a); the Entrepreneurial Intention Questionnaire (EIQ) (Liñán & Chen, 2009); the General Enterprising Tendency (GET) test (Caird, 1988); the Measure of Adaptive Cognition (MAC) (Haynie & Shepherd, 2009); the Personal Wellbeing Index for school children (PWI-SC) (Cummins & Lau, 2005); and the Youth Innovation Skills Measurement Tool (YISQ) (Chell & Athayde, 2009).

A brief discussion substantiating the inclusion of each of these questionnaires in the research instrument is presented in the sections to follow.

6.4.1 The Attitude toward Enterprise (ATE) test

Entrepreneurship in young people under the age of 25 represents a relatively untapped source of new business start-ups and economic growth (Athayde, 2009a: 481). The ATE test was designed to measure ‘enterprise potential’ in young people using attitudes towards characteristics associated with entrepreneurship. According to the SBRC (2009: 4), the ATE test is based upon the conceptualisation of enterprise potential in young people as a “...constellation of attitudes associated with key dimensions of enterprising individuals.”

The ATE test evolved from the Entrepreneurial Attitude Orientation (EAO) scale of Robinson *et al.* (1991) (Athayde, 2009a: 482; 2009b: 1; SBRC, 2009: 4; Steenekamp, 2009: 57) and the subsequent Entrepreneurial Opportunity Recognition (EOR) scale of McCline *et*

al. (2000) (Steenekamp *et al.*, 2011b: 317-318; Steenekamp, 2009: 57). The test is an attitude scale designed to measure changes in attitudes towards enterprise (SBRC, 2009: 4) as shown in figure 6.3 below.

Figure 6.3 A model of enterprise potential in young people (ATE test)



Source: Adapted from Athayde (2009a: 484)

The conceptual development of the attitude scale centres on entrepreneurial cognition, or in other words, the mental processes of the entrepreneur. As a result, the focus of measurement is not on the actual traits of an entrepreneur, but rather on the entrepreneur's attitude towards using these traits to engage in entrepreneurial behaviour (Athayde, 2009b: 1).

The reliability and validity of the ATE test was confirmed during exploratory factor analysis (EFA), the calculation of Cronbach's alphas and testing against the criteria of the Protestant Work Ethic (PWE) scale (see Athayde, 2009a: 489-491), and improved during further testing and refinement in four separate pilot studies in the United Kingdom (UK) (Athayde, 2009b: 2). Subsequent empirical studies based on the ATE test included research on the impact of the British West Focus Bright Futures programme in London in the UK (SBRC, 2009) and the impact of entrepreneurship education on the entrepreneurial attitudes of secondary school learners in South Africa (Steenekamp *et al.*, 2011b; Steenekamp, 2009).

The ATE test was included in the research instrument to examine the attitude-component of the research approach shown in figure 6.1.

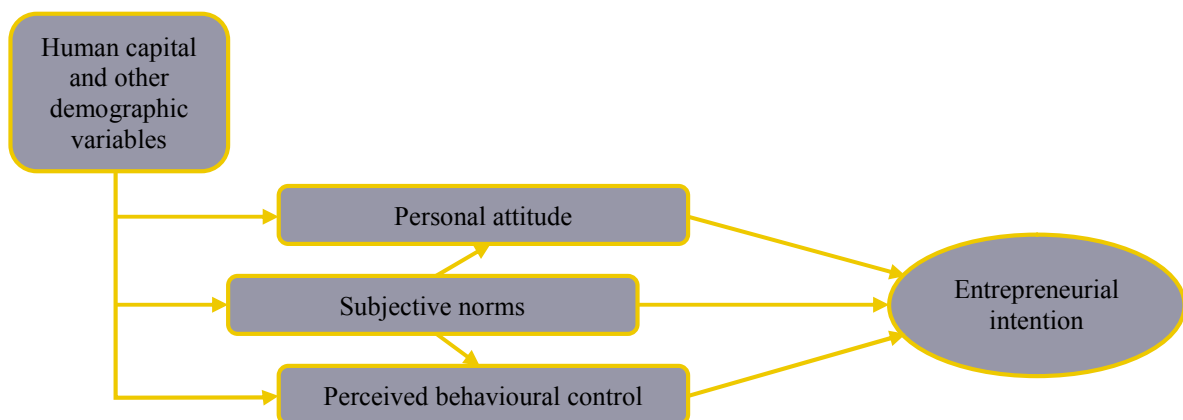
6.4.2 The Entrepreneurial Intention Questionnaire (EIQ)

The EIQ was developed to measure entrepreneurial intentions and was informed by the importance of cognitive variables in understanding decisions made by individuals (Liñán & Chen, 2009: 600). In support of this approach, Baron (2004: 237) proposes that cognition

provides additional insights into the complex process of entrepreneurship, and predicts that a cognitive approach may yield positive results for research in the field of entrepreneurship.

According to Liñán and Chen (2009: 595-596), the EIQ was developed as a standard measurement instrument for entrepreneurial intentions and its antecedents based upon the integration of psychology and entrepreneurship literature, as well as previous empirical research in entrepreneurship. The subsequent entrepreneurial intention model shown in figure 6.4 below is considered by Liñán and Chen (2009: 600) to be “...*essentially adequate to analyze the intention of becoming an entrepreneur.*”

Figure 6.4 The entrepreneurial intention model (EIQ)



Source: Liñán and Chen (2009: 597)

The model in figure 6.4 is based largely upon the theory of planned behaviour (TPB) (Ajzen, 1991), but includes the specific hypothesis that subjective norms (SN) is assumed to influence both personal attitude (PA) and perceived behavioural control (PBC) (Liñán & Chen, 2009: 597).

In contrast with intentions-research using a mix of self-prediction and pure intention measures (Chen *et al.*, 1998) or interest measures (e.g., ‘how interested are you in...?’) (Zhao, Hills & Siebert, 2005), Liñán and Chen (2009: 601) chose to use a pure intention measure in the design of the EIQ. Armitage and Conner (2001) identify three distinct types of intention measures: Desire (‘I want to...’), self-prediction (‘how likely is it...’) and behavioural intention (‘I intend to...’), and it is proposed that the latter type (i.e., behavioural intention) seems to provide slightly better results in the prediction of behaviour (Armitage & Conner, 2001: 483). As a result, and due to the indistinctness of similarities between interest

and intention, the EIQ was designed as a measure of pure intention (Liñán & Chen, 2009: 601).

Following the development of the EIQ, the instrument was tested for reliability using Cronbach's alpha and several measures of validity analysis (see Liñán & Chen, 2009: 602-603) and initial results suggested that it might fulfil reliability and validity requirements. These results were later confirmed in a study on Spanish and Taiwanese students where Cronbach's alphas ranged from 0.776 to 0.953 and factor analysis extracted four factors fully corresponding with theoretical expectations (Liñán & Chen, 2009: 606).

The EIQ was included in the research instrument to examine the intentions-component of the research approach presented in figure 6.1.

6.4.3 The General Enterprising Tendency (GET) test

The GET test has been used extensively in practice and in academic research (Gibb, 2011; Ismail, 2010; Swanepoel *et al.*, 2010; Lyng, 2008; Mazzarol, 2007; Mahadea, 2001; Cromie, 2000; Stormer, Kline & Goldenberg, 1999; Caird, 1990; 1988). It was designed to “...*bring together and measure a number of personal ‘tendencies’ commonly associated with the enterprising person*” (Caird, 1988).

The development of the test emanated from the need for measures of enterprise for assessment purposes and for the identification of training needs (Caird, 1988). It was developed following the selection of significant entrepreneurial characteristics and a review of psychological tests of the selected characteristics to determine best practice. In essence, the GET test is a structured test representing attitudes, preferences and habitual behaviours using a “...*simplistic and reductionistic format*” suitable for self-assessment (Caird, 1991: 179).

The GET test was included in the research instrument due to its suitability in a variety of situations (Caird, 1988), and to examine respondents' propensity towards certain future career choices as an outcome of the influence of entrepreneurial attitudes as shown in figure 6.1.

6.4.4 The Measure of Adaptive Cognition (MAC)

Meta-cognition is defined as the “...*ability to reflect upon, understand, and control one's learning*” (Schraw & Dennison, 1994: 460) and includes both an awareness of cognition and

an understanding of strategies to change conditions (Mitchell & Busenitz, 2007: 14). From an entrepreneurial perspective, Mitchell *et al.* (2002: 97) define entrepreneurial cognitions as “...*the knowledge structures that people use to make assessments, judgments or decisions involving opportunity evaluation and venture creation and growth.*”

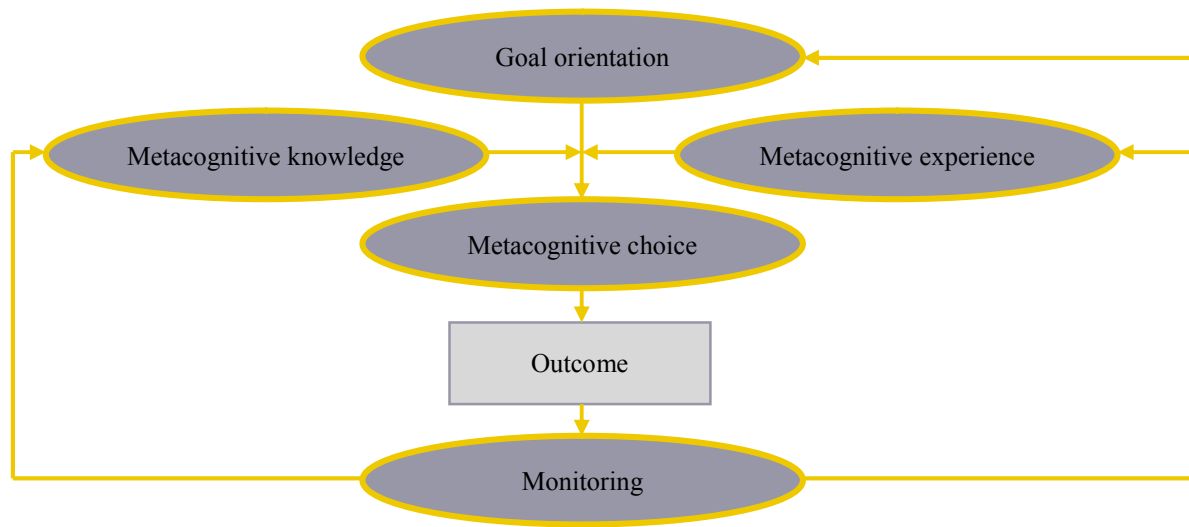
Whereas meta-cognition is a higher-order cognitive process dealing with the framing of tasks effectually and the identification of a set of alternative responses to decision task, cognition is the process responsible for ultimately selecting a given response (Haynie & Shepherd, 2009: 697). Le Roux *et al.* (2006: 55) add that cognition has to do with mental thoughts used by individuals to interact with their environments, and propose that it can be used as a distinguishing factor between entrepreneurs and non-entrepreneurs.

Cognition research is proposed as a ‘process lens’ through which the ‘people side of entrepreneurship’ can be examined by investigating the memory, learning, problem identification and decision-making abilities of entrepreneurs (Mitchell *et al.*, 2002: 93). More specifically, Mitchell and Busenitz (2007: 3) argue for the question “*how do entrepreneurs think?*” in entrepreneurial cognition research, and maintain that this question is crucial within the context of new value creation as the focus in which it should be applied.

Cognitive style is recognised as an important determinant of individual behaviour and has been conceptualised as a “...*high-order heuristic that individuals employ when they approach, frame, and solve problems*” (Brigham, De Castro & Shepherd, 2007: 31). Krueger *et al.* (2000: 414) agree that cognitive processing plays, at least to some degree, a role in planned behaviour, and subsequently, in career decisions.

The importance of cognition for the classroom is implicit in the conclusion by Haynie and Shepherd (2009: 708) that cognitive adaptability in the design of curricula and teaching methodologies can enhance learning and develop adaptable thinking. As a result, the MAC was developed as an instrument to assess cognitive ability, defined as the “...*ability to be dynamic, flexible, and self-regulating in one’s cognitions given dynamic and uncertain task environments*” (Haynie & Shepherd, 2009: 695).

In the MAC-model, an individual’s level of cognitive adaptability is defined as the aggregation of five dimensions, including goal orientation, metacognitive knowledge, metacognitive experience, metacognitive control and monitoring as illustrated in figure 6.5 on the following page.

Figure 6.5 A metacognitive model of cognitive adaptability (MAC)

Source: Haynie and Shepherd (2009: 698)

In figure 6.5 individuals perceive and assign meaning to their environment in the context of their own goal orientation, they subsequently draw on metacognitive knowledge and experience to generate several alternative decision frameworks to choose from, and then select and employ a particular framework (metacognitive control) to elicit some cognitive or behavioural outcome. These outcomes are assessed in relation to the individual's goal orientation and this monitoring process serves to inform the subsequent generation and selection of decision frameworks (Haynie & Shepherd, 2009: 697-698).

Following the construction of the MAC, it was subjected to rigorous testing including confirmatory factor analysis (CFA) to examine the dimensions that aggregate to form the MAC, reliability testing based upon Cronbach's alpha (alphas of 0.718 to 0.822 recorded), and tests for validity (see Haynie & Shepherd, 2009: 702-707). Haynie and Shepherd (2009: 709) conclude that the instrument has good psychometric properties as evidenced by its factor structure and validity.

The MAC was included in the research instrument due to its focus on adaptive cognition for entrepreneurship research (Haynie & Shepherd, 2009), the significant role of two distinct cognitive styles (analytics and intuition) as determinants of perceived entrepreneurial self-efficacy in the new venture creation process (Kickul *et al.*, 2009: 439), and the belief held by Haynie and Shepherd (2009: 709) that the instrument 'opens up' many opportunities for empirical testing of cognitive adaptability in entrepreneurial contexts. Further support for the

inclusion of the instrument follows from the argument by Krueger (2007: 129) that research should move to a deeper (cognitive) level in search of insights into how entrepreneurs learn to think entrepreneurially.

6.4.5 The Personal Wellbeing Index for School Children (PWI-SC)

The PWI is recommended by Cummins (2002: 5) as a measure of subjective quality of life and is presented as the “...*most reliable, valid, and sensitive instrument*” that on-going research can generate. The development of the instrument set out to improve on the idiosyncratic mixture of dependent variables found in some 800 instruments purported to measure life quality in some form (see Cummins’ web-site Directory of Instruments available at <http://acqol.deakin.edu.au/instruments/instrument.php>).

The PWI-scale is available in four parallel forms to enable use of the scale with all population sub-groups. These parallel forms include (Cummins & Lau, 2005: 5):

- PWI-A: Designed for use with the general adult population.
- PWI-SC: Designed for use with school-age children and adolescents.
- PWI-PS: Designed for use with pre-school children.
- PWI-ID: Designed for use with people with an intellectual disability or some form of cognitive impairment.

The availability of a PWI-scale specially developed for school-age children, including the use of simplified wording when compared to the PWI Adult-scale (such as ‘happiness’ instead of ‘satisfaction’) (Cummins & Lau, 2005: 5), made the PWI-SC attractive to this study in an attempt to examine the impact of entrepreneurship education and training from the perspective of the personal wellbeing of young learners.

Another distinct advantage of the PWI-SC is that a group mean score as a measure of subjective wellbeing can be referenced to the available ‘gold-standard’ of 75 ± 2.5 percentage of scale maximum (%SM) (Cummins, 1996), as well as be compared against the normative range of 70 to 80 %SM for Western respondents, or around 10 percentage points lower for non-Western populations (Lau *et al.*, 2004).

The research approach depicted in figure 6.1 suggests that entrepreneurship education and training supported by the underlying influences of attitudes, intentions and entrepreneurial

self-efficacy on planned behaviour, future career choices, and ultimately, on entrepreneurial activity, takes place within the domain of personal wellbeing. From this perspective, it can be argued extensively that a measure of subjective wellbeing is deserving of inclusion as a research instrument in empirical research on youth entrepreneurship.

6.4.6 The Youth Innovation Skills Measurement Tool (YISQ)

Entrepreneurship and innovation are positively related and interact for organisations to flourish in dynamic and changing environments (Zhao, 2005: 25). Innovation is no easy or ordinary task, and the challenges in bringing innovation to the market is implicit in the following statement by Rogers (1995) on the diffusion of an innovation:

Getting a new idea adopted, even when it has obvious advantages, is often very difficult. Many innovations require a lengthy period, often of many years, from the time they become available to the time they are widely adopted. Therefore, a common problem for many individuals and organisations is how to speed up the rate of diffusion of an innovation (Rogers, 1995: 1).

Yet, innovation is said to be the ‘engine’ of society and the economy (Chell & Athayde, 2009: 7) and innovation is a crucial component of entrepreneurial activity. Chell and Athayde (2009: 3) identify five generic skills that underpin innovative behaviour to form a set of attributes linked to the innovation process, including creativity, self-efficacy, energy, risk-propensity and leadership. As a consequence, the YISQ was developed over 18 months in 2007 to 2009 through three phases of testing and trialling to design an instrument capable of eliciting young people’s intention to pursue an innovative career path (Chell & Athayde, 2009: 4).

Following the development of the YISQ, it was piloted and tested in schools and sixth form colleges in London (UK). Reliability testing using principal components analysis (PCA) produced satisfactory results, and the sub-scales in the questionnaire reached the required threshold of 0.7 for Cronbach’s alpha (with the exception of the risk-propensity scale) (Chell & Athayde, 2009: 20).

The YISQ was included in the research instrument to examine the relationship between entrepreneurship education and training and innovation as an integral component of

entrepreneurial activity (see figure 6.1). Chell and Athayde (2009: 4) propose that the YISQ has a number of potential uses, including young people's personal development; the evaluation of the impact of enterprise and innovation programmes and initiatives; and for comparison between schools and teaching groups to assess the effectiveness of different pedagogical styles and specific school features, providing even further impetus for inclusion of the instrument in this study.

One of the best known measures of the capacity to innovate is Kirton's innovation-adaptation (KIA) measure (Kirton, 1976), but the instrument was developed with adults employed in large organisations. As a result, statements constructed for experienced adults may not be meaningful to young people, and the YISQ was designed to address this lack of means to measure innovative attitudes and skills in young people (Chell & Athayde, 2009: 18).

6.5 COMPILATION OF THE RESEARCH INSTRUMENT(S)

Following the selection of the measuring instruments described in section 6.4, these instruments were incorporated into a youth entrepreneurship survey comprising a battery of six tests, a demographic section, a socio-economic section and a longitudinal questionnaire identification code (ID) designed to allow for the pre- and post test questionnaires of each respondent to be matched while maintaining the anonymity of participants.

The initial survey questionnaire comprised 21 A4-pages incorporating a total of 238 questions/statements. The scope and length of this instrument was rejected based on the expectation that secondary school learners would suffer 'questionnaire fatigue' during completion of the survey. The possibility of questionnaire fatigue was seen as a threat to the scientific basis of the study when considering that this would significantly increase the potential for acquiescence response bias¹⁴ in the completion of the questionnaire.

As a result of the above, the measuring instrument was split into two separate surveys: The AEG-3 Youth Entrepreneurship Survey for School Learners (version 1.1) and the PMY-3 Youth Entrepreneurship Survey for School Learners (version 2.1). These surveys consisted of 13 A4-pages each and respectively had 160 (AEG-3) and 133 (PMY-3) questions/statements

¹⁴ Acquiescence response bias is the tendency for survey respondents to agree with statements regardless of the content, and is particularly problematic with agree/disagree questions and statements.
<http://srmo.sagepub.com/view/encyclopedia-of-survey-research-methods/n3.xml>. Date of access: 5 Jun. 2012.

comprising three different tests, the demographic and socio-economic sections, and the longitudinal questionnaire identification code.

Once the AEG-3 and PMY-3 questionnaires had been compiled, some hours were spent on the wording of instructions and questions (other than those of the existing tests employed in the research instrument), the layout and general appearance of the surveys, and the insertion of numeric digits in greyscale for the classification, scaling and coding of data in line with the principles recommended by Sekaran (2006: 237).

The AEG-3 (version 1.1) and PMY-3 (version 2.1) Youth Entrepreneurship Surveys for School Learners (AEG-3 V1.1 and PMY-3 V2.1) were adopted as the research instruments to be employed in the pilot study, subject to the understanding that the two surveys would be completed by two separate samples consisting of secondary school learners (see appendix one for the complete versions of both survey questionnaires).¹⁵

6.6 DATA CODING PROCEDURES

The data coding procedures for the AEG-3 V1.1 and the PMY-3 V2.1 had to be finalised prior to any arrangements for the pilot study. This section describes the data coding procedures for each of the three tests incorporated in the two surveys, as well as for the demographic section, the socio-economic section and the questionnaire identification code which are identical in both surveys.

6.6.1 The AEG-3 Youth Entrepreneurship Survey for School Learners (version 1.1)

The AEG-3 V1.1 comprised the Attitude toward Enterprise (ATE) test (Athayde, 2009a); the Entrepreneurial Intention Questionnaire (EIQ) (Liñán & Chen, 2009); the General Enterprising Tendency (GET) test (Caird, 1988); a section designed to obtain data regarding the demographic composition of the sample; a section to examine the socio-economic background of the sample (SAARF, 2010); and the longitudinal identification code.

6.6.1.1 Part A: The Attitude toward Enterprise (ATE) test

The ATE test examines six different constructs relating to attitudes associated with enterprising behaviour (Athayde, 2009c):

¹⁵ The AEG-3 and PMY-3 appellations are derived from the first letter of each of the three tests employed in the surveys, and the number 3 signifies that the instrument includes a battery of three different tests.

- i. Attitudes towards creativity (beliefs about the importance of creativity and personal assessment of creativity, i.e., ‘how creative am I?’).
- ii. Attitudes towards personal control over future career (internal, i.e., ‘I am in control’; or external, i.e., ‘others are in control’).
- iii. Attitudes towards achievement in project work (seeing things through; taking pride in project work).
- iv. Attitudes towards using intuition in problem solving (preferring informality to formality; coping with uncertainty; being prepared to take risks in solving problems).
- v. Attitudes to leading other people such as fellow students and friends (bringing people together; achieving consensus; persuading others).
- vi. Attitudes towards entrepreneurial risk-taking (e.g., being prepared to take a risk in return for potentially high rewards).

The following items are included in the test constructs listed above and are coded on a scale from one (strongly disagree) to seven (strongly agree) (the number preceding each statement corresponds with the number of the statement in the questionnaire):

👉 Construct one: Perceptions about creativity at school

- A.1 I believe a good imagination helps you do well at school.
 - A.31 I think I am a very imaginative person.
 - A.6 I prefer doing work that really stretches my imagination.
 - A.35 I enjoy lessons where the teacher tries out different ways of teaching.
 - A.21 I dislike teachers who are always coming up with new approaches to teaching
(**reverse score item**).
 - A.13 I don’t enjoy course work where it is up to students to come up with ideas
(**reverse score item**).
- (Maximum score: 42; minimum score: 6)

👉 Construct two: Self-perceptions of the ability to lead others

- A.18 I am successful at persuading my fellow students to agree on a plan.
- A.4 My friends would say I am a follower rather than a leader (**reverse score item**).
- A.12 I am good at getting people to work well together.
- A.32 I hate being the centre of attention (**reverse score item**).

A.23 I take responsibility for getting things done when working with others.

A.8 I'm good at motivating my fellow students.

(Maximum score: 42; minimum score: 6)

✚ Construct three: Intuition in problem-solving

A.7 If you don't know all the facts about a problem then there is no way you can find the answer (**reverse score item**).

A.19 Making mistakes is a good way of finding out how to solve a problem.

A.36 My personal judgement is a reliable guide to solving problems.

A.29 I trust my own instinct when solving problems in course work.

A.33 If I don't know the answer to a problem, then I'll have a guess.

A.25 I'll keep trying out different solutions to a problem rather than give up.

(Maximum score: 42; minimum score: 6)

✚ Construct four: Achievement orientation in project work

A.2 I work hard to make my projects successful.

A.14 It feels really good when a group project works out well.

A.17 It doesn't matter if my project work is no good (**reverse score item**).

A.11 I believe it is important to finish off a project as well as you can.

A.20 I take pride in my project work.

A.27 Working hard on projects is well worth the effort.

(Maximum score: 42; minimum score: 6)

✚ Construct five: Perceived personal control over career

A.28 Other people will get all the best jobs (**reverse score item**).

A.3 I think my future career success is largely up to me.

A.9 I have a lot of faith in my ability to succeed in my future career.

A.15 It is important to plan my future career.

A.24 I am worried that I will not make a success of my future working life (**reverse score item**).

A.34 I have as much chance as anyone else of getting a good job in the future.

(Maximum score: 42; minimum score: 6)

✦ Construct six: Positive attitudes towards financial risk-taking

- A.5 At work I would prefer a more demanding job with a high salary to an easy one with a low salary.
 - A.10 To achieve something worthwhile it is necessary to take some risks.
 - A.16 If there was a chance to multiply capital then I would invest in the shares of an innovative but untried company.
 - A.22 I would be prepared to invest my own money in a venture I believed in.
 - A.26 If there was a high probability of large profits in a new idea I would invest as much as I could.
 - A.30 I am skilful at reasonable risk-taking.
- (Maximum score: 42; minimum score: 6)

The score for each construct is calculated by adding the six item scores included in the particular construct after reversing the scores where indicated. The overall ATE test score is the sum of the total scores for each construct (maximum score: 252; minimum score: 36) (Athayde, 2009c; 2009e; 2004). According to Athayde (2009c: 3), overall scores above 80% can be considered high (i.e., scores greater than 202).

6.6.1.2 Part B: The Entrepreneurial Intention Questionnaire (EIQ)

The EIQ examines three constructs underlying the formation of entrepreneurial intentions (Liñán & Chen, 2009: 596, 612-613):

- i. Attitude towards start-up (personal attitude or PA) meaning the degree to which an individual holds a positive or a negative personal valuation towards being an entrepreneur.
- ii. Subjective norm measures (SN) measuring the perceived social pressure to carry out – or not to carry out – entrepreneurial behaviour.
- iii. Perceived behavioural control (PBC) defined as the perception of the ease or difficulty associated with becoming an entrepreneur.

The instrument includes a fourth construct defined as ‘entrepreneurial intention’ based on the recognition of intentions as the single best predictor of behaviour (Ajzen, 1991). The following items are included in the four test constructs and are coded on a scale from one (totally disagree) to seven (totally agree) (Liñán & Chen, 2009: 612-613):

✦ Construct one: Personal attitude (PA)

- B.18 Being an entrepreneur implies more advantages than disadvantages to me.
- B.2 A career as entrepreneur is attractive for me.
- B.10 If I had the opportunity and resources, I'd like to start a firm.
- B.15 Being an entrepreneur would give me great satisfaction.
- B.12 Among various options, I would rather be an entrepreneur.

✦ Construct two: Subjective norms (SN)

- B.8 My immediate family would approve of my decision to start a business.
- B.3 My friends would approve of my decision to start a business.
- B.11 My fellow students at school would approve of my decision to start a business.

✦ Construct three: Perceived behavioural control (PBC)

- B.1 To start a firm and keep it working would be easy for me.
- B.5 I am prepared to start a viable firm.
- B.7 I can control the creation process of a new firm.
- B.20 I know the necessary practical details to start a firm.
- B.16 I know how to develop an entrepreneurial project.
- B.14 If I tried to start a firm, I would have a high probability of succeeding.

✦ Construct four: Entrepreneurial intention (EI)

- B.4 I am ready to do anything to be an entrepreneur.
- B.17 My professional goal is to become an entrepreneur.
- B.6 I will make every effort to start and run my own firm.
- B.13 I am determined to create a firm in the future.
- B.9 I have very seriously thought of starting a firm.
- B.19 I have the firm intention to start a firm some day.

In addition to tests for reliability and validity (Liñán & Chen, 2009: 602-604), data collected from the EIQ may be used for structural equation modelling (SEM) to determine the impact of age, gender, exposure to role models, self-employment and work experience (Liñán & Chen, 2009: 606, 608, 610), and of course, exposure to entrepreneurship education and training, on the entrepreneurial intentions of respondents.

6.6.1.3 Part C: The General Enterprising Tendency (GET) test

The GET test examines five constructs underlying the general tendency to engage in enterprising behaviour (Caird, 1988):

- i. Need for achievement (respondents scoring well are forward looking; self sufficient; optimistic rather than pessimistic; task orientated; results orientated; restless and energetic; self confident; persistent and determined; and dedicated to completing a task).
- ii. Need for autonomy/independence (respondents scoring high like doing unconventional things; prefer working alone; need to do their 'own thing'; need to express what they think; dislike taking orders; like to make up their own mind; does not bow to group pressure; and are stubborn and determined).
- iii. Creative tendency (respondents with high scores on this section are imaginative and innovative; have a tendency to daydream; are versatile and curious; have lots of ideas; are intuitive and guess well; enjoy new challenges; and like novelty and change).
- iv. Moderate/calculated risk taking (high scores for this construct indicate that respondents are comfortable to act on incomplete information; exercise judgment when incomplete data is sufficient; accurately assess their own capabilities; are neither over nor under-ambitious; evaluate likely benefits against likely costs; and set challenging but attainable goals).
- v. Drive and determination (a high score indicates that respondents take advantage of opportunities; discount fate; make their own luck; are self confident; believe in controlling their own destiny; equate results with effort; and show considerable levels of determination).

Fifty four items are included in the five test constructs and respondents are required to agree (A) or disagree (D) with each statement. These items correspond with the following test constructs (Caird, 1988):

👉 Construct one: The need for achievement

- C.1 I would not mind routine unchallenging work if the pay was good.
- C.10 I like challenges that really stretch my abilities rather than things I can do easily.
- C.19 I think more of the present and the past than of the future.
- C.28 I get annoyed if people are not on time.

- C.37 I would rather work on a task as a member of a team than to take responsibility for it myself.
 - C.46 I get up early, stay late or skip meals in order to get special tasks done.
 - C.6 I usually defend my point of view if someone disagrees with me.
 - C.15 If I am having problems with a task I leave it and move on to something else.
 - C.24 It is more important to do a job well than to try to please people.
 - C.33 I would rather work with a person I liked, but who was not very good at the job, than work with someone I did not really like who was very good at the job.
 - C.42 When I am faced with a challenge I think more about the results of succeeding than the effects of failing.
 - C.51 I find it easy to relax on holiday.
- (Maximum score: 12; average score: 9)

✦ Construct two: The need for autonomy/independence

- C.3 I do not like to do things that are novel or unconventional.
 - C.12 I like to do things in my own way without worrying about what other people think.
 - C.21 When I am in a group I am happy to let someone else take the lead.
 - C.30 When tackling a task I rarely need or want help.
 - C.39 I do what is expected of me and follow instructions.
 - C.48 Most people think that I am stubborn.
- (Maximum score: 6; average score: 4)

✦ Construct three: Creative tendency

- C.5 I rarely day dream.
- C.14 I like to find out about things even if it means handling some problems whilst doing so.
- C.23 I do not like guessing.
- C.32 I prefer to be quite good at several things rather than very good at one thing.
- C.41 I like to have my life organised so that it runs smoothly and to plan.
- C.50 Sometimes I have so many ideas I do not know which one to pick.
- C.8 Sometimes people find my ideas unusual.

- C.17 I do not like sudden changes in my life.
 - C.26 Other people think that I ask a lot of questions.
 - C.35 I prefer doing things in the usual way rather than trying out new ways.
 - C.44 I can handle a lot of things at the same time.
 - C.53 It is harder for me to adapt to change than keep to routine.
- (Maximum score: 12; average score: 8)

✦ Construct four: Moderate/calculated risk taking

- C.2 When I have to set my own targets, I set difficult rather than easy ones.
 - C.11 I would prefer to have a reasonable income in a job that I was sure of keeping rather than in a job that I might lose if I did not perform well.
 - C.20 If I had a good idea for making some money, I would be willing to borrow some money to enable me to do it.
 - C.29 Before I make a decision I like to have all the facts no matter how long it takes.
 - C.38 I would rather take an opportunity that might lead to even better things than have an experience that I am sure to enjoy.
 - C.47 What we are used to is usually better than what is unfamiliar.
 - C.9 If I had to gamble R 10, I would rather buy a raffle ticket than play cards.
 - C.18 I will take risks if the chances of success are 50/50.
 - C.27 If there is a chance of failure I would rather not do it.
 - C.36 Before making an important decision, I prefer to weigh up the pros and cons rather quickly rather than spending a lot of time thinking about it.
 - C.45 I find it difficult to ask favours from other people.
 - C.54 I like to start new projects that may be risky.
- (Maximum score: 12; average score: 8)

✦ Construct five: Drive and determination

- C.4 Capable people who fail to become successful have not taken chances when they have occurred.
- C.13 Many of the bad times that people experience are due to bad luck.
- C.22 People generally get what they deserve.
- C.31 Success cannot come unless you are in the right place at the right time.

- C.40 For me, getting what I want has little to do with luck.
- C.49 People's failures are rarely the result of their poor judgement.
- C.7 You are either naturally good at something or you are not, effort makes no difference.
- C.16 When I make plans to do something, I nearly always do what I plan.
- C.25 I will get what I want from life if I please the people with control over me.
- C.34 Being successful is the result of working hard, luck has nothing to do with it.
- C.43 I believe that what happens to me in life is determined mostly by other people.
- C.52 I get what I want from life because I work hard to make it happen.
- (Maximum score: 12; average score: 8)

Respondents are required to agree or disagree with the statements presented in the GET test by completing an answer sheet included in the questionnaire at the end of the 54 statements. Scores are calculated from the answer sheet using the following procedure specified by Caird (1988):

- a. Starting with box C.1 in the top right corner of the answer sheet and working across the sheet to the left, one point is awarded for every 'D' circled in the shaded boxes.
- b. Using the same method as in (a), one point is awarded for every 'A' circled in the unshaded boxes.
- c. The two scores above are then added and recorded as the total score for row one.
- d. The same method is used for the remaining eight rows and the scores for each row are recorded.
- e. The total scores for rows one and six are added to calculate the score for construct one (the need for achievement).
- f. The total score for row three represents the score for construct two (need for autonomy/independence).
- g. The total scores for rows five and eight are added to calculate the score for construct three (creative thinking).
- h. The total scores for rows two and nine are added to calculate the score for construct four (moderate/calculated risk taking).
- i. The total scores for rows four and seven are added to calculate the score for construct five (drive and determination).

A high score in any category may be interpreted as respondents having many of the qualities listed under the given construct (Caird, 1988).

6.6.2 The PMY-3 Youth Entrepreneurship Survey for School Learners (version 2.1)

The PMY-3 V2.1 comprised the Personal Wellbeing Index (PWI-SC) (Cummins & Lau, 2005); the Measure of Adaptive Cognition (MAC) (Haynie & Shepherd, 2009); the Youth Innovation Skills Measurement Tool (YISQ) (Chell & Athayde, 2009); a section designed to obtain data regarding the demographic composition of the sample; a section to examine the socio-economic background of the sample (SAARF, 2010); and finally, the longitudinal questionnaire identification code.

6.6.2.1 Part A: The Personal Wellbeing Index for School Children (PWI-SC)

The PWI-SC asks respondents how happy they are with a number of aspects regarding their personal life and experiences. Cummins and Lau (2005: 12) recommend that data sets – once collected – be checked for response sets (i.e., when a respondent scores at the top or bottom of the scale for all items). This may indicate a response set due to either acquiescence response bias or a lack of understanding of the questions, and consequently, the lack of variation may result in distorted data analysis. Accordingly, questionnaires from individual respondents showing consistently maximum or minimum scores should be removed from the dataset prior to analysis.

Prior to statistical analysis, the PWI-SC Likert scale data must be standardised into units of percentage of scale maximum (%SM) on a zero to 100 distribution. This is achieved by multiplying the response for each question by ten (e.g., a score of two becomes 20). Questions A.1 (overall happiness) and A.9 to A.11 (additions to the PWI domain ‘personal relationships’) do not form part of the PWI and should be analysed as separate variables. Happiness with life as a whole (item A.1) may be used to test the construct validity of the PWI (items A.2 to A.8) through multiple regression. The PWI is designed as the first level deconstruction of ‘life as a whole’, and consequently, regression of the seven domains tested in A.2 to A.8 against A.1 should produce unique variance for each domain and the total explained variance should exceed fifty percent (Cummins & Lau, 2005).

Data obtained from the PWI-SC may be used at both the level of the individual domains (to calculate a score for each of the seven domains) and for the Personal Wellbeing Index by

aggregating and averaging the different domain scores. The mean of the domain scores constitutes a measure of 'subjective wellbeing' and this group mean score can be referenced to the 'gold-standard' of 75 ± 2.5 %SM (Cummins, 1996).

The 'gold-standard' implies that the mean should fall within the normative range of 70 to 80 %SM, provided that the data was derived from Western respondents. For non-Western populations, Lau *et al.* (2004) note that the mean value is generally around ten percentage points lower (i.e., 60 to 70 %SM).

Cummins and Lau (2005: 8) suggest that additional issues to the 'personal relationship' domain (item A.5) may be useful to tap for the children/adolescent age group. For the purpose of this study, the specific source of network providing the maximum degree of relationship with happiness was desired for diagnostic purposes.

Accordingly, three additional items (A.9 to A.11) were included in the questionnaire to respectively examine respondents' happiness with family, friends and people involved in teaching them. These items do not form part of the PWI scale and should not be included in the calculation of the index average score.

6.6.2.2 Part B: The Generalized Measure of Adaptive Cognition (MAC)

The MAC examines five dimensions associated with the concept of meta-cognition (Haynie & Shepherd, 2009: 709-710):

- i. Goal orientation (*"extent to which the individual interprets environmental variations in light of a wide variety of personal, social, and organisational goals"*).
- ii. Metacognitive knowledge (*"extent to which the individual relies on what is already known about oneself, other people, tasks, and strategy when engaging in the process of generating multiple decision frameworks focused on interpreting, planning, and implementing goals to 'manage' a changing environment"*).
- iii. Metacognitive experience (*"extent to which the individual relies on idiosyncratic experiences, emotions, and intuitions when engaging in the process of generating multiple decision frameworks focused on interpreting, planning, and implementing goals to 'manage' a changing environment"*).

- iv. Metacognitive choice (*“extent to which the individual engages in the active process of selecting from multiple decision frameworks the one that best interprets, plans, and implements a response for the purpose of ‘managing’ a changing environment”*).
- v. Monitoring (*“seeking and using feedback to re-evaluate goal orientation, metacognitive knowledge, metacognitive experience, and metacognitive choice for the purposes of ‘managing’ a changing environment”*).

All items in the test constructs are coded on a scale from one (not very much like me) to seven (very much like me) and correspond with the following statements in the measuring instrument (Haynie & Shepherd, 2009: 709-710):

✦ Construct one: Goal orientation

- B.6 I often define goals for myself.
- B.27 I understand how accomplishment of a task relates to my goals.
- B.16 I set specific goals before I begin a task.
- B.22 I ask myself how well I’ve accomplished my goals once I’ve finished.
- B.1 When performing a task, I frequently assess my progress against my objectives.

✦ Construct two: Metacognitive knowledge

- B.28 I think of several ways to solve a problem and choose the best one.
- B.32 I challenge my own assumptions about a task before I begin.
- B.5 I think about how others may react to my actions.
- B.33 I find myself automatically employing strategies that have worked in the past.
- B.17 I perform best when I already have knowledge of the task.
- B.11 I create my own examples to make information more meaningful.
- B.3 I try to use strategies that have worked in the past.
- B.14 I ask myself questions about the task before I begin.
- B.25 I try to translate new information into my own words.
- B.9 I try to break problems down into smaller components.
- B.19 I focus on the meaning and significance of new information.

✦ Construct three: Metacognitive experience

- B.29 I think about what I really need to accomplish before I begin a task.
- B.31 I use different strategies depending on the situation.
- B.4 I organize my time to best accomplish my goals.
- B.34 I am good at organizing information.
- B.12 I know what kind of information is most important to consider when faced with a problem.
- B.7 I consciously focus my attention on important information.
- B.18 My “gut” tells me when a given strategy I use will be most effective.
- B.35 I depend on my intuition to help me formulate strategies.

✦ Construct four: Metacognitive choice

- B.21 I ask myself if I have considered all the options when solving a problem.
- B.36 I ask myself if there was an easier way to do things after I finish a task.
- B.30 I ask myself if I have considered all the options after I solve a problem.
- B.23 I re-evaluate my assumptions when I get confused.
- B.26 I ask myself if I have learned as much as I could have when I finished the task.

✦ Construct five: Monitoring

- B.24 I periodically review to help me understand important relationships.
- B.8 I stop and go back over information that is not clear.
- B.20 I am aware of what strategies I use when engaged in a given task.
- B.13 I find myself analyzing the usefulness of a given strategy while engaged in a given task.
- B.15 I find myself pausing regularly to check my comprehension of the problem or situation at hand.
- B.2 I ask myself questions about how well I am doing while I am performing a novel (new) task.
- B.10 I stop and reread when I get confused.

In addition to tests for reliability and validity, data collected from the MAC may be used for structural equation modelling (SEM) to determine how the five factors discussed above

aggregate together, and to investigate both the level of significance and directions of the correlations between the factors (Haynie & Shepherd, 2009: 704).

6.6.2.3 Part C: The Youth Innovation Skills Measurement Tool (YISQ)

The YISQ measures five generic skills underpinning innovative behaviour (Chell & Athayde, 2009: 3):

- i. Creativity (imagination; connecting ideas; tackling and solving problems; curiosity).
- ii. Self-efficacy (self-belief; self-assurance; self-awareness; feelings of empowerment; social confidence).
- iii. Energy (drive; enthusiasm; motivation; hard work; persistence; commitment).
- iv. Risk-propensity (a combination of risk tolerance and the ability to take calculated risks).
- v. Leadership (vision and the ability to mobilise commitment).

The dependent variables in the questionnaire tie up with five types of innovators identified by Chell and Athayde (2009: 31) and are coded on a scale from one to seven, where one represents 'strongly disagree' and seven represents 'strongly agree':

- 👉 C.27 I would like to invent something that is new to the world (inventor/innovator).
- 👉 C.33 My ambition is to set up a new company that offers something completely new (innovative entrepreneur).
- 👉 C.36 I intend to get a job in a large company and apply my skills to develop new products or services (corporate innovator).
- 👉 C.16 I intend to design or create something new such as in music, software, buildings, dance, film, TV, or fashion (cultural innovator).
- 👉 C.12 I'd like to do something no one has ever thought of before that would bring about positive changes to society, the environment, or politics (social innovator).

These variables are operationalized by categorising respondents scoring seven (strongly agree) on any of the dependent variables statements as group one ('stronger innovation pathway'), and respondents who did not score seven (strongly agree) on any of the statements as group two ('weaker innovation pathway'). The differences between the two groups can

then be explored by performing a *t*-test using the average scores achieved on the YISQ for each group (Chell & Athayde, 2009: 35, 39).

The items in the test constructs are coded on a scale from one to seven where one represents ‘strong disagreement’ and seven represents ‘strong agreement’ and are categorised as follows (Chell & Athayde, 2009: 38):

✦ Construct one: Creativity

- C.1 I would like my lessons to involve lots of different creative activities.
- C.8 I prefer lessons that involve different activities rather than just sitting at my desk.
- C.14 I feel proud when I’ve designed something myself and made it.
- C.19 I like doing things that are very practical.
- C.29 I have chosen subjects at school that give me the freedom to express my own ideas.
- C.24 The subjects I have chosen at school require my imagination.

✦ Construct two: Leadership

- C.2 I really like being leader of a group.
- C.9 Project work gives me the chance to take a leading role in the group.
- C.15 When working in a group I do my best to persuade the others to take up my ideas.
- C.20 I am often chosen to be the team leader or captain of my team.
- C.30 I like organising other people.
- C.25 My friends follow my suggestions when they can’t make up their minds.

✦ Construct three: Energy

- C.3 It’s energising when you are given rewards for good work (e.g., a school day trip).
- C.10 I feel really motivated when I produce something that no one else has.
- C.17 I feel really enthusiastic about my chosen subjects.
- C.21 It’s energising and rewarding to help other people.
- C.34 I really push myself to achieve good grades.

C.26 When I'm doing something I like to feel it has a purpose or goal.

C.4 I have lots of energy for work and play.

✦ Construct four: Self-efficacy

C.5 I like to pursue my interests outside school where I feel more in control.

C.11 I want my future work to be based around a set of challenges that I would find interesting.

C.18 Once I start something I like to finish it.

C.22 I would join a club/interest group independently of my friends if it was something I really wanted to do.

C.6 I'm not easily swayed by other people's opinions, but do what I think is best.

C.31 Students should have a say in how a school is run.

C.28 My spending money is important because it gives me a sense of my independence.

C.35 I've been brought up to think for myself.

✦ Construct five: Risk-propensity

C.7 When I make choices I want to be as sure as possible what the future consequences will be for me.

C.13 I want my work to provide me with opportunities to show that I can overcome problems.

C.23 I would not take a risk on an activity that might spoil my chances of getting good grades at school.

C.32 Fearing that I might fail my exams is a powerful motivator at school.

Average scores are calculated by first adding the scores of all statements in each sub-scale (creativity; leadership; energy; self-efficacy; risk-propensity). A total 'innovation' score is then calculated by summing the sub-scale scores for each respondent, followed by comparative analysis of the two groups ('stronger innovation pathway' and 'weaker innovation pathway') using a *t*-test (Chell & Athayde, 2009: 39).

6.6.3 Part D: Demographical information (AEG-3 V1.1 & PMY-3 V2.1)

Both survey questionnaires (AEG-3 V1.1 and PMY-3 V2.1) included an identical section (part D) designed to collect data regarding the demographic background of respondents participating in the pilot test. The questions included in this section were formulated to distinguish between learners in different schools (D.1); grades (D.2) and classes (D.3); the type of school being attended (D.4); age (D.5); gender (D.6); and ethnic origin (D.9). Two questions (D.7 and D.8) were included to determine the home language of respondents, as well as the language used mostly by teachers in the classroom.

Respondents were asked about the highest qualification they expected to achieve one day (D.10), the highest qualification obtained by their parents or guardians (D.11), and whether they have ever participated in the entrepreneurship education programmes of EWET (D.12.1) or any other entrepreneurship training in or outside school (D.12.2). The latter two questions were included to distinguish between learners who had been exposed to entrepreneurship education or training (pilot 'test' group) and those who had not been exposed in any way (pilot 'control' group).

To conclude the demographic section, respondents were asked whether any of their parents or guardians with whom they currently live own and manage their own business (D.12.3). This question was included to isolate learners with self-employed parents or guardians in view of examining the impact of self-employed parents on the entrepreneurial attitudes and tendencies of young people.

6.6.4 Part E: Socio-economic information (AEG-3 V1.1 & PMY-3 V2.1)

Part E was identical in both survey questionnaires (AEG-3 V1.1 and PMY-3 V2.1), and was included to examine the differences between respondents in terms of their socio-economic background based on the premise that learners from higher socio-economic backgrounds consistently outperform those from lower socio-economic backgrounds.

The Living Standard Measure (LSM[®]) of the South African Advertising Research Foundation (SAARF) was incorporated for this purpose based on the expectation that young learners of secondary schooling age could not provide reliable information regarding the income levels of their parents or guardians. Question E.1 comprised 29 statements corresponding with the Living Standard Measure (LSM[®]) of the South African Advertising Research Foundation

(SAARF). The weights assigned to each of these statements for analysis are shown in table 6.1 below.

Table 6.1 SAARF LSM[®] weighting of statements

SAARF LSM[®] weighting of statements		
Item №	Statement	Weight
E.1.1	Our home has hot running water from a geyser	0.175948
E.1.2	We have a washing machine at home	0.150871
E.1.3	We have an electric stove at home	0.152859
E.1.4	We have a computer at home (desktop or laptop)	0.292790
E.1.5	There are none or only one radio set in our household	-0.249135
E.1.6	There are no domestic workers or household helpers in our home	-0.285068
E.1.7	Our home has a flush toilet (inside or outside)	0.108169
E.1.8	We have a television (or televisions)	0.122145
E.1.9	We have a motor vehicle in our household	0.165298
E.1.10	We have a vacuum cleaner or floor polisher at home	0.142924
E.1.11	Our home has a microwave oven	0.118531
E.1.12	We have M-Net and / or DSTV at home	0.144010
E.1.13	We live in a house / cluster house / town house	0.119211
E.1.14	We live in a metropolitan area (area with municipal services)	0.084234
E.1.15	We have a DVD player at home	0.094933
E.1.16	We have a tumble dryer at home	0.155577
E.1.17	There are 3 or more cell phones in our household	0.162906
E.1.18	There are no more than 2 cell phones in our household	0.114391
E.1.19	We have a VCR (Video Cassette Recorder) at home	0.106354
E.1.20	We have tap water in our house or yard / stand / plot	0.129953
E.1.21	We make use of a home security service (alarm / armed reaction)	0.142023
E.1.22	We have a refrigerator or combined fridge / freezer at home	0.117871
E.1.23	We have a free standing deep freezer at home	0.092228
E.1.24	We live in a non-urban area (rural area away from any town)*	-0.121163
E.1.25	Our kitchen has a built-in sink	0.131772
E.1.26	We have a home theatre system (for music and movies)	0.096205
E.1.27	We have a home telephone (excluding cell phones)	0.090032
E.1.28	We have a dishwashing machine at home	0.160906
E.1.29	We have a hi-fi / music centre at home	0.061801

*Western Cape and Gauteng rural areas excluded.

Source: SAARF (2010)

The LSM[®] for each respondent may then be calculated as follows (SAARF, 2010):

- i. Variables with which each respondent complies are determined (i.e., all items where the respondent answered ‘true’ to the statement).
- ii. The weight for item E.1.24 (‘We live in a non-urban area’) is excluded (i.e., a 0 weight assigned) for respondents who answered ‘true’ to the statement, but who reside in the rural areas of the Western Cape and Gauteng (SAARF, 2010).
- iii. The weights of the 29 variables for each respondent are added.
- iv. A constant -0.442690 is added to the total weight of each respondent.
- v. Each respondent is allocated to an LSM[®] category as shown in table 6.2 below.

Table 6.2 Allocation of respondents to LSM[®] categories

Allocation of respondents to LSM [®] categories				
LSM [®] group		Total weight		
LSM 1		Less than	-1.070720	
LSM 2		-1.070720	to	-0.855601
LSM 3		-0.855600	to	-0.625001
LSM 4		-0.625000	to	-0.295001
LSM 5		-0.295000	to	0.109999
LSM 6		0.110000	to	0.759999
LSM 7		0.760000	to	1.159999
LSM 7	Low	0.760000	to	0.955033
LSM 7	High	0.955034	to	1.159999
LSM 8		1.160000	to	1.499999
LSM 8	Low	1.160000	to	1.326049
LSM 8	High	1.326050	to	1.499999
LSM 9		1.500000	to	1.996939
LSM 9	Low	1.500000	to	1.723087
LSM 9	High	1.723088	to	1.996939
LSM 10		More than	1.996939	
LSM 10	Low	1.996940	to	2.275307
LSM 10	High	2.275308	and more	

Source: SAARF (2010)

The SAARF LSM[®] was incorporated into the survey questionnaires as a measure of the socio-economic status of respondents. It is the most widely used segmentation tool in South Africa, and provides a means of segmenting the market by grouping people across race,

gender and age according to their living standards without using income as a variable (see http://www.eighty20.co.za/databases/show_db.cgi?db=fullismcalculator for a simple online tool) (Eighty20: 2008).

For the purpose of this study, the 'Lifestyle Levels' developed by Consumer Scope (2009) were employed to make the interpretation of the statistical analysis and trending easier. The four 'Lifestyle Levels' comprise the following categories (Consumer Scope, 2009: 2):

- ✦ Level D: The poor. This level comprises LSM one to three and represents 20% of South African households, but accounts for only four percent of income and expenditure.
- ✦ Level C: The mass market, middle class or average. Level C includes LSM four to six and accounts for 48% of households and 30% of expenditure.
- ✦ Level B: The upper middle market. This segment represents 20% of South African households and is made up of LSM seven and eight and the bottom half of LSM nine (LSM 9 Low). Level B includes a fifth of households and accounts for a third of consumption.
- ✦ Level A: The rich. This level includes the top half of LSM nine (LSM 9 High) and LSM 10. It comprises 10% of households, but accounts for around half the income and expenditure in South Africa.

Two additional questions were included to extract even more information on respondents' socio-economic background. Question E.2 asked learners to describe their parents' or guardians' jobs, and question E.3 required learners to classify these occupations given a number of different job categories.

6.6.5 Part F: The longitudinal questionnaire ID (AEG-3 V1.1 & PMY-3 V2.1)

The main study was set to use a pre- and post test control-group design, indicating the need for a method to examine each respondent's responses over time (i.e., to match the pre- and post test questionnaires of each respondent for comparison).

Discussions with Statistical Consultation Services (SCS) of the North-West University (Potchefstroom campus) led to the incorporation of a longitudinal questionnaire identification code (ID) into both the AEG-3 (V1.1) and the PMY-3 (V2.1) questionnaires. The code was

designed as a personal code comprising five questions relating to aspects that would not change over time. The answers provided by respondents combine into a ten-digit code which could subsequently be used as a 'secret' personal code capable of matching the pre- and post test questionnaires of each respondent, but without any names or identity numbers being provided to maintain both confidentiality and anonymity.

Although the pilot study was not designed to include pre- and post testing of learners, the longitudinal questionnaire ID was included in the survey questionnaires for the purpose of testing and validating the methodology for subsequent use in the main study.

6.7 CHAPTER SUMMARY

Chapter six described the transition from the literature review to the empirical part of this study. The introductory section highlighted the lack of large scale empirical evidence supporting the impact of entrepreneurship education and training, and reiterated the call for more rigorous quantitative, qualitative and longitudinal studies on entrepreneurship.

In response to this call, the research approach was introduced indicating early on that the empirical research in later chapters is aligned with the attitude-approach to entrepreneurship research. The research model was presented (figure 6.1) and the subsequent discussion presented evidence from the academic literature to substantiate the incorporation of the model and the underlying research approach.

The overall significance of the research approach was put forward as an approach conducive for the examination of the impact of entrepreneurship education and training on at least five levels, including the attitudinal level influencing the future career choices of learners; the intentional level where planned behaviour can be predicted and strengthened; the practical level where entrepreneurial activity can be promoted; and the personal level where both the self-confidence of individuals to engage in entrepreneurial activity and the perceived wellbeing of individuals living in communities and societies can be influenced.

The research design was introduced as a national study in South Africa using a pre- and post test control-group design to measure the impact of entrepreneurship education and training on young people in the country. A number of important design considerations were discussed, including the incorporation of the measuring instruments, reliability and validity, thorough definition of the study population, and sound statistical techniques for the analysis of data.

The importance of incorporating existing, validated measuring instruments was highlighted, and several instruments with the potential to measure the constructs targeted in the research approach were listed. The selection of suitable instruments was informed by three important principles for scientific research, including the wording of questionnaires, proper planning for the classification, scaling and coding of data, and the general appearance of the instrument. This led to the decision that questionnaires using closed-type questions/statements and the Likert-scale were best suited for the study.

The study population was defined as learners in the further education and training (FET) band of secondary schooling in South Africa, and convenience sampling was selected as the sampling method to facilitate the challenges associated with a study of this magnitude and to reach the target of 300 respondents per group to constitute a ‘good’ sampling technique.

The co-optation of research partners was briefly discussed, indicating that these partners were integral to the study to secure learners for participation with the support and permission of parents and schools’ principals, the collection of data during the research project, and the provision of entrepreneurship training to the test groups as a planned intervention to examine the impact thereof on young learners for comparison against ‘non-trained’ control groups. The research partners were identified as the Education with Enterprise Trust (EWET) situated in Harrismith in the Free State for the pilot study, and Junior Achievement South Africa (JASA) with an established national footprint for the main study throughout South Africa.

Subsequently, the selection of six measuring instruments for incorporation in the study was discussed, complemented by empirical research findings from the academic literature to support the reliability and validity of each instrument. These instruments included the Attitude toward Enterprise (ATE) test; the Entrepreneurial Intention Questionnaire (EIQ); the General Enterprising Tendency (GET) test; the Measure of Adaptive Cognition (MAC); the Personal Wellbeing Index for school children (PWI-SC); and the Youth Innovation Skills Measurement Tool (YISQ).

Following the selection of these measuring instruments, the construction of the research instrument was discussed. The initial instrument included a battery of all six tests, but the focus on young learners soon suggested that the questionnaire was too comprehensive, thus raising concerns for negative influences such as the potential for ‘questionnaire fatigue’ and acquiescence response bias.

Consequently, the instrument was split into two separate surveys designated the AEG-3 Youth Entrepreneurship Survey for School Learners (version 1.1) and the PMY-3 Youth Entrepreneurship Survey for School Learners (version 2.1), and these surveys were adopted as the research instruments for employment in the pilot study. Both questionnaires comprised a battery of three different tests, a demographic and a socio-economic section to collect data regarding the personal background of respondents, and a longitudinal questionnaire identification code to match the pre- and post test questionnaires of each respondent for purposes of comparison.

The final section of chapter six described the constructs examined in each of the tests incorporated into the surveys, the classification of all items in each test under the corresponding construct, and the methodology for the calculation of scores and the interpretation of data. The coding and interpretation of data following from the demographic and socio-economic sections were expounded, and the purpose of the longitudinal questionnaire ID for validation in the pilot study and subsequent use in the main study was explained.

On the one hand, chapter six concluded the literature review on entrepreneurship theory, contemporary challenges facing South Africa, entrepreneurship as the potential solution to many [most] of these challenges, and the capacity of effective entrepreneurship education and training to promote a culture of enterprising behaviour in the country. On the other, it introduced a research approach, a research design and the incorporation of suitable measuring instruments to bring academic research on youth entrepreneurship one small step closer to addressing a pressing question that has remained unanswered throughout the previous chapters of this study: Can entrepreneurship be taught successfully to young people in South Africa?

CHAPTER SEVEN

EMPIRICAL RESEARCH PART ONE:

PILOT STUDY DESIGN, RESULTS AND DISCUSSION

7.1 INTRODUCTION

Chapter six concluded the literature review on entrepreneurship and denoted the transition to the empirical research component of this study. Two survey questionnaires (the AEG-3 V1.1 and the PMY-3 V2.1) were introduced as research instruments that would be tested in the pilot study¹⁶ for subsequent employment in the main study aimed at examining the impact of an entrepreneurship training programme on young learners in South Africa.

Chapter seven is dedicated to the pilot study. It describes the collection of data using the AEG-3 V1.1 and PMY-3 V2.1 questionnaires, the statistical analysis of the data and the interpretation of the results. The chapter discusses a number of changes to the research instruments following the outcome of the pilot study, and concludes with preparatory issues relating to the main study presented in chapters eight and nine.

7.2 THE PILOT STUDY DESIGN

The pilot study was designed to test the AEG-3 (version 1.1) and PMY-3 (version 2.1) Youth Entrepreneurship Surveys for school learners for subsequent employment in the main study. The research partner in this instance was the Education with Enterprise Trust (EWET), a non-government, not-for-profit organisation situated in the town of Harrismith in the Free State province of South Africa (see chapter five; section 5.2.2.1).

Two important design considerations prescribed the approach to the pilot study: Firstly, the incorporation of two separate research surveys dictated the need for two mutually exclusive samples of similar composition and size, and secondly, the pilot study would include a single test-sitting as opposed to the pre- and post test design of the main study.

This approach called for a sample large enough to remain meaningful once respondents had been allocated to the two different surveys, as well as for a balance between learners who had

¹⁶ A pilot study is a smaller version of a larger study to follow, and can involve the pre-testing of a research tool (such as a new data collection method) to ensure that the ideas and methods underlying the research idea are sound. http://ms.about.com/./pilot_study.htm. Date of access: 17 Jun. 2012.

previously been exposed to entrepreneurship training (the ‘test group’) and learners who had not been exposed in any way other than the outcomes based education (OBE) curriculum prescribed by the Department of Basic Education (DoBE) (the ‘control group’).

7.3 THE SAMPLING METHOD

Prior discussions with EWET revealed that the organisation targets entire schools (secondary level) for the adoption and incorporation of EWET’s training programmes. This particular method of embedding entrepreneurship education into a school’s curriculum necessitated the selection of ‘test group’ learners from schools participating in EWET’s programme, while sourcing learners for the ‘control groups’ from other (non-participating) schools.

This approach had two important implications for the execution of the pilot study: Firstly, the researcher had to rely on EWET to involve schools that had previously participated in the organisation’s training programmes for the composition of the test groups, as well as to secure the cooperation of schools that have never participated to avail learners as respondents for the control groups. This meant that the method of convenience sampling¹⁷ would be employed for the pilot study.

Secondly, the employment of test and control groups from different schools suggested that the influences of different schools’ teaching approaches and learning environments would remain as an ‘uncontrollable’ variable in the pilot study. Although the limitations of both these issues were acknowledged, the sampling method was deemed fit for the purpose of the pilot study.

EWET identified three secondary schools in Harrismith for participation in the pilot study: Kgethatsebo-Khethulwazi Intermediate in Tshiami where learners had been exposed to the Youth Enterprise Society (YES) programme of EWET; and Harrismith Secondary and Nhlakanipho schools in Intabazwe where learners had not been exposed to any entrepreneurship training programmes. Subsequently, learners at the Tshiami school were assigned to the two test groups (test group one: AEG-3 V1.1; test group two: PMY-3 V2.1), whereas learners at the two Intabazwe schools constituted the two control groups (control group one: AEG-3 V1.1; control group two: PMY-3 V2.1) for the pilot study.

¹⁷ Convenience sampling is a “...statistical method of drawing representative data by selecting people because of the ease of their volunteering or selecting units because of their availability or easy access.”
<http://www.businessdictionary.com/definition/convenience-sampling.html>. Date of access: 18 Jun. 2012.

7.4 DATA GATHERING

The pilot study was conducted in Harrismith over a period of two days in mid-February 2011. Prior written consent for learners to participate in the pilot study was obtained from the principal of each school with the help of EWET field workers.

A total of 342 learners completed the survey questionnaires (AEG-3: 173; PMY-3: 169) immediately after school and under the supervision of the researcher. The responses of all grade eight learners were subsequently removed from the dataset as they had not yet been exposed to the training programme of EWET. Incomplete and spoilt questionnaires were also removed from the dataset, resulting in 102 usable AEG-3 V1.1 and 95 usable PMY-3 V2.1 questionnaires representing the following groups:

- ✦ Test group one (AEG-3 V1.1): 40 respondents from Kgethatsebo-Khethulwazi school in Tshiami.
- ✦ Control group one (AEG-3 V1.1): 62 respondents from Harrismith Secondary and Nhlakanipho schools in Intabazwe.
- ✦ Test group two (PMY-3 V2.1): 41 respondents from Kgethatsebo-Khethulwazi school in Tshiami.
- ✦ Control group two (PMY-3 V2.1): 54 respondents from Harrismith Secondary and Nhlakanipho schools in Intabazwe.

The samples for both the AEG-3 V1.1 ($n = 102$) and PMY-3 V2.1 ($n = 95$) questionnaires were deemed appropriate for the pilot study and for statistical analysis.

7.5 RESULTS AND DISCUSSION

The questionnaires were delivered to Statistical Consultation Services (SCS) of the North-West University (Potchefstroom campus) for data capturing and statistical analysis to determine the reliability and validity of the measuring instruments in the two survey questionnaires.

7.5.1 The AEG-3 V1.1 Youth Entrepreneurship Survey measuring instruments

The datasets for two of the three measuring instruments in the AEG-3 V1.1 survey – the Attitude toward Enterprise (ATE) test and the Entrepreneurial Intention Questionnaire (EIQ)

– were tested for reliability and validity using SPSS (2011) and Statistica software (Statsoft, 2011).

7.5.1.1 Part A: The Attitude toward Enterprise (ATE) test

The respective items (questions/statements) underlying each construct (creativity; personal control; achievement; intuition; leadership; risk-taking propensity) in the ATE test were subjected to exploratory factor analysis (EFA) to confirm whether it loaded onto each factor as intended (see chapter six; section 6.6.1.1).

The results indicated that the test items did not load onto the respective constructs as intended, and as a result, the validity of the test was questioned. Tests for reliability using Cronbach's alpha produced results below the threshold of 0.7 recommended for scientific research (UCLA, 2009: 2; Bland & Altman, 1997: 2; Peterson, 1994: 381) in a number of instances, indicating that the reliability of the ATE test could not be confirmed.

At this point, the findings of an earlier South African study where the ATE test had been employed (Steenekamp *et al.*, 2011a) were reconsidered. The authors of this particular study conclude that consideration should be given to the various cultures and languages in South Africa, suggesting that many of the respondents in their study may not have understood the full extent of the statements in the ATE test. Consequently, it is proposed that each construct and its underlying statements be explained to respondents, and that the reverse score items (see chapter six; section 6.6.1.1) be changed to positive statements to improve respondents' understanding of the constructs being tested (Steenekamp *et al.*, 2011a: 69).

7.5.1.2 Part B: The Entrepreneurial Intention Questionnaire (EIQ)

The analysis of the EIQ dataset was similar to that of the ATE test: Exploratory factor analysis (EFA) was conducted to confirm whether the items (questions/statements) in the EIQ loaded onto the four test constructs (personal attitude; subjective norms; perceived behavioural control; entrepreneurial intention) discussed in chapter six (section 6.6.1.2).

Again the test items did not load onto the respective constructs as intended, and tests for reliability using Cronbach's alpha also produced results below the recommended 0.7 for some of the constructs. As a result, neither the validity nor the reliability of the EIQ could be confirmed during the pilot study.

7.5.1.3 Part C: The General Enterprising Tendency (GET) test

Following the failure of the pilot study to confirm the validity and reliability of both the ATE test and the EIQ as two of the three tests included in the AEG-3 V1.1 survey, the researcher's attention turned towards the General Enterprising Tendency (GET) test.

A distinct advantage of the GET test is that the results can be collated usefully (Caird, 1988), subject to the design of an Excel[®] spreadsheet capable of assigning data from the 54 items to five different constructs (need for achievement; need for autonomy/independence; creative tendency; moderate/calculated risk-taking; drive and determination), and calculating the score for each construct using the procedure shown in (a) to (i) under section 6.6.1.3 in chapter six. Analysis of the data using the pre-prepared Excel[®] spreadsheet (researcher's own analysis) produced illuminating results as shown in table 7.1 below.

Table 7.1 Results of the pilot study: GET test

Results of the GET test for the pilot study (<i>n</i> = 102)			
Construct	Test group	Control group	Difference
Need for achievement	61.67%	59.54%	2.13%
Need for autonomy/independence	44.17%	43.28%	0.89%
Creative tendency	50.63%	47.45%	3.18%
Moderate/calculated risk-taking	50.42%	47.18%	3.24%
Drive and determination	59.58%	59.01%	0.57%

It is acknowledged that the results in table 7.1 are by no means statistically proven and care should be exercised in drawing any inferences from the findings. However, the results were calculated in accordance with the method prescribed by Caird (1988), and consequently, it is argued that the findings should be regarded as meaningful.

Table 7.1 shows that the test group (learners who had been exposed to the YES-programme of EWET) scored higher (average scores) than the control group (learners who had not been exposed) for all five constructs. The largest difference between the test and control group was for the construct 'moderate/calculated risk-taking' (3.24%), followed by 'creative tendency' (3.18%) and the need for achievement (2.13%). It follows that the GET test successfully distinguished between learners who had been exposed to entrepreneurship education and

training and those who had not, essentially supporting the inclusion of the instrument for further testing during the main study.

7.5.2 The PMY-3 V2.1 Youth Entrepreneurship Survey measuring instruments

None of the pilot study datasets for the three measuring instruments in the PMY-3 V2.1 survey – the Personal Wellbeing Index for School Children (PWI-SC), the Measure of Adaptive Cognition (MAC) and the Youth Innovation Skills Measurement Tool (YISQ) – were subjected to tests for reliability and validity. Statistical Consultation Services explained that similar problems to those experienced with the analysis of the AEG-3 survey results were expected, and recommended that the design of the measuring instruments be reconsidered prior to further testing.

In an attempt to find at least some indication of the applicability of the PMY-3 V2.1 survey in youth entrepreneurship research, the Personal Wellbeing Index for School Children (PWI-SC) in part A of the questionnaire was identified as best suited for analysis. Although the construct validity of the PWI-SC may be tested by regressing the seven PWI-domains (items A.2 to A.8) against the item ‘happiness with life as a whole’ (item A.1), Cummins and Lau (2005: 12) do not require this test prior to the analysis of the results.

Firstly, an Excel[®] spreadsheet was designed to suit the data analysis method prescribed by Cummins and Lau (2005: 12). The data from the pilot study was subsequently entered into the spreadsheet, followed by a data cleaning procedure to check the data for response sets (see chapter six; section 6.6.2.1). Two questionnaires were identified where the respondents had consistently scored at the top of the scale (i.e., 10) for all items in the PWI-SC. These questionnaires were removed from the dataset, resulting in a final [cleaned] sample of 93 learners ($n = 93$).

The Excel[®] spreadsheet standardised the Likert-scale data from the questionnaires into percentage of scale maximum (%SM) on a zero to 100 distribution. Scores in %SM were calculated separately (researcher’s own analysis) for the item ‘happiness with life as a whole’ (item A.1; non-PWI domain); the PWI domains ‘standard of living’ (A.2), ‘personal health’ (A.3), ‘achievement in life’ (A.4), ‘personal relationships’ (A.5), ‘personal safety’ (A.6), ‘part of the community’ (A.7) and ‘future security’ (A.8); as well as for the non-PWI domains personal relationships with family (A.9), friends (A.10) and people involved in teaching participants (A.11). Finally, the personal wellbeing index as an overall measure of

subjective wellbeing was calculated for comparison against the ‘gold-standard’ of 75 ± 2.5 %SM provided by Cummins and Lau (2005: 12).

The results of the PWI-SC scale for the pilot study are presented in table 7.2 below.

Table 7.2 Results of the pilot study: PWI-SC scale

Results of the PWI-SC scale for the pilot study ($n = 93$)			
Construct	Test group	Control group	Difference
Overall happiness (A.1)	85.64	82.59	3.05
PWI domains:			
Standard of living (A.2)	74.36	76.11	-1.75
Personal health (A.3)	88.72	78.52	10.20
Achievement in life (A.4)	85.64	80.56	5.08
Personal relationships (A.5)	86.67	78.89	7.78
Personal safety (A.6)	81.03	75.56	5.47
Part of the community (A.7)	52.05	52.04	0.01
Future security (A.8)	65.90	56.67	9.23
Non-PWI domains:			
Personal relationships: Family (A.9)	90.77	92.96	-2.19
Personal relationships: Friends (A.10)	87.95	72.22	15.73
Personal relationships: Teaching (A.11)	85.38	88.52	-3.14
Personal wellbeing index:			
Overall measure of subjective wellbeing	76.34	71.19	5.15
Difference from the gold-standard (72.50 to 77.50 %SM)	0	-1.31	
Difference from gold-standard for Western populations (70 to 80 %SM)	0	0	
Difference from gold-standard for non-Western populations (60 to 70 %SM)	6.34	1.19	

The analysis of the data, although not statistically proven, produced notable differences between the test group (learners who had been exposed to EWET’s YES-programme) and the control group (learners who had not been exposed) as shown in table 7.2. Learners in the test group experienced ‘overall happiness with life’ more positively than learners in the control group as indicated by a difference of 3.05 %SM.

The PWI-domains also showed higher (average) scores for learners in the test group, with the exception of ‘standard of living’ (item A.2) where test-group respondents experienced satisfaction (‘happiness’) with their standard of living as lower than that of the control group, and ‘part of the community’ (item A.7) where a difference of only 0.01 %SM was recorded. It may be that exposure to the YES-programme of EWET had increased the aspirations of learners in the test group to such an extent that they experienced some level of ‘dissatisfaction’ (unhappiness) with the *status quo* (i.e., their current standard of living).

The largest positive differences were recorded for ‘personal health’ (item A.3) at 10.20 %SM, ‘future security’ (item A.8) at 9.23 %SM and ‘personal relationships’ (item A.5) at 7.78 %SM. These results were interpreted as meaning that participation in the YES-programme of EWET had positively influenced the perceptions of respondents regarding their feelings of satisfaction (‘happiness’) with these aspects as integral components of their personal lives.

A strong case can be made for the importance of perceptions of personal health, achievement, personal relationships, personal safety and future security in individual performance. From this perspective, it can be argued that improved ‘happiness’ (satisfaction) with these items may also be a catalyst for entrepreneurial behaviour and performance.

Examination of the non-PWI domains of personal relationships with specific groups produced a significant positive difference between the test and control groups for personal relationships with friends (15.73 %SM), but smaller negative differences for personal relationships with family members (-2.19 %SM) and people involved in the teaching environment (-3.14 %SM). These findings raise the question whether exposure to EWET’s programme may have reinforced relationships with friends also participating in the programme, while simultaneously, also instilling some level of dissatisfaction with the *status quo* at home and in the learning environment at school.

As an overall measure of subjective wellbeing, the Personal Wellbeing Index (PWI) score was higher for the test group (76.34 %SM) than for the control group (71.19 %SM). It follows that learners in the test group appeared to have better perceptions of their own subjective personal wellbeing than learners in the control group, which may suggest that entrepreneurship education and training may have a positive influence on the wellbeing of young individuals.

Compared to the gold-standard of 75 ± 2.5 %SM (Cummins & Lau, 2005: 12), the overall PWI score of learners in the test group (76.34 %SM) approached the upper limit of 77.50 %SM, whereas the overall PWI score of learners in the control group (71.19 %SM) fell short of the lower limit (72.50 %SM) by 1.31 %SM. The test group's overall PWI score was in the upper half of the gold-standard for Western populations (70 to 80 %SM), as opposed to the control group's overall PWI score bordering on the lower limit of the gold-standard for Western populations (70 to 80 %SM) and just above the upper limit of the gold-standard for non-Western populations (60 to 70 %SM).

The ability of the PWI-SC scale to differentiate between the test and control groups and the interpretability of the test-item results provided sufficient support for the inclusion of the instrument for further testing in the main study.

7.5.3 Additional sections in the AEG-3 V1.1 and PMY-3 V2.1 surveys

Parts D (demographical information), E (socio-economic information) and F (the longitudinal questionnaire ID) were identical in the two surveys employed in the pilot study. These sections were included in the pilot study questionnaires to determine whether learners in secondary schools would understand and answer the questions adequately for subsequent use in the main study.

After completion of the pilot study in Harrismith, random questionnaires were screened by the researcher for purposes of evaluation. The demographical information (part D) did not present major problems, as did part E on the socio-economic background of respondents. The incorporation of the Living Standard Measure (LSM[®]) of the South African Advertising Research Foundation (SAARF) in question E.1 seemed to work well with young learners, perhaps because of the simplicity of the statements included in the measure and the simple choice between 'true' and 'false' in answering the items.

The majority of respondents accurately described what their parents/guardians do for a living (question E.2), but it was evident that some learners experienced difficulty in classifying the type of employment (private sector employee; public sector employee; self-employed or entrepreneur; retired; unemployed; at home by own choice; other) in question E.3.

The examination of part F where respondents were required to construct the longitudinal questionnaire ID suggested major problems. Very few of the completed questionnaires

contained usable codes, and in some instances, respondents had inserted their full names instead of the second letter of their first name and the third letter of their surname as instructed in the questionnaire. Considering the importance of the questionnaire ID to match the pre- and post test questionnaires of respondents in the main study while maintaining their anonymity, it was evident that a different approach would be needed in subsequent testing for the questionnaire ID to have any value at all.

7.6 IMPROVED VERSIONS: THE AEG-3 V1.2 AND PMY-3 V2.2 SURVEYS

Following the results of the pilot study, a number of design considerations were reconsidered to improve both surveys in view of the main study discussed in chapters eight and nine. The discussion to follow describes changes to the overall presentation of the surveys, as well as the measuring instruments and sections designed to collect additional information from respondents.

7.6.1 General layout (AEG-3 and PMY-3 surveys)

The pilot study versions of the two surveys (AEG-3 V1.1 and PMY-3 V2.1) had been presented to respondents as a 13-page, A4 document printed one side and stapled in the left top corner (see appendix one). The layout of the surveys for the main study (AEG-3 V1.2 and PMY-3 V2.2) was subsequently changed to a 20-page, A5 booklet (see appendix two), hoping that the smaller booklet would be less ‘intimidating’ to young learners and promote ease of working through the survey.

The cover page of both surveys was retained, but the coding table was improved to distinguish between test and control groups, and a logo depicting Junior Achievement’s 30-year celebration was added to inform the important role the organisation had to play in the main study. The introductory section explaining the purpose of the study, as well as the general instructions to respondents for the completion of the surveys were retained in the newer versions of the survey questionnaires.

7.6.2 The AEG-3 Youth Entrepreneurship Survey for School Learners (version 1.2)

The three measuring instruments – the Attitude toward Enterprise (ATE) test, the Entrepreneurial Intention Questionnaire (EIQ) and the General Enterprising Tendency (GET) test – were retained in the survey, but several structural changes were made to improve young

learners' understanding of the instruments and promote both the validity and reliability of the respective instruments (see appendix two).

7.6.2.1 Part A: The Attitude toward Enterprise (ATE) test

An introductory sentence was included to explain to respondents that the ATE test would examine their attitude towards a number of aspects in school and their future. The structure of the ATE test was changed as follows (also see discussion in section 7.5.1.1):

- The statements in the test were regrouped under each of the six constructs examined by the instrument (as opposed to the pilot study where the statements examining the different constructs were presented at random as designed by Athayde [2009a]).
- An introductory sentence was inserted before each group of statements to explain the purpose of the section to respondents and focus their attention on the particular construct being examined.
- The reverse score items were changed to positive statements in an attempt to exclude the potential for confusion, especially among young learners still at school.
- A considerable amount of time was spent on changing the wording of each statement to make it more understandable for young learners, and in particular, for young learners originating from previously disadvantaged groups in South Africa.
- Finally, the layout of the test was changed by placing the seven-point Likert-scale next to each statement instead of below as in the original test employed in the pilot study.

7.6.2.2 Part B: The Entrepreneurial Intention Questionnaire (EIQ)

Similar changes to those described for the ATE test (section 7.6.2.1) were made to the EIQ, including the regrouping of statements under each of the four constructs being examined, but excluding the reversal of reverse score items as the original EIQ contained no negative statements.

7.6.2.3 Part C: The General Enterprising Tendency (GET) test

The 54 statements in the GET test were also regrouped under the five constructs being examined with an introductory sentence for each construct to focus respondents' attention on each particular construct. An introductory sentence was added at the start of the test to inform

learners that the instrument would examine their feelings about entrepreneurship as a future career choice and a way of life in general.

The answer sheet developed by Caird (1988), consisting of 54 blocks (see appendix one) in which respondents had to ‘agree’ or ‘disagree’ with each of the statements in the pilot study, was changed to suit the formatting of the other instruments in the survey (ATE test, EIQ). In the newer version, the ‘agree’ or ‘disagree’ options were placed next to each item in an attempt to isolate the need to page through the survey while responding to each item, and in so doing, the potential for confusion was reduced.

7.6.3 The PMY-3 Youth Entrepreneurship Survey for School Learners (version 2.2)

The three measuring instruments – the Personal Wellbeing Index for School Children (PWI-SC), the Measure of Adaptive Cognition (MAC) and the Youth Innovation Skills Measurement Tool (YISQ) – were also retained in the survey, but again several structural changes were made to improve young learners’ understanding of the instruments and promote both the validity and reliability of the respective instruments (see appendix two).

7.6.3.1 Part A: The Personal Wellbeing Index for School Children (PWI-SC)

The interpretability of the PWI-SC data gathered during the pilot study (see section 7.5.2) suggested that the instrument was suitable for use in the main study. As with the instruments in the newer version of the AEG-3 V1.2 survey, an introductory sentence was added to inform respondents that the instrument would ask a number of questions to determine how happy they feel on the day of testing.

The wording of the original PWI-SC scale was retained (as used in the pilot study), but the 10-point Likert scale was also placed next to instead of below each of the 11 questions in the instrument to promote uniformity throughout the surveys.

7.6.3.2 Part B: The Measure of Adaptive Cognition (MAC)

An introductory sentence was inserted at the start of the test to inform respondents that the MAC would examine the way they see their personal goals, their past experiences in life, the way they make choices and the way in which they use prior learning experiences to guide them through life.

Once again, the test items were regrouped under the five constructs being examined in the MAC, an introductory sentence was inserted for each section, the wording was simplified for use with young learners, and the seven-point Likert-scale was repositioned next to each statement as opposed to below in the earlier version.

7.6.3.3 Part C: The Youth Innovation Skills Measurement Tool (YISQ)

The changes described in 7.6.3.2 above were repeated for the YISQ: An introductory sentence was added to explain the purpose of the test to respondents; the five types of innovators identified by Chell and Athayde (2009: 31) were regrouped into one section (see chapter six; section 6.6.2.3); the items in the test were rearranged under each of the five constructs being measured; each section examining a different construct was introduced with a brief explanation of the focal area; the wording of some items were simplified; and the seven-point Likert-scale was moved to a position next to each statement.

7.6.4 Parts D to F of the AEG-3 V1.2 and PMY-3 V2.2 surveys

A limited number of changes were made to parts D, E and F of the newer versions of the AEG-3 and PMY-3 Youth Entrepreneurship Surveys. These sections were identical in the AEG-3 V1.1 and PMY-3 V2.1 pilot study questionnaires, and changes were duplicated throughout both of the newer versions.

Two questions were added to part D (demographical information) to enable the classification of the province (D.1) and town (D.2) in which respondents are living. Whereas the pilot study was isolated to the town of Harrismith and surrounding areas in the Free State province, the main study was set for research throughout all provinces of South Africa. It was, therefore, important to distinguish between respondents residing in different provinces and towns for comparative analysis between the test results.

Two questions were omitted in the newer versions of the research surveys: Question D.10 asking respondents in the pilot study about the highest qualification they expected to achieve, and D.11 asking them about the highest qualification their parents or guardians had ever achieved. These questions were removed from the newer versions for two important reasons: Firstly, in the earlier study by Steenekamp (2009: 94), more than 24% of respondents indicated that they were expecting to obtain a university degree, while almost 43% expected to obtain a higher degree (honours, masters or doctorate) one day.

Steenekamp *et al.* (2011a: 58) later highlighted the actual proportion of people over the age of 20 years in South Africa with a high school or higher qualification (whites: 65%; Asians: 40%; coloureds: 17%; black Africans: 14%) (South Africa Info, 2010), suggesting inflated expectations on the part of young learners. It was decided that the retention of question D.10 would have limited value for statistical analysis.

Secondly, the data from the pilot study in Harrismith indicated that many learners did not know what their parents' or guardians' highest qualification was. This lack of knowledge regarding the qualifications of parents was highlighted as a finding in the earlier study by Steenekamp (2009: 97), where approximately 20% of learners did not know what either their female or male parents and guardians did for a living, and furthermore, approximately one-fifth of respondents participating in the study did not answer the question at all. Consequently, question D.11 was omitted from the newer versions of the surveys based on the assumption that subsequent analysis would provide little value.

Question D.12 asking learners to indicate whether they have ever participated in enterprise or entrepreneurship training was retained in the newer versions of the surveys, but the details of EWET (pilot study) were replaced with the Mini-Enterprise Programme (MEP) of Junior Achievement South Africa (JASA) in question D.12.1 due to the fact that JASA (and not EWET) would be participating in the main study.

Part E (socio-economic information) of the newer versions of both surveys was retained in its entirety, but small changes were made to the layout for purposes of uniformity throughout the surveys. The longitudinal questionnaire ID in part F remained unchanged, but the introduction was expanded to emphasise that participating learners would remain anonymous during both the pre- and post testing phases of the main study. Although learners experienced extensive problems with the construction of the ID in the pilot study (see section 7.5.3), it was decided that a different approach would be followed during completion of the surveys in the main study, rather than changing the structure of the ID.

7.7 PREPARATIONS FOR THE MAIN STUDY

The AEG-3 V1.2 and PMY-3 V2.2 Youth Entrepreneurship Surveys for School Learners were subsequently accepted as the survey questionnaires to be employed in the main study throughout South Africa. Prior to commencement of the main study, a number of issues had to be addressed in preparation for a study that would depend largely on the commitment of a

reputable research partner, well-thought planning and meticulous timing to ensure that the empirical research runs smoothly and according to plan.

It is acknowledged that preparations for the main study seem out of place in this chapter dedicated to the rendering of the pilot study. The main study is spread across two chapters (chapters eight and nine), and accordingly, the inclusion of the preparations for the main study in this chapter was planned to prevent duplication in two subsequent chapters with similar design, yet different in research focus and with two mutually excluding samples. Consequently, the reader is urged to use the discussion to follow as a point of reference during the reading and interpretation of the contents of chapters eight and nine.

7.7.1 A ‘two-in-one’ study approach

The retention of two separate survey questionnaires with different measuring instruments, but with similar background collection methodology, called for the compilation of two mutually excluding samples from the same population (i.e., learners from secondary schools in South Africa).

Although participating learners for both surveys would be sourced from the same regions and schools, it is imperative that the main study be seen and interpreted as two separate studies in one larger study – a study with the overriding goal of examining youth entrepreneurship and the impact of an entrepreneurship education and training programme on young learners in secondary schools in South Africa.

7.7.2 Training the research partner(s)

The pre-testing phase of the main study was set to commence in February 2012. As noted in chapter six (section 6.3.3), Junior Achievement South Africa (JASA) had been co-opted as the research partner for the main study. The organisation would play a crucial role in the success of the main study and it was imperative that staff from the national office and JASA partners/agents were conversant with the administering of the surveys, firstly to ensure that the subsequent approach would be uniform, and secondly, that the research project would conform to the prescribed rules of scientific academic research.

Following a meeting with the managing director of JASA, Ms. Linda McClure, and the JASA national programmes manager, Ms. Joanne Bender, the researcher was invited to present a

training session during a national meeting of the organisation in January 2012 where all JASA partners and agents would be present.

The training session was presented in Johannesburg on January 27, 2012. A PowerPoint® presentation was used by the researcher to guide the training session, further complemented by the distribution of hardcopies of the AEG-3 V1.2 and PMY-3 V2.2 surveys (see appendix two); an instruction manual for administering the surveys (see appendix three); a guide to conducting the empirical research highlighting activities, responsibilities, duration and deadlines (see appendix four); and examples of the parental consent slips (see appendix five) and the principals' approval form (see appendix six) to obtain permission for learners to participate in the study.

Participants were trained by the researcher on all aspects of sourcing respondents for the study (two mutually exclusive samples for the AEG-3 V1.2 and PMY-3 V2.2 surveys); distinguishing between the test and control groups; maintaining records of participants for the pre- and post tests using an Excel® spreadsheet designed by the researcher; obtaining permission from parents/guardians and schools' principals for learners to participate in the study; administering the surveys; performing initial coding of the surveys after completion; and preparing the completed questionnaires for return to the researcher.

In regard the administering of the surveys, the following important aspects were discussed at length in an attempt to exclude some of the problems identified during the pilot study:

- ✦ Testing had to be conducted in four separate sittings for the AEG-3 V1.2 test and control groups and the PMY-3 V2.2 test and control groups. The test groups (to be exposed to JASA's training) would be tested at the outset of the first JASA training session (before any training of whatsoever kind), whereas the control groups (not to be exposed to JASA's training) would be tested at a time agreed upon with the particular school. Learners respectively completing the AEG-3 and PMY-3 surveys had to be kept separate to prevent any confusion that could originate from guidance by the invigilator in respect of any issue relating to a given survey.
- ✦ JASA invigilators were tasked to introduce the survey to participating learners, read the introductory section and explain the general instructions prior to proceeding with the completion of any section.

- ✦ Each part of the survey had to be introduced using the introductory sentence provided in the surveys, and the method of responding to each item had to be communicated clearly, while allowing learners the opportunity to ask questions should any aspect be unclear.
- ✦ Learners would be instructed to answer one group of questions/statements (corresponding with a particular construct – see chapter six; section 6.6) at a time after the introductory sentence had both been read and explained by the invigilator. This approach was deemed necessary to focus learners' attention on a specific construct being examined, and to prevent faster individuals from completing the surveys ahead of slower learners.
- ✦ The demographical section (part D) is self-explanatory, but JASA invigilators were asked to ensure that learners fully understand question D.12.1 (exposure to JASA training) and D.12.2 (exposure to any other enterprise or entrepreneurship training) prior to selecting their answer of choice. These two questions were highlighted as crucial for any attempt to isolate the impact of enterprise or entrepreneurship training on learners participating in the main study.
- ✦ The socio-economic section (part E) is also self-explanatory, but JASA invigilators were asked to assure learners that their responses would remain confidential in addition to reading the introductory sentence stipulating same. Invigilators were also tasked to expand on the requirements for question E.3 by explaining the differences between the types of employment listed for selection (this point was emphasised due to the problems experienced with the pilot study discussed in section 7.5.3).
- ✦ Finally, the problems experienced with the construction of the longitudinal questionnaire ID (part F) in the pilot study (see section 7.5.3) warranted judicious attention during the training session. JASA invigilators were tasked to employ a black- or whiteboard and construct an example for each of the five questions in the ID prior to moving on to the next. Participants in the training session agreed that this approach would be conducive for the construction of reliable, traceable codes during the pre- and post testing phases of the main study.

The interaction between JASA staff members and the researcher during the training session, as well as subsequent feedback from the organisation indicated that the training session had been successful, and that all role players were both comfortable with and committed to the ambitious task that lay ahead.

7.7.3 Logistical issues

A brief discussion of the logistical issues underlying the success of the main study is warranted. These issues included the printing of sufficient numbers of the AEG-3 V1.2 and PMY-3 V2.2 surveys, parental permission slips and principals' consent forms, as well as the distribution and return of surveys and supporting documents to and from the JASA regions spread across the nine provinces of South Africa.

By prior agreement and in line with the rules and regulations of the North-West University, the researcher accepted responsibility for these tasks without financial support from any sponsors. A reputable printing company was contracted for the printing of 2 000 copies of each of the AEG-3 V1.2 and PMY-3 V2.2 Youth Entrepreneurship Surveys to ensure that sufficient numbers were available for the research project, whereas sufficient numbers of the parental permission slips and principals' consent forms were provided by the researcher.

Distribution and return of the surveys and supporting documents to and from JASA offices throughout South Africa would be best served by a cost-effective and reliable courier service. A courier service based in Johannesburg, Gauteng was contracted for this purpose and the associated costs would be for the account of the researcher.

Communication between the researcher and JASA offices would be conducted mainly by electronic mail (e-mail) and direct telephonic communication. For this purpose, as well as for the distribution and return of parcels discussed above, JASA head office in Johannesburg provided the contact details and physical addresses of all involved parties. Once all these arrangements had been finalised, the preparations for the main study were deemed to be in place and the main study discussed in the following chapters could commence.

7.8 CHAPTER SUMMARY

Chapter seven reported on the pilot study conducted in Harrismith in the Free State province of South Africa over a period of two days in mid-February 2011. The pilot study was carried out with the cooperation of the Education with Enterprise Trust (EWET), a non-government, not-for-profit organisation dedicated to enriching the lives of previously disadvantaged young people in South Africa by means of entrepreneurship education and training programmes aimed at stimulating entrepreneurial behaviour.

The purpose of the pilot study was described as an exercise to test the AEG-3 (version 1.1) and the PMY-3 (version 2.1) Youth Entrepreneurship Surveys for School Learners of which the design and contents were expounded in chapter six. The design of the pilot study was explained, including two important design considerations implicating the need for two mutually exclusive samples for the two survey questionnaires incorporated in the study, and a single test procedure as opposed to the pre- and post test design of the main study.

The sampling method was described as convenience sampling, and the shortfall resulting from the employment of test and control groups from different schools was acknowledged to the extent that this approach would leave different teaching approaches and learning environments between different schools as an uncontrollable variable in the pilot study. It was, however, confirmed that the sampling method was deemed fit for the purpose of the pilot study when considering that the researcher had to rely on the goodwill of EWET in this instance.

Three schools in the Harrismith area were listed as schools identified by EWET for participation in the pilot study, and included one school where learners had been exposed to EWET's programme (Kgethatsebo-Khethulwazi Intermediate) and two schools where learners had not been exposed to any entrepreneurship training programmes (Harrismith Secondary and Nhlakanipho). Learners in the former school were subsequently assigned to the two test groups, whereas a combination of learners from the latter two schools represented the control groups for the pilot study.

The gathering of data was discussed, resulting in 102 usable AEG-3 V1.1 and 95 usable PMY-3 V2.1 questionnaires for statistical analysis by Statistical Consultation Services of the North-West University (Potchefstroom campus). The discussion of the results revealed that tests for reliability and validity on the datasets for two of the measuring instruments in the AEG-3 V1.1 survey – the Attitudes to Enterprise (ATE) test and the Entrepreneurial Intention Questionnaire (EIQ) – failed to provide satisfactory solutions, and as a consequence, the reliability and validity of both instruments were questioned.

Subjective analysis of the dataset for the General Enterprising Tendency (GET) test by the researcher using the methodology prescribed by Caird (1988) produced promising results. Although it was acknowledged that the results had not been statistically proven, the GET test successfully distinguished between the test and control groups. Learners in the test group

consistently outperformed learners in the control group based on the mean scores for five constructs, including the need for achievement, need for autonomy/independence, creative tendency, moderate/calculated risk-taking and drive and determination.

Following the inconclusive results of reliability and validity testing on the datasets for the measuring instruments in the AEG-3 V1.1 survey, it was acknowledged that Statistical Consultation Services had not performed any analyses of the three measuring instruments – the Personal Wellbeing Index for School Children (PWI-SC), the Measure of Adaptive Cognition (MAC) and the Youth Innovation Skills Measurement Tool (YISQ) – included in the PMY-3 V2.1 survey.

Using the methodology prescribed by Cummins and Lau (2005: 12), the researcher carried out subjective analysis of the dataset for the Personal Wellbeing Index for School Children (PWI-SC) in an attempt to find at least some indication of the applicability of the PMY-3 V2.1 survey in youth entrepreneurship research. The results of the analysis, although acknowledged as not being statistically proven, succeeded in distinguishing between learners in the test and control groups.

Learners in the test group experienced ‘overall happiness with life’ more positively than their peers in the control group, as well as on several PWI domains relating to their perceptions of personal health, achievement in life, personal relationships, personal safety and future security. A significant positive difference between learners in the test and control groups for the non-PWI domain ‘personal relationships with friends’ was highlighted, and in addition, learners in the test group on average scored higher for the personal wellbeing index as an overall measure of subjective wellbeing and in comparison with the gold-standard of Cummins and Lau (2005).

These results were interpreted as indicating that the PWI-SC scale as a measure of subjective wellbeing may have value for research not only on individual performance, but also for research on entrepreneurial behaviour and performance among young people.

The additional sections in the AEG-3 V1.1 and PMY-3 V2.1 surveys (parts E to F) were subsequently discussed. Random screening of some completed surveys suggested that part D (demographical information) and part E (socio-economic information) did not present major problems as indicated by the thoroughness of respondents’ answers in these instances. A singular problem with part E, and in particular question E.2, was highlighted suggesting that

learners experienced difficulty in classifying the type of employment held by their parents or legal guardians.

Part F including the construction of the longitudinal questionnaire ID was singled out as problematic as evident from few usable codes in the pilot study surveys. It was noted that a different approach would be required for the main study to ensure that the ID code is capable of matching the pre- and post test questionnaires of respondents for comparative analysis.

The improved versions of the AEG-3 (version 1.2) and the PMY-3 (version 2.2) Youth Entrepreneurship Surveys for School Learners were introduced, supported by improvements in general layout and appearance; regrouping of test items under the construct being examined; the insertion of introductory sentences before each test and before each section; the reversal of reverse score items (ATE test); simplified wording to improve respondents' understanding of the questions/statements; and the repositioning of the Likert-scale response system from below each item/statement to a position in the same line.

Some improvements to parts D to F of both surveys were discussed, including the removal of two questions and the addition of two new questions that were deemed important for the statistical analysis of the demographical background of respondents (part D), improvements to the layout of part E (socio-economic information), and added emphasis on the anonymity of respondents in part F for the longitudinal questionnaire ID.

The discussion progressed to the preparations for the main study as both an outcome of the pilot study and as an introduction to the main study presented in subsequent chapters. The two-in-one study approach was highlighted, followed by discussions regarding the training of Junior Achievement South Africa (JASA) partners and agents for the empirical research project, as well as logistical issues surrounding the required materials for the empirical research, communication between the researcher and JASA invigilators and the distribution and return of surveys to and from the respective JASA regions in South Africa.

Chapter seven concluded that the preparations for the main study had been finalised, thus signalling 'readiness' for the main study to commence throughout South Africa.

CHAPTER EIGHT

EMPIRICAL RESEARCH PART TWO:

AEG-3 MAIN STUDY DESIGN, RESULTS AND DISCUSSION

8.1 INTRODUCTION

Chapter eight is the first of two chapters describing an empirical study on two mutually exclusive samples from secondary school learners in South Africa. It specifically deals with the gathering and statistical analysis of data, as well as the presentation and discussion of results from the AEG-3 Youth Entrepreneurship Survey (hereinafter referred to as the AEG-3 study).

The AEG-3 study represents the first tier of a ‘two-in-one’ approach (see chapter seven, section 7.7.1) to empirical research aimed at examining youth entrepreneurship and the impact of entrepreneurship education and training on young learners in South African secondary schools. More specifically, the overriding objective of the AEG-3 study was to determine whether entrepreneurship education and training has had any statistically quantifiable impact on the entrepreneurial attitudes, intentions and general enterprising tendencies of young learners exposed to an entrepreneurial training programme (the ‘test’ group) when measured against non-participating learners (the ‘control’ group).

Accordingly, the remainder of this chapter focuses on the AEG-3 study design, the sampling method, the gathering of data, the statistical analysis of the data and the presentation and discussion of the results from the pre- and post testing exercises, and finally, comparisons between the test and control groups over a period spanning the greater part of the 2012 school year.

8.2 THE DESIGN OF THE AEG-3 STUDY

Following several structural improvements to the AEG-3 Youth Entrepreneurship Survey for School Learners (version 1.1) described in section 7.6 of chapter seven, the AEG-3 Youth Entrepreneurship Survey version 1.2 (see appendix two) was incorporated into the main AEG-3 study as the appropriate instrument to examine the entrepreneurial attitudes, intentions and general enterprising tendencies of respondents in the study.

The design of the AEG-3 study is based upon a pre- and post test control-group design. This approach called for respondents in both the test and control groups to be tested prior to the application of the planned intervention, followed by exposure of the test group to entrepreneurship education and training for a period of time, and subsequent post testing of both the test and control groups to examine whether the intervention has had any quantifiable impact on respondents in the test group.

Once the preparations for the AEG-3 study had been finalised (see section 7.7 of chapter seven, and in particular, the discussion on the training of the research partner[s] and logistical issues), the researcher, in close collaboration with Junior Achievement South Africa (JASA) and JASA partners/agents spread throughout the country, commenced with the identification of learners in South African secondary schools for the test and control groups and with arrangements to conduct the pre-testing procedure prior to any of the learners (test group) receiving exposure to the training programmes of JASA.

8.3 THE AEG-3 STUDY SAMPLING METHOD

The involvement of Junior Achievement South Africa (JASA) as research partner in the empirical study dictated the sampling method for the AEG-3 survey. JASA's methodology is to approach schools in the respective regions of South Africa and arouse interest in its education and training programmes on the part of principals, teachers and learners. The entire process is voluntary – only schools and learners expressing the desire to participate in JASA's training efforts are included in the various programme offerings.

Once the support of 26 secondary schools spread throughout seven of the nine provinces of South Africa had been secured (see appendix seven), approximately fifty percent of learners who had shown the desire to participate in JASA's 'Mini Enterprise Programme' (MEP) were allocated to the AEG-3 test group (the balance were allocated to the PMY-3 study test group; see chapter nine).

It was imperative that respondents for the AEG-3 control group be sourced from the same participating schools in an attempt to isolate the potential influence of different schools on learners as an uncontrollable variable in the main study (as opposed to the sampling method in the pilot study; see section 7.3, chapter seven). Consequently, JASA agents in the respective regions sourced respondents for the AEG-3 control group in close collaboration with principals and teachers. These learners were not interested in participating in JASA's

training programme, but voluntarily agreed to participate in the pre- and post testing exercises. Again, approximately fifty percent of these learners were allocated to the AEG-3 control group, with the balance reserved as control group respondents for the PMY-3 main study discussed in chapter nine.

Accordingly, the sampling method applied in this study is that of convenience sampling – a method that proved to be best suited for a study of this nature, especially when considering the important role JASA and JASA partners/agents had to play in compiling a sample with a national footprint.

8.4 DATA GATHERING FOR THE AEG-3 STUDY

The data gathering process for the AEG-3 study was conducted in two separate, yet related procedures: Firstly, the pre-testing of both the test and control groups prior to application of the training intervention to the test group, and secondly, the post testing of both the test and control groups after the test group had completed the JASA training programme.

Prior to the pre-testing procedure, JASA partners/agents assisted the researcher in obtaining permission for the empirical research project. Said permission included both parental permission for each participating learner (see appendix five) and approval by the principal of each participating school (see appendix six). The signed parental permission slips and completed principal's consent forms were returned to the researcher and placed in safe keeping for future reference.

Following the training session of all JASA partners/agents during the organisation's Annual General Meeting (AGM) in January 2012 (see discussion in section 7.7.2, chapter seven), sufficient numbers of the AEG-3 survey questionnaires were couriered to the respective regions. JASA representatives were asked to commence with the research project in accordance with the instruction manual for administering the surveys (see appendix three) and the recommended timeline as set out in a guide to conducting the empirical research (see appendix four).

In preparation for the pre-testing exercise JASA representatives had to compile a list of respondents using an Excel[®] spreadsheet designed by the researcher (see spreadsheet header in section 6.1.5, appendix three). Although the anonymity of respondents – minors in this case – had to be ensured, the purpose of said list was simply to keep track of all respondents

in the study. Some measure of control was deemed necessary to ensure that learners remain in their allocated groups (test and control) and complete the same survey questionnaire (AEG-3 or PMY-3) during pre- and post testing. Although the spreadsheet identified each respondent by name, gender, school and grade at school, the results of the study maintained anonymity as respondents were not required to disclose their names on the survey questionnaires.

Once the completed Excel[®] spreadsheets for all JASA regions had been compiled and returned to the researcher, respondents in the study were allocated to the test and control groups as described in section 8.3 above for the pre-testing exercise to commence.

8.4.1 Method of data gathering: AEG-3 study

JASA representatives throughout South Africa were responsible for the gathering of data by prior agreement with the National Office in Johannesburg, and after all partners/agents had been trained in administering the surveys (see discussion in section 7.7.2, chapter seven). The AEG-3 questionnaires were completed by respondents in the test group during their first JASA training session (but prior to any exposure to training content), whereas the control group completed the questionnaires during sessions arranged between the principal of each school and the responsible JASA representative.

Once the surveys had been completed by learners, each survey questionnaire was coded (method described in section 6.3 of appendix three) to differentiate between the test and control groups. The completed AEG-3 questionnaires were returned to the researcher by courier, at which time each survey was coded [01] to indicate pre-testing and a sequential number inserted to promote some measure of control over the sample data. The pre-testing phase was completed over a period of two months in March and April 2012, followed by the exposure of learners in the test group to the Mini-Enterprise Programme (MEP) of JASA for a period of approximately six months.

After the programme had run its course, learners in the test group were again subjected to testing with the AEG-3 survey during their final JASA session, whereas learners in the control group completed the post test surveys during sessions arranged between the principal of each school and the responsible JASA representative.

The coding procedure to differentiate between the test and control groups was repeated and the questionnaires were returned to the researcher by courier. These questionnaires were

subsequently coded [02] to indicate post testing and a sequential number inserted to keep track of the sample data. The post testing procedure was completed over a period of three months from late September to early November 2012, followed by submission of the coded, numbered AEG-3 surveys to Statistical Consultation Services of the North-West University (Potchefstroom campus) for data capturing and subsequent statistical analysis.

8.4.2 The AEG-3 study sample

The responses of all participating learners were included in the sample. A total of 898 completed AEG-3 surveys were collected during pre-testing, later followed by 751 surveys during post testing as shown in table 8.1 below.

Table 8.1 Sample size of the AEG-3 study

Sample size of the AEG-3 study						
Group	Pre-test		Post test		Difference at post testing	
	<i>n</i>	Percent	<i>n</i>	Percent	<i>n</i>	Percent
Test	471	52.4	343	45.7	-128	-27.2
Control	427	47.6	405	53.9	-22	-5.2
Not coded	0	0	3	0.4	3	
Total	898	100.0	751	100.0	-147	-16.4

Table 8.1 shows that a significant number of learners (27.2%) either withdrew from the JASA programme during the study or failed to participate in the post testing exercise. The control group appeared to be more stable with the loss of only 5.2 percent of learners. Overall, the number of participating learners decreased by 147 (16.4%) between the pre- and post testing phases of the study. The sample sizes for both the pre- and post testing phases of the AEG-3 study were subsequently accepted for further analysis.

8.4.3 Statistical analysis of the AEG-3 dataset

The statistical analysis of the AEG-3 dataset was conducted by Statistical Consultation Services of the North-West University (Potchefstroom campus) using Statistica (Statsoft, 2011) and SPSS (SPSS, 2011) computer software. Basic analysis included the composition and characteristics of the sample by means of descriptive statistics, followed by examination of the construct validity and reliability of the AEG-3 measuring instruments by respectively performing factor analysis and calculating Cronbach's alpha coefficients.

Data obtained from measuring instruments in the AEG-3 survey that had acceptable levels of construct validity and reliability was further analysed using *t*-tests and effect sizes (*d*-values) to examine the relationship between the extracted factors and the test and control groups to determine whether any statistically significant and/or practically significant differences existed at both the time of pre- and post testing.

The relationship between the extracted factors and some of the demographical variables, as well as the socio-economic variables obtained using the Living Standard Measure (LSM[®]) of the South African Advertising Research Foundation (SAARF), were analysed in an attempt to isolate potentially significant influences on the entrepreneurial attitudes and intentions of young learners.

The overall approach to the statistical analysis of the AEG-3 dataset was to address the following propositions underlying both the primary objective (see section 1.4.1, chapter one) and some of the secondary objectives (see section 1.4.2.2, chapter one) of this study:

- P¹:** The Attitude toward Enterprise (ATE) test in the AEG-3 survey has acceptable levels of construct validity.
- P²:** The Entrepreneurial Intention Questionnaire (EIQ) in the AEG-3 survey has acceptable levels of construct validity.
- P³:** The General Enterprising Tendency (GET) test in the AEG-3 survey has acceptable levels of construct validity.
- P⁴:** The ATE test in the AEG-3 survey has acceptable levels of reliability.
- P⁵:** The EIQ in the AEG-3 survey has acceptable levels of reliability.
- P⁶:** The GET test in the AEG-3 survey has acceptable levels of reliability.
- P⁷:** There were no differences between the entrepreneurial attitudes of the test group and the control group as measured by the constructs of the ATE test at the time of pre-testing.
- P⁸:** There were no differences between the entrepreneurial intentions of the test group and the control group as measured by the constructs of the EIQ at the time of pre-testing.

- P⁹:** There were no differences between the enterprising tendencies of the test group and the control group as measured by the constructs of the GET test at the time of pre-testing.
- P¹⁰:** There were differences between the entrepreneurial attitudes of female and male respondents (total sample) as measured by the constructs of the ATE test at the time of pre-testing.
- P¹¹:** There were differences between the entrepreneurial intentions of female and male respondents (total sample) as measured by the constructs of the EIQ at the time of pre-testing.
- P¹²:** There were differences between the enterprising tendencies of female and male respondents (total sample) as measured by the constructs of the GET test at the time of pre-testing.
- P¹³:** There were differences between the entrepreneurial attitudes of respondents (total sample) attending public or private schools as measured by the constructs of the ATE test at the time of pre-testing.
- P¹⁴:** There were differences between the entrepreneurial intentions of respondents (total sample) attending public or private schools as measured by the constructs of the EIQ at the time of pre-testing.
- P¹⁵:** There were differences between the enterprising tendencies of respondents (total sample) attending public or private schools as measured by the constructs of the GET test at the time of pre-testing.
- P¹⁶:** There were differences between the entrepreneurial attitudes of respondents (total sample) with or without self-employed parents as measured by the constructs of the ATE test at the time of pre-testing.
- P¹⁷:** There were differences between the entrepreneurial intentions of respondents (total sample) with or without self-employed parents as measured by the constructs of the EIQ at the time of pre-testing.

- P¹⁸:** There were differences between the enterprising tendencies of respondents (total sample) with or without self-employed parents as measured by the constructs of the GET test at the time of pre-testing.
- P¹⁹:** There were differences between the entrepreneurial attitudes of respondents (total sample) from different socio-economic backgrounds as measured by the constructs of the ATE test at the time of pre-testing.
- P²⁰:** There were differences between the entrepreneurial intentions of respondents (total sample) from different socio-economic backgrounds as measured by the constructs of the EIQ at the time of pre-testing.
- P²¹:** There were differences between the enterprising tendencies of respondents (total sample) from different socio-economic backgrounds as measured by the constructs of the GET test at the time of pre-testing.
- P²²:** There were differences between the entrepreneurial attitudes of the test group and the control group after exposure of the test group to entrepreneurship education and training as measured by the constructs of the ATE test at the time of post testing.
- P²³:** There were differences between the entrepreneurial intentions of the test group and the control group after exposure of the test group to entrepreneurship education and training as measured by the constructs of the EIQ at the time of post testing.
- P²⁴:** There were differences between the enterprising tendencies of the test group and the control group after exposure of the test group to entrepreneurship education and training as measured by the constructs of the GET test at the time of post testing.
- P²⁵:** There were differences between the entrepreneurial attitudes of individual respondents from the test and control groups after exposure of the test group to entrepreneurship education and training as measured by the constructs of the ATE test at the time of post testing.
- P²⁶:** There were differences between the entrepreneurial intentions of individual respondents from the test and control groups after exposure of the test group to entrepreneurship education and training as measured by the constructs of the EIQ at the time of post testing.

P²⁷: There were differences between the enterprising tendencies of individual respondents from the test and control groups after exposure of the test group to entrepreneurship education and training as measured by the constructs of the GET test at the time of post testing.

8.5 RESULTS AND DISCUSSION OF THE AEG-3 STUDY

The remainder of this chapter firstly examines the demographic profile of the AEG-3 study sample, followed by the presentation and discussion of statistical evidence to support either acceptance or rejection of the propositions listed in section 8.4.3 above.

8.5.1 Demographic and socio-economic profiles

The demographic and socio-economic profiles of the AEG-3 sample include respondents' province of residence, type of school being attended, grade at school, age, gender, ethnic grouping, having (a) self-employed parent(s) or not, and standard of living as measured by the Living Standard Measure (LSM[®]) of the South African Advertising Research Foundation (SAARF, 2010), but reported according to the four 'Lifestyle Levels' developed by Consumer Scope (2009).

Table 8.2 below presents comparative figures for the pre- and post testing phases of the AEG-3 study for each of these demographic and socio-economic variables.

Table 8.2 Sample characteristics of the AEG-3 study

Sample characteristics of the AEG-3 study							
Stage of testing		Pre-test			Post test		
Characteristic		<i>n</i>	%	Cum. %	<i>n</i>	%	Cum. %
Province	Eastern Cape	0	0.0	0.0	0	0.0	0.0
	Free State	35	3.9	3.9	36	4.8	4.8
	Gauteng	333	37.0	40.9	289	38.5	43.3
	KwaZulu-Natal	192	21.4	62.3	166	22.1	65.4
	Limpopo	0	0.0	62.3	1	0.1	65.5
	Mpumalanga	94	10.5	72.8	66	8.8	74.3
	Northern Cape	35	3.9	76.7	23	3.1	77.4
	North-West	96	10.7	87.4	79	10.5	87.9
	Western Cape	105	11.7	99.1	84	11.2	99.1
	Not answered	8	0.9	100.0	7	0.9	100.0
	Total	898	100.0	100.0	751	100.0	100.0

Table 8.2 cont.

Sample characteristics of the AEG-3 study

Stage of testing		Pre-test			Post test		
Characteristic		<i>n</i>	%	Cum. %	<i>n</i>	%	Cum. %
Type of school	Public	803	89.4	89.4	664	88.4	88.4
	Private	75	8.4	97.8	68	9.1	97.5
	Not answered	20	2.2	100.0	19	2.5	100.0
	Total	898	100.0	100.0	751	100.0	100.0
Grade at school	8	0	0.0	0.0	1	0.1	0.1
	9	11	1.2	1.2	6	0.8	0.9
	10	468	52.1	53.3	365	48.6	49.5
	11	413	46.0	99.3	371	49.4	98.9
	12	2	0.2	99.5	1	0.1	99.0
	Not answered	4	0.5	100.0	7	1.0	100.0
	Total	898	100.0	100.0	751	100.0	100.0
Age	12	0	0.0	0.0	2	0.2	0.2
	14	33	3.7	3.7	9	1.2	1.4
	15	172	19.2	22.9	111	14.8	16.2
	16	305	34.0	56.9	255	33.9	50.1
	17	254	28.3	85.2	220	29.3	79.4
	18	94	10.4	95.6	92	12.3	91.7
	Older than 18	37	4.1	99.7	53	7.1	98.8
	Not answered	3	0.3	100.0	9	1.2	100.0
	Total	898	100.0	100.0	751	100.0	100.0
Gender	Female	722	80.4	80.4	563	75.0	75.0
	Male	173	19.3	99.7	182	24.2	99.2
	Not answered	3	0.3	100.0	6	0.8	100.0
	Total	898	100.0	100.0	751	100.0	100.0
Ethnic origin	Asian/Indian	49	5.5	5.5	38	5.1	5.1
	Black African	715	79.6	85.1	589	78.4	83.5
	Coloured	117	13.0	98.1	100	13.3	96.8
	White	6	0.7	98.8	8	1.1	97.9
	Not answered	11	1.2	100.0	16	2.1	100.0
	Total	898	100.0	100.0	751	100.0	100.0
Self-employed parent(s)	Yes	296	33.0	33.0	287	38.2	38.2
	No	586	65.3	98.3	447	59.5	97.7
	Not answered	16	1.7	100.0	17	2.3	100.0
	Total	898	100.0	100.0	751	100.0	100.0
Living standard (LSM [®] groups)	Level D: Poor	1	0.1	0.1	0	0.0	0.0
	Level C: Middle class	231	25.7	25.8	4	0.5	0.5
	Level B: Upper middle class	408	45.4	71.2	7	0.9	1.4
	Level A: Rich	258	28.8	100.0	736	98.0	99.4
	Not answered	0	0.0	0.0	4	0.6	100.0
	Total	898	100.0	100.0	751	100.0	100.0

Note: Frequencies in red indicate inconsistencies between the pre- and post test datasets.

From table 8.2 the majority of respondents in the AEG-3 sample can be described as female black Africans aged 15 to 17 years attending grades 10 and 11 mainly at public schools in Gauteng and KwaZulu-Natal. At the time of pre-testing, almost half (45.4%) of the respondents reported coming from upper middle class homes and one-third had self-employed parents.

Compared with the South African population as reported in Census 2011 (Stats SA, 2012: 21), the sample (at pre-testing) was representative of the black African population at 79.6% (Census 2011: 79.2%), whereas Asian/Indian and coloured people were slightly over-represented at respectively 5.5% and 13.0% of the sample (Census 2011: 2.5% and 8.9% respectively). White people represent 8.9% of the South African population (*id.*), but were significantly under-represented in the sample at only 0.7%.

The sample was somewhat skewed in terms of gender-based participation. Census 2011 (Stats SA, 2012: 19) reported that the South African population is made up of 51.3% females and 48.7% males, but the AEG-3 study sample consisted of 80.4% females and 19.3% males (0.3% did not disclose). The ratio between female and male respondents improved slightly at the time of post testing, respectively to 75.0% and 24.2% (0.8% did not disclose).

The reported living standards of respondents in the sample are somewhat surprising (and probably inaccurate) if one considers that rich people (level A) make up only 10% of South African households, followed by the upper middle class (level B) and the poor (level D) both at 20% of households. The middle class (level C) comprises 48% of households (Consumer Scope, 2009).

In contrast, and at the time of pre-testing, more than 28% of respondents in the AEG-3 study reported being from 'rich' homes, with more than double the standard of 20% upper middle class households having been reported at 45.4%. Of particular interest is that only one respondent (0.1%) of the total sample of 898 reported living in poverty.

It is strange how respondents' perceptions of their living standards (LSM[®] groups) had changed in the period between the pre-testing and the post testing exercises. During post testing, 98% of learners indicated that they were from rich homes, with less than 1% reporting middle class and upper middle class backgrounds. Not even a single respondent indicated coming from a poor household.

It is indeed gladdening to learn that South Africans, and in particular those labelled ‘previously disadvantaged individuals’, are living in such privileged conditions. However, care should be exercised in the interpretation of these results and for two reasons: Firstly, the statements comprising the socio-economic part of the AEG-3 survey (see part E in appendix two) may be open to misapprehension, and secondly, the vast improvement in respondents’ living standards between the pre- and post testing phases raises practical concerns regarding the accuracy of their responses.

8.5.2 Construct validity of the AEG-3 measuring instruments (P¹ to P³)

The AEG-3 pre-test dataset was analysed to assess the discriminant validity of the various items in each of the three measuring instruments respectively aimed at examining the entrepreneurial attitudes, entrepreneurial intentions and general enterprising tendencies of respondents by performing factor analysis using SPSS (2011) software. The purpose of the factor analysis was to determine whether the questions/statements included in the respective instruments are indeed related to the different constructs targeted for measurement (Field, 2009: 645).

Principal factors analysis (principal axis factoring) with oblique rotation (oblimin with Kaiser Normalisation) was selected as the most appropriate extraction method to explore the dataset and examine the propositions set out in section 8.4.3 above. It should be noted that this technique assumes that the sample is the population of interest and care should be exercised when extrapolating the results discussed below beyond the AEG-3 sample (Field, 2009: 636-637). The conclusions to be presented henceforth are restricted to the AEG-3 sample and any generalisation of the results can only be confirmed if the same factor structures are revealed with different samples.

Kaiser’s criterion, recommending that all factors with eigenvalues greater than one be retained, was used to determine the number of factors that should be retained (Field, 2009: 640). This criterion is, according to Field (2009: 640), based on the idea that “...*the eigenvalues represent the amount of variation explained by a factor and that an eigenvalue of 1 represents a substantial amount of variation.*”

Throughout the analysis factor loadings greater than 0.40 are considered to be significant (Field, 2009: 671). In some instances factor loadings greater than 0.30 will be considered significant due to the size of the AEG-3 sample: Whereas Field (2009: 671) prefers using

0.40, and researchers in general regard factor loadings of more than 0.30 as ‘important’ (Field, 2009: 644), it is acknowledged that small factor loadings in large samples can be considered statistically meaningful.

Field (2009: 644) suggests using the table of critical values developed by Stevens (2002) where factor loadings of 0.722 for a sample size of 50 respondents; greater than 0.512 for a sample of 100; greater than 0.364 for a sample of 200; greater than 0.298 for a sample of 300; greater than 0.210 for a sample of 600; and greater than 0.162 for a sample of 1 000 respondents, can be considered significant.

The AEG-3 sample consisted of 898 respondents in the pre-testing phase. This figure is well in excess of the 600 recommended by Stevens (2002) to consider factor loadings greater than 0.210 as significant. It follows that the conservative provision for factor loadings greater than 0.30 as significant for the AEG-3 pre-test sample can be argued extensively.

8.5.2.1 Factor analysis of the Attitude toward Enterprise (ATE) test (P¹)

A principal factors analysis was conducted for each of the six constructs of the ATE test with oblique rotation (oblimin with Kaiser Normalisation). The Kaiser-Meyer-Olkin (KMO) measure was used to test the dataset for sampling adequacy and all values for the individual factors (KMO of 0.624 to 0.814) were above the acceptable limit of 0.50 (Field, 2009: 660). Bartlett’s test of sphericity yielded a significance of $p < 0.001$ for all factors, indicating that correlation between items in these factors were sufficiently large for principal factors analysis (Field, 2009: 671).

The principal factors analysis for each of the six factors produced eigenvalues greater than one as shown in table 8.3 on the following pages. Although the results are presented in one table, it should be interpreted as separate factor analyses for each of the factors as shown in the table. It should also be noted that factor loadings shown in the column labelled ‘other’ refer to items that did not load onto the corresponding factor with the unshaded boxes in the table, or items that loaded onto both the corresponding factor and another (unidentified) factor.

Table 8.3 Principal factors analysis for the ATE test (P¹)

Principal factors analysis for the ATE test (N = 898)								
№	Item	Variables						
		CREATE	LEAD	INTUIT	ACHIEVE	CONTROL	RISK	OTHER
A.1	Having a good imagination helps me do well at school.	.679						
A.2	I think I have a very good imagination.	.502						
A.3	I like doing work that makes my imagination work hard.	.499						
A.4	I like lessons where teachers use different ways of teaching me.							.490
A.5	I like teachers who always use new ways of teaching me.							.746
A.6	I like school work where I have to give my own ideas in class.	.384						.117
A.7	I am good at getting other learners to agree with my plans.		.612					
A.8	My friends would say I am a leader rather than a follower.		.574					
A.9	I am good at getting people to work well together.		.598					
A.10	I like being the centre of attention in class.		.405					
A.11	I take responsibility for getting things done when working with others.		.411					
A.12	I am good at motivating my class mates to do something.		.649					
A.13	I can find the answer to a problem even if I do not know everything about it.			.166				.328
A.14	Making mistakes is a good way of finding out how to solve a problem.			.205				
A.15	My own feelings about what to do is a good way of solving problems.			.672				

Table 8.3 cont. Principal factors analysis for the ATE test (N = 898)

№	Item	Variables						
		CREATE	LEAD	INTUIT	ACHIEVE	CONTROL	RISK	OTHER
A.16	I trust my feelings when I must solve problems in school work.			.430				.286
A.17	I will guess what to do if I do not know the answer to a problem.			.390				
A.18	I will keep on trying to solve a problem in different ways rather than give up.			-.100				.663
A.19	I work hard to make my school work successful.				.213			.463
A.20	It feels really good when work we did as a group gets good results.				.370			
A.21	It makes me unhappy if my project work at school is not good.				.356			
A.22	I believe it is important to finish off school work as well as I can.				.491			
A.23	I am really proud of my school work.							.733
A.24	Working hard on school work is definitely worth the effort.				.746			
A.25	I can also get the best job one day.					.597		
A.26	I think I can decide to have a successful career when I finish school.					.421		
A.27	I believe in my own ability to be successful in my future career.					.656		
A.28	I feel it is important to plan my future career.					.547		
A.29	I am sure that I will be successful in my future career.					.672		
A.30	My chances of getting a good job one day are just as good as anybody else's.					.385		

Table 8.3 cont. Principal factors analysis for the ATE test (N = 898)

№	Item	Variables						
		CREATE	LEAD	INTUIT	ACHIEVE	CONTROL	RISK	OTHER
A.31	I would rather have a difficult job with a high salary than easy one with low pay.						.304	
A.32	I feel one must take some risks to be successful in life.						.418	
A.33	I would put my money into a <i>new</i> company with good ideas if I thought it would make me much more money.						.628	
A.34	If I believed in a company, I would be prepared to put my own money into it.						.579	
A.35	I would put as much money as I could into a new idea if there was a good chance that I could make a lot of profit.						.608	
A.36	I am good at taking reasonable risks.						.506	
Eigenvalues		1.31	1.82	1.12	1.40	1.86	1.62	
Kaiser-Meyer-Olkin (KMO) measure		.668	.772	.624	.669	.814	.740	

Note: Factor loadings greater than 0.30 are considered significant based on the sample size.

After rotation (converged in four to six iterations), six factors were confirmed as the theoretical dimensions of creativity (CREATE), leadership (LEAD), intuition (INTUIT), achievement (ACHIEVE), personal control (CONTROL) and risk-taking (RISK) as latent variables in the measurement of the entrepreneurial attitudes of young people.

Factor one, labelled CREATE ('perceptions about creativity at school'), extracted four items (A.1, A.2, A.3, A.6) with factor loadings greater than 0.30. Item A.6 loaded onto a second factor at 0.117, but the higher factor loading of 0.384 under CREATE was recognised.

Items A.4 and A.5 loaded onto a second factor respectively at 0.490 and 0.746, but evaluation of the corresponding items suggested that these items indeed belong to the realm of creativity at school. Accordingly, these items were retained under the factor CREATE in line with the findings of Athayde (2009c).

Factor two, labelled LEAD ('self-perceptions of the ability to lead others'), extracted all six items (A.7 to A.12) with factor loadings greater than 0.40. The significant loading of all six items included by Athayde (2009c) confirmed that respondents regarded these items as being related to their self-perceptions of the ability to lead other people in school.

Factor three, labelled INTUIT ('intuition in problem-solving'), extracted all six items designated by Athayde (2009c), but at factor loadings below 0.30 for items A.13 (loaded onto a second factor at 0.328), A.14 and A.18 (loaded onto a second factor at 0.663). Item A.16 loaded onto a second factor, but at a factor loading of 0.286 compared to the 0.430 under the factor INTUIT. Similar problems had been experienced with this particular factor by Steenekamp (2009) and Steenekamp *et al.* (2011b), preceded by the research of Athayde (2009a) where the intuition-factor had been excluded from the analysis.

Factor four, labelled ACHIEVE ('achievement orientation in project work'), extracted four items (A.20, A.21, A.22, A.24) with factor loadings greater than 0.30. Item A.19 loaded onto ACHIEVE at only 0.213, but onto a second factor at 0.463. Evaluation of the statement 'I work hard to make my school work successful' suggests a direct relation to achievement in project work, and as a result, the greater factor loading of 0.463 was retained. Item A.23 loaded onto a second factor at 0.733, but the statement 'I am really proud of my school work' may be related to achievement. Consequently, the item was retained under ACHIEVE in line with the findings of Athayde (2009c).

Factor five, labelled CONTROL ('perceived personal control over career'), extracted all six items (A.25 to A.30) with factor loadings greater than 0.35. The significant loading of all six items included by Athayde (2009c) confirmed that respondents regarded these items as being related to their perceived personal control over their future careers.

The sixth and final factor, labelled RISK ('positive attitudes towards financial risk-taking'), extracted all six items (A.31 to A.36) with factor loadings greater than 0.30. The significant loading of all six items included by Athayde (2009c) confirmed that respondents regarded these items as being related to their positive attitudes towards financial risk-taking.

The results of the principal factors analysis, combined with the interpretability of the factors presented above, provides some evidence of construct validity. Consequently, **proposition P¹** ('the Attitude toward Enterprise [ATE] test in the AEG-3 survey has acceptable levels of construct validity') is **accepted**.

8.5.2.2 Factor analysis of the Entrepreneurial Intention Questionnaire (EIQ) (P²)

A principal factors analysis was conducted for each of the four constructs of the EIQ. The Kaiser-Meyer-Olkin (KMO) measure was used to test the dataset for sampling adequacy and all values for the individual factors (KMO of 0.603 to 0.909) were above the acceptable limit of 0.50 (Field, 2009: 660). Bartlett's test of sphericity yielded a significance of $p < 0.001$ for all factors, indicating that correlation between items in these factors were sufficiently large for principal factors analysis (Field, 2009: 671).

The principal factors analyses confirmed four factors with eigenvalues greater than one as shown in table 8.4 below.

Table 8.4 Principal factors analysis for the EIQ (P²)

Principal factors analysis for the EIQ (N = 898)					
№	Item	Variables			
		PA	SN	PBC	EI
B.1	I think being an entrepreneur will be more good than bad for me as a person.	.533			
B.2	I would really like to be an entrepreneur.	.868			
B.3	I would like to start my own business if I had the chance and the money.	.724			
B.4	It would give me great satisfaction to be an entrepreneur.	.904			
B.5	If I had many options for a job, I would choose to be an entrepreneur.	.755			
B.6	I think my family would be happy if I decided to start a business.		.409		
B.7	I think my friends would be happy if I decided to start a business.		.816		
B.8	I think other children in my school would be happy if I decided to start a business.		.641		
B.9	It would be easy for me to start a business and to keep it working.			.665	

Table 8.4 cont.**Principal factors analysis for the EIQ ($N = 898$)**

№	Item	Variables			
		PA	SN	PBC	EI
B.10	I am ready to start a business that would work well.			.750	
B.11	I think I can control the process to create a new business.			.845	
B.12	I think I have the practical knowledge to start a business.			.700	
B.13	I know how to develop and entrepreneurial project.			.657	
B.14	I think I would be successful if I tried to start a new business.			.746	
B.15	I am ready to do anything to be an entrepreneur.				.787
B.16	My professional goal is to become an entrepreneur.				.781
B.17	I will do anything possible to start and run my own business.				.841
B.18	I am determined to create a business in the future.				.858
B.19	I have very seriously thought about starting a business.				.876
B.20	I am definitely planning to start a business one day.				.856
Eigenvalues		2.95	1.24	3.20	4.17
Kaiser-Meyer-Olkin (KMO) measure		.850	.603	.882	.909

Note: Factor loadings greater than 0.30 are considered significant based on the sample size.

The analysis confirmed four factors as the theoretical dimensions of personal attitude (PA), subjective norms (SN), perceived behavioural control (PBC) and entrepreneurial intention (EI) as latent variables in the measurement of the entrepreneurial intentions of young people.

Factor one, labelled PA ('personal attitude'), extracted all five items (B.1 to B.5) with factor loadings greater than 0.50. The significant loading of all five items included by Liñán and Chen (2009) confirmed that respondents regarded these items as being related to their personal attitudes.

Factor two, labelled SN ('subjective norms'), extracted all three items (B.6 to B.8) with factor loadings greater than 0.40. The significant loading of all three items included by Liñán and Chen (2009) confirmed that respondents regarded these items as being associated with subjective norms as experienced by themselves.

Factor three, labelled PBC ('perceived behavioural control'), extracted all six items (B.9 to B.14) with factor loadings greater than 0.60. The significant loading of all six items included by Liñán and Chen (2009) confirmed that respondents regarded these items as being related to their perceptions of behavioural control.

Factor four, labelled EI ('entrepreneurial intention'), extracted all six items (B.15 to B.20) with factor loadings greater than 0.70. The significant loading of all six items included by Liñán and Chen (2009) confirmed that respondents regarded these items as being related to their entrepreneurial intentions.

The results of the principal factors analysis, combined with the interpretability of the factors presented above, provides strong evidence of construct validity. **Proposition P²** ('the Entrepreneurial Intention Questionnaire [EIQ] in the AEG-3 survey has acceptable levels of construct validity') is **accepted**.

8.5.2.3 Factor analysis of the General Enterprising Tendency (GET) test (P³)

A principal factors analysis was conducted on the five constructs of the GET test with oblique rotation (oblimin with Kaiser Normalisation). The Kaiser-Meyer-Olkin (KMO) measure was used to test the dataset for sampling adequacy and all values for the individual factors (KMO of 0.549 to 0.684) were above the acceptable limit of 0.50 (Field, 2009: 660). Bartlett's test of sphericity yielded a significance of $p < 0.001$ for all factors, indicating that correlation between items in these factors were sufficiently large for principal factors analysis (Field, 2009: 671).

The principal factors analysis extracted two factors with eigenvalues greater than one, respectively explaining only 8.41% and 9.45% of the variance. This finding immediately raised concerns for the construct validity of the GET test if one considers that the instrument was developed to measure five constructs underlying general enterprising tendencies (Caird, 1988; 1991).

After rotation (converged in up to 25 iterations) the principal factors analysis failed to distinguish between any of the factors identified by Caird (1988) as [1] the need for achievement, [2] the need for autonomy, [3] creative tendency, [4] moderate/calculated risk-taking, and [5] drive and determination.

Factor one, labelled ACHIEVE ('the need for achievement'), comprises 12 items (C.1 to C.12) which loaded onto four factors with factor loadings ranging from -0.499 to 0.404 after rotation converged in 10 iterations. No single factor was extracted as indicated by an eigenvalue smaller than one (0.941). The analysis could not provide any confirmation that respondents regarded these items as being related to their need for achievement.

Factor two, labelled AUTON/INDEP ('the need for autonomy/independence'), comprises six items (C.13 to C.18) which loaded onto two factors with factor loadings ranging from -0.313 to 0.622 after rotation converged in three iterations. No single factor was extracted as indicated by an eigenvalue smaller than one (0.598). The analysis could not provide any confirmation that respondents regarded these items as being related to their need for autonomy/independence.

Factor three, labelled CREATE ('creative tendency'), comprises 12 items (C.19 to C.30) which loaded onto five factors with factor loadings ranging from -0.269 to 0.457 after rotation had failed to converge in 25 iterations. No single factor was extracted as indicated by an eigenvalue smaller than one (0.712). The analysis could not provide any confirmation that respondents regarded these items as being related to their creative tendencies.

Factor four, labelled RISK ('moderate/calculated risk-taking'), comprises 12 items (C.31 to C.42) which loaded onto four factors with factor loadings ranging from -0.209 to 0.773 after rotation converged in 20 iterations. The analysis could not provide any confirmation that respondents regarded these items as being related to their moderate or calculated risk-taking.

The fifth and final factor, labelled DRIVE ('drive and determination'), comprises 12 items (C.43 to C.54) which loaded onto four factors with factor loadings ranging from -0.152 to 0.527 after rotation converged in 15 iterations. The analysis could not provide any confirmation that respondents regarded these items as being related to their levels of drive and determination.

The results of the principal factors analysis, combined with the poor interpretability of the factors presented above, provides no evidence of construct validity. **Proposition P³** ('the General Enterprising Tendency [GET] test in the AEG-3 survey has acceptable levels of construct validity') is **rejected**.

8.5.3 Reliability of the AEG-3 measuring instruments (P⁴ to P⁶)

Reliability of a measuring instrument means that the measure should consistently reflect the construct it is measuring, or in other words, other variables being equal, a person should obtain the same score if the instrument is applied at two different points in time (the so-called test-retest reliability) (Field, 2009: 673).

The reliability of the measuring instruments in the AEG-3 survey was examined using Cronbach's alpha (α). According to the University of California (UCLA, 2009: 1), Cronbach's alpha defines how well a set of items measures a single uni-dimensional latent construct. Yu (2001: 1) describes Cronbach's coefficient alpha as a measure of "*squared correlation between observed scores and true scores*." This description may be inferred as meaning that reliability is measured in terms of the ratio of the true score variance to the observed score variance.

Cronbach's alpha ranges in value from zero to one and higher values are associated with more reliable scales (Santos, 1999). Bland and Altman (1997:1) explain that $\alpha = 1$ if all the items making up the score are identical and therefore perfectly correlated. To the contrary, $\alpha = 0$ if the items are all independent.

Generally Cronbach's alphas of 0.70 are regarded the minimum acceptable reliability for preliminary research in line with the recommendation made by Nunnally in 1978 (Peterson, 1994: 381). Bland and Altman (1997: 2) regard values of 0.70 to 0.80 as satisfactory for groups, while the UCLA (2009: 2) prescribes a reliability coefficient of 0.70 or higher as 'acceptable' for social science research.

Care should be exercised in the interpretation of Cronbach's alpha (Field, 2009: 675). Although 0.70 to 0.80 is put forward as an acceptable value for Cronbach's alpha (simultaneously suggesting that values substantially lower indicate an unreliable scale), Kline (1999) suggests that instruments dealing with psychological constructs (as is the case in this study) may produce values below 0.70 and still be considered reliable because of the diversity of the constructs targeted for measurement (Field, 2009: 675; also see Leontitsis & Pagge, 2007; Christmann & Van Aelst, 2006; Kopalle & Lehmann, 1997; Bernardi, 1994).

Consequently, the benchmark of $\alpha \geq 0.70$ is used as a guideline throughout the analyses to follow, but lower alphas of 0.50 minimum ($\alpha \geq 0.50$) are treated as an indication of reliability due to the psychological nature of the constructs being examined and research involving young learners. Cronbach's alphas are presented for each subscale (factor) in each of the instruments as per the recommendation by Cronbach (1951) that the formula should be applied separately to items relating to different factors (Field, 2009: 675).

8.5.3.1 Reliability of the Attitude toward Enterprise (ATE) test (P⁴)

All 898 responses were used to calculate the reliability of the extracted factors presented in table 8.3, subject to software generated exclusions by list-wise deletion based on all variables in the procedure. The Cronbach's alpha for each of the subscales (factors) of the ATE test are shown below in table 8.5.

Table 8.5 Cronbach's alpha scores for the ATE test (P⁴)

Cronbach's alpha scores for the ATE test				
Items	Construct (independent variables)	N (Valid)*	Nº of items	Cronbach's alpha
A.1 – A.6	Perceptions about creativity at school	885	6	.577
A.7 – A.12	Self-perceptions of the ability to lead others	884	6	.698
A.13 – A.18	Intuition in problem-solving	885	6	.510
A.19 – A.24	Achievement orientation in project work	883	6	.575
A.25 – A.30	Perceived personal control over career	876	6	.659
A.31 – A.36	Positive attitudes towards financial risk-taking	889	6	.673
A.1 – A.36	ATE test (overall)	833	36	.856

*Exclusions from list-wise deletion based on all variables in the procedure.

The results in table 8.5 indicate that the ATE test is reliable measured against the threshold of $\alpha \geq 0.50$. The constructs LEAD ('self-perceptions of the ability to lead others'; $\alpha = 0.698$),

CONTROL ('perceived personal control over career'; $\alpha = 0.659$) and RISK ('positive attitudes towards financial risk-taking'; $\alpha = 0.673$) are sufficiently reliable as indicated by their respective Cronbach's alphas approaching the generally accepted minimum of $\alpha \geq 0.70$. The constructs CREATE ('perceptions about creativity at school'; $\alpha = 0.577$) and ACHIEVE ('achievement orientation in project work'; $\alpha = 0.575$) are slightly less reliable, but still well above the limit of 0.50 set earlier.

The construct INTUIT ('intuition in problem-solving') appears to be a borderline case with reliability of $\alpha = 0.510$ and recollection of the problems experienced with factor loading discussed in section 8.5.2.1 above. It is concluded, in line with the prior findings of Athayde (2009a), Steenekamp (2009) and Steenekamp *et al.* (2011b), that the construct INTUIT be excluded from further analysis and interpretation of the ATE test data.

Overall, the ATE test appears to have high levels of reliability as indicated by the Cronbach's alpha of 0.856 across the 36 items included in the instrument. **Proposition P⁴** ('the ATE test in the AEG-3 survey has acceptable levels of reliability') is **accepted**, subject to the exclusion of the construct INTUIT from further analysis. As a consequence, further discussion of the ATE test results will be limited to the analysis of data for the constructs CREATE, LEAD, ACHIEVE, CONTROL and RISK.

8.5.3.2 Reliability of the Entrepreneurial Intention Questionnaire (EIQ) (P⁵)

All 898 responses were used to calculate the reliability of the extracted factors presented in table 8.4, subject to software generated exclusions by list-wise deletion based on all variables in the procedure. The Cronbach's alpha for each of the subscales (factors) of the EIQ are shown in table 8.6 below.

Table 8.6 Cronbach's alpha scores for the EIQ (P⁵)

Cronbach's alpha scores for the EIQ				
Items	Construct (independent variables)	N (Valid)*	Nº of items	Cronbach's alpha
B.1 – B.5	Personal attitude (PA)	885	5	.865
B.6 – B.8	Subjective norms (SN)	888	3	.643
B.9 – B.14	Perceived behavioural control (PBC)	877	6	.867
B.15 – B.20	Entrepreneurial intention (EI)	883	6	.931

*Exclusions from list-wise deletion based on all variables in the procedure.

The results in table 8.6 indicate that the EIQ has high levels of reliability for the constructs PA ('personal attitude'; $\alpha = 0.865$), PBC ('perceived behavioural control'; $\alpha = 0.867$) and EI ('entrepreneurial intention'; $\alpha = 0.931$). The Cronbach's alpha for the construct SN ('subjective norms') is lower at $\alpha = 0.643$, but still well above the limit of 0.50. **Proposition P⁵** ('the EIQ in the AEG-3 survey has acceptable levels of reliability') is **accepted**.

8.5.3.3 Reliability of the General Enterprising Tendency (GET) test (P⁶)

The failure of the principal factors analysis to provide any evidence of construct validity for the factors included in the GET test as described by Caird (1988) was discussed in section 8.5.2.3. As a consequence, proposition P³ ('the General Enterprising Tendency [GET] test in the AEG-3 survey has acceptable levels of construct validity') was rejected.

All 898 responses were subsequently used to calculate the reliability of the factors listed by Caird (1988), subject to software generated exclusions by list-wise deletion based on all variables in the procedure. The Cronbach's alpha for each of the subscales (factors) of the GET test are shown in table 8.7 below.

Table 8.7 Cronbach's alpha scores for the GET test (P⁶)

Cronbach's alpha scores for the GET test				
Items	Construct (independent variables)	N (Valid)*	Nº of items	Cronbach's alpha
C.1 – C.12	The need for achievement	868	12	.442
C.13 – C.18	The need for autonomy/independence	883	6	.105
C.19 – C.30	Creative tendency	859	12	.316
C.31 – C.42	Moderate/calculated risk-taking	858	12	.308
C.43 – C.54	Drive and determination	858	12	.461

*Exclusions from list-wise deletion based on all variables in the procedure.

The results in table 8.7 indicate that none of the constructs in the GET test satisfy the minimum requirement of $\alpha \geq 0.50$ for reliability and further analysis. **Proposition P⁶** ('the GET test in the AEG-3 survey has acceptable levels of reliability') is **rejected**.

Following the rejection of propositions P³ (construct validity of the GET test) and P⁶ (reliability of the GET test), the GET test data is excluded from all further analyses and discussion in the remainder of this study. It follows that a number of propositions, including

P⁹, P¹², P¹⁵, P¹⁸, P²¹, P²⁴ and P²⁷ (see section 8.4.3 for an explanation of these propositions), **cannot be examined for acceptance or rejection.**

8.5.4 Differences at the time of pre-testing: Test versus control groups (P⁷ to P⁸)

The preceding sections concluded that the Attitude toward Enterprise (ATE) test and the Entrepreneurial Intention Questionnaire (EIQ) in the AEG-3 survey have acceptable levels of construct validity and reliability. As a result, data obtained from these instruments could be employed for further analyses to examine for differences between the test and control groups, as well as between different demographic and socio-economic groups in the sample.

The starting point for further analysis was to determine whether the test and control groups were ‘equal’ at the time of pre-testing, i.e., that there were no significant differences between respondents in the test and control groups prior to the test group being exposed to the training intervention of Junior Achievement South Africa (JASA).

The approach in this instance was to examine the differences (if any) between the mean scores of respondents in the test and control groups for the constructs underlying entrepreneurial attitudes in the ATE test and entrepreneurial intentions in the EIQ. In order to achieve this objective, research methodology often employs random sampling in an attempt to study the properties of a certain population within the constraints of limited time and money (Ellis & Steyn, 2003: 51).

In such cases, tests for statistical significance (e.g., *t*-tests) are employed to determine whether empirical results, such as the difference between two means, are significant. The *p*-value is used as the criterion to calculate the probability that the obtained value or larger could be obtained under the assumption that the null hypothesis (that there is no difference between the means) is true. Small *p*-values ($p \leq 0.05$) are considered sufficient evidence that the results (differences between the means) are indeed statistically significant (Ellis & Steyn, 2003: 51).

Ellis and Steyn (2003: 51) maintain that statistical significance does not necessarily imply that the result has practical importance based on the argument that tests for significance tend to yield small *p*-values as the size of datasets increase. It is argued that statistical inference draws conclusions from descriptive measures calculated for a population from which a random sample was drawn, and resultantly, statistical inference is not appropriate when the

sample becomes a sub-population in itself (Steyn, 2002: 10) as is the case in the AEG-3 study.

The AEG-3 study employed convenience sampling for reasons expounded earlier (see section 8.3) and all participating learners were included in the sample. As a consequence, the AEG-3 dataset had to be considered a small population (i.e., a sub-population of the original population of secondary school learners in South Africa) for which statistical inferences and *p*-values have limited value (Ellis & Steyn, 2003: 51; Steyn, 2002: 10; Steyn, 2000: 1).

In such cases, Ellis and Steyn (2003: 51) suggest the use of effect sizes to examine ‘practical significance’ as a difference large enough to have an effect in practice. Field (2009: 785) defines ‘effect size’ as an “...*objective and (usually) standardized measure of the magnitude of an observed effect*” and includes Cohen’s *d*, Glass’ *g* and Pearson’s correlation coefficient *r* as measures of effect size. Steyn (2002: 10) concurs that effect sizes are a useful aid to determine whether a given relationship is practically significant, and Connelly, Ireland, Reutzel and Coombs (2010: 131) conclude that limited assessment and reporting of effect sizes in entrepreneurship research is an important omission in the published domain.

The importance of practical significance cannot be over-emphasised for a study of this nature: Although statistical significance is always an important consideration, it can be argued extensively that *effective* entrepreneurship education and training should have a large enough impact on learners to have an effect in *practice*. Consequently, the discussion to follow includes group statistics (mean scores), Levene’s test for equality of variances and *t*-tests for equality of means to examine the dataset for mean differences with statistical significance, but effect sizes (Cohen’s *d*) will be used as the deciding factor to conclude whether or not any real (i.e., practically significant) differences existed between respondents in the test and control groups at the time of pre-testing.

The guidelines below are included for the interpretation of the results to follow in subsequent discussions:

- ✦ Group statistics are used to compare the mean scores of the test and control groups, as well as report the standard deviation and standard error of the mean for each construct.
- ✦ Levene’s test is included to test the hypothesis that the variances in the two groups (test and control) are equal, or in other words, that the difference between the variances is zero.

If Levene's test is significant ($p \leq 0.05$), variances are deemed to be significantly different and the assumption of homogeneity of variances will have been violated. If the test is not significant ($p > 0.05$) it is assumed that variances in the two groups are roughly equal (Field, 2009: 340).

- ✦ Independent t -tests are used to determine whether there are any significant differences between the mean scores of the two groups for each of the constructs. If $p \leq 0.05$ there are statistically significant differences between the means, whereas $p > 0.05$ indicates that there are no significant differences between the means (Field, 2009: 340).
- ✦ Effect sizes are interpreted using Cohen's guidelines (Field, 2005: 32; Ellis & Steyn, 2003: 52; Cohen, 1992: 155-159), where $d = 0.2$ is a small effect; $d = 0.5$ is a medium effect; and $d = 0.8$ is a large effect. Results with medium effects (i.e., $0.5 \leq d < 0.8$) are treated as *visible effects* and large effects ($d \geq 0.8$) as *practically significant*.

8.5.4.1 Differences between the test and control groups: ATE test (P^7)

The group statistics shown in table 8.8 below suggest that the entrepreneurial attitudes of respondents in the test group towards creativity, leadership, achievement, personal control and risk-taking were more positive than the attitudes of respondents in the control group as indicated by the higher mean scores of the test group for all five constructs.

Table 8.8 Group statistics for the ATE test (test versus control groups)

Group statistics					
Construct	Group	<i>N</i>	Mean	Std. deviation	Std. error mean
Creativity	Test group	471	36.12	5.075	.234
	Control group	427	35.42	5.107	.247
Leadership	Test group	471	33.00	5.937	.274
	Control group	426	31.40	6.813	.330
Achievement	Test group	471	38.86	4.352	.201
	Control group	427	38.22	4.221	.204
Personal control	Test group	471	39.51	4.236	.195
	Control group	427	38.80	4.133	.200
Risk-taking	Test group	471	36.34	5.627	.259
	Control group	427	35.15	5.764	.279

Levene's test for equality of variances, presented in table 8.9 below, confirmed that there were differences in variances in the test and control groups for the constructs leadership and personal control as indicated by $p \leq 0.05$ in both cases. For the remaining constructs (creativity, achievement and risk-taking) Levene's test was non-significant ($p > 0.05$), indicating that the variances in the test and control groups were roughly equal (i.e., not different) at the time of pre-testing.

Table 8.9 Levene's test for equality of variances: ATE test (test vs. control groups)

Levene's test			
Construct	<i>F</i>	Sig.*	Result
Creativity	1.185	.277	$p > .05$; assumption of equal variances confirmed
Leadership	10.362	.001	$p \leq .05$; assumption of equal variances violated
Achievement	1.020	.313	$p > .05$; assumption of equal variances confirmed
Personal control	4.007	.046	$p \leq .05$; assumption of equal variances violated
Risk-taking	1.405	.236	$p > .05$; assumption of equal variances confirmed

*Equal variances assumed

The levels of significance (p -values) in table 8.9 were used to select the appropriate results for interpretation of the independent t -test presented in table 8.10 below, i.e., to determine whether equal variances may be assumed ($p > 0.05$; not significant) or not ($p \leq 0.05$; significant).

Table 8.10 Differences in the ATE test mean scores: Test vs. control groups (P^7)

Independent samples test						
Construct	<i>t</i> -test for equality of means					Effect size
	<i>t</i>	<i>df</i>	Sig.*	Mean diff.	Std. error diff.	<i>d</i>
Creativity**	2.043	896	.041	0.695	.340	0.14
Leadership	3.724	847.72	.000	1.596	.429	0.23
Achievement**	2.263	896	.024	0.649	.287	0.15
Personal control	2.551	891.18	.011	0.713	.279	0.17
Risk-taking**	3.110	896	.002	1.183	.380	0.21

*Significance two-tailed; **assumption of equal variances confirmed in table 8.9

Table 8.10 reveals that $p \leq 0.05$ for all five constructs underlying entrepreneurial attitudes as measured by the ATE test, indicating that statistically significant differences existed between the mean scores of the test and control groups during pre-testing. These differences were

neither visible ($0.5 \leq d < 0.8$) nor practically significant ($d \geq 0.8$) as indicated by small effect sizes ($d = 0.2$) for creativity ($d = 0.14$), leadership ($d = 0.23$), achievement ($d = 0.15$), personal control ($d = 0.17$) and risk-taking ($d = 0.21$).

It is concluded that there were no visible or practically significant differences between respondents in the AEG-3 test and control groups in terms of their own personal perceptions of entrepreneurial attitudes as measured by the ATE test at the time of pre-testing.

Accordingly, **proposition P⁷** ('there were no differences between the entrepreneurial attitudes of the test group and the control group as measured by the constructs of the ATE test at the time of pre-testing') is **accepted**.

8.5.4.2 Differences between the test and control groups: EIQ (P⁸)

A similar analysis was carried out for the EIQ. The group statistics in table 8.11 below suggest that respondents in the test group had higher entrepreneurial intentions in terms of personal attitude, subjective norms, perceived behavioural control and entrepreneurial intention compared to the intentions of respondents in the control group as indicated by the higher mean scores of the test group for all four constructs.

Table 8.11 Group statistics for the EIQ (test versus control groups)

Group statistics					
Construct	Group	N	Mean	Std. deviation	Std. error mean
Personal attitude	Test group	471	6.22	1.015	.047
	Control group	426	5.68	1.382	.067
Subjective norms	Test group	470	6.00	1.084	.050
	Control group	422	5.76	1.240	.060
Perceived behavioural control	Test group	470	5.73	1.112	.051
	Control group	424	5.30	1.365	.066
Entrepreneurial intention	Test group	470	5.88	1.289	.059
	Control group	426	5.12	1.751	.085

Levene's test was applied to test the results for equality of variances. Table 8.12 on the following page confirms that there were differences in variances in the test and control groups for all four constructs during pre-testing as indicated by $p \leq 0.05$ for personal attitude, subjective norms, perceived behavioural control and entrepreneurial intention.

Table 8.12 Levene's test for equality of variances: EIQ (test vs. control groups)

Levene's test			
Construct	<i>F</i>	Sig.*	Result
Personal attitude	39.585	.000	$p \leq .05$; assumption of equal variances violated
Subjective norms	11.230	.001	$p \leq .05$; assumption of equal variances violated
Perceived behavioural control	14.753	.000	$p \leq .05$; assumption of equal variances violated
Entrepreneurial intention	61.726	.000	$p \leq .05$; assumption of equal variances violated

*Equal variances assumed

The p -values in table 8.12 were subsequently used to select the appropriate results for interpretation of the independent t -test presented in table 8.13 below, again to determine whether equal variances may be assumed (where $p > 0.05$; not significant) or not (where $p \leq 0.05$; significant).

Table 8.13 Differences in the EIQ mean scores: Test vs. control groups (P^8)

Independent samples test						
Construct	<i>t</i> -test for equality of means					Effect size
	<i>t</i>	<i>df</i>	Sig.*	Mean diff.	Std. error diff.	<i>d</i>
Personal attitude	6.569	774.04	.000	.536	.082	0.39
Subjective norms	2.980	841.34	.003	.234	.078	0.19
Perceived behavioural control	5.051	816.90	.000	.423	.084	0.31
Entrepreneurial intention	7.332	775.25	.000	.760	.104	0.43

*Significance two-tailed; equal variances not assumed as per table 8.12

Table 8.13 shows $p \leq 0.05$ for all four constructs underlying entrepreneurial intentions as measured by the EIQ, indicating that statistically significant differences existed between the mean scores of the test and control groups during pre-testing. These differences were not visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$) as indicated by small effect sizes ($d = 0.2$) for subjective norms ($d = 0.19$) and perceived behavioural control ($d = 0.31$), and slightly larger effect sizes for personal attitude ($d = 0.39$) and entrepreneurial intention ($d = 0.43$).

It should be observed that the effect size for entrepreneurial intention ($d = 0.43$) was approaching the level of being a visible effect ($0.5 \leq d < 0.8$) even as early as in the pre-testing phase of the AEG-3 study. It is entirely conceivable that entrepreneurial intentions on

the part of test group learners may have been an underlying motivator urging these learners to enrol for the training programme of JASA in the first place. As a result, one would expect the effect size for entrepreneurial intentions to increase exponentially after exposure of the test group to JASA's training.

For the time being, and based on the results presented above, it is concluded that there were no visible or practically significant differences between respondents in the AEG-3 test and control groups insofar their own personal perceptions of entrepreneurial intentions as measured by the EIQ were concerned at the time of pre-testing.

Proposition P⁸ ('there were no differences between the entrepreneurial intentions of the test group and the control group as measured by the constructs of the EIQ at the time of pre-testing') is **accepted**.

8.5.5 Differences at the time of pre-testing: Demographic sub-groups (P¹⁰ to P¹⁷)

The preceding section (section 8.5.4) concluded that there were no visible or practically significant differences between the entrepreneurial attitudes (ATE test) and entrepreneurial intentions (EIQ) of the test and control groups at the time of pre-testing. Further comparative analysis was deemed necessary to examine a number of propositions emanating from the academic literature (see discussion below) and targeted for examination in this study, including the influence of gender, type of school being attended (public/private) and having self-employed parents, on the entrepreneurial attitudes and intentions of young learners.

These analyses had to be carried out while all respondents were still 'statistically similar' (i.e., no evidence of practically significant differences). As a consequence, the pre-test dataset was selected for statistical analysis to isolate the subsequent exposure of the test group to JASA's training programme as an important variable with intrinsic potential to influence the outcome. It should be noted that the discussion to follow is not based on comparative analysis between the test and control groups, but on the entire AEG-3 sample and for differences in the means between respondents from different demographic sub-groups.

8.5.5.1 Differences in means for the demographic variable 'gender' (P¹⁰ and P¹¹)

Statistics tend to show that men are more likely to be self-employed than women (see, for instance, Harding & Bosma, 2007). Female entrepreneurs face more barriers to successful

business venturing than their male counterparts (Coleman, 2007; Abor & Biekpe, 2006; Winn, 2005; Bosma, Van Praag, Thurik & De Witt, 2004). However, an earlier study by Steenekamp *et al.* (2011b: 325) based on the ATE test (Athayde, 2009a) failed to produce evidence of any practically significant differences in the entrepreneurial attitudes of young learners in secondary schools in the Sedibeng district of South Africa from the perspective of gender.

Consequently, and to further examine the proposition that there are differences between males and females insofar entrepreneurial inclination is concerned, independent samples tests (*t*-tests) were conducted and effect sizes (Cohen's *d*) calculated for the differences in means in the ATE test pre-test data for the demographic variable 'gender'. The results are presented in table 8.14 for each of the ATE test constructs showing the number of respondents (*N*), mean score ($\bar{x}$), standard deviation (*s*), *t*-test (*p*-value) and effect size (*d*-value).

Table 8.14 below indicates that there were statistically significant differences ($p \leq 0.05$) in the mean scores of female and male respondents for 'achievement' ($p = 0.007$) and 'personal control' ($p = 0.033$) as constructs underlying the entrepreneurial attitudes of young learners. These differences were neither visible ($0.5 \leq d < 0.8$) nor practically significant ($d \geq 0.8$) as indicated by small effect sizes ($d = 0.2$) for 'achievement' ($d = 0.22$) and 'personal control' ($d = 0.17$).

Table 8.14 Differences in the ATE test mean scores: Gender (P¹⁰)

Gender:	Female			Male			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Creativity	722	35.92	5.067	173	35.27	5.208	.132	0.12
Leadership	721	32.36	6.399	173	31.82	6.500	.318	0.08
Achievement	722	38.78	4.222	173	37.80	4.350	.007	0.22
Personal control	722	39.34	4.103	173	38.58	4.358	.033	0.17
Risk-taking	722	35.68	5.779	173	36.21	5.462	.279	0.09

*Equal variances assumed

Proposition P¹⁰ ('there were differences between the entrepreneurial attitudes of female and male respondents [total sample] as measured by the constructs of the ATE test at the time of pre-testing') is **rejected**.

The analysis was repeated for the EIQ pre-test data. The results in table 8.15 below show statistically significant differences in the mean scores of female and male respondents for the construct ‘subjective norms’ as indicated by $p < 0.05$, but these differences were not visible or practically significant as indicated by an effect size of $d = 0.19$.

Table 8.15 Differences in the EIQ mean scores: Gender (P¹¹)

Gender:	Female			Male			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Personal attitude	722	5.99	1.234	172	5.88	1.213	.310	0.09
Subjective norms	717	5.93	1.132	172	5.69	1.264	.012	0.19
Perceived behavioural control	720	5.51	1.276	171	5.59	1.164	.496	0.06
Entrepreneurial intention	721	5.52	1.588	172	5.50	1.511	.867	0.01

*Equal variances assumed

Proposition P¹¹ (‘there were differences between the entrepreneurial intentions of female and male respondents [total sample] as measured by the constructs of the EIQ at the time of pre-testing’) is **rejected**.

It is concluded that there were no visible or practically significant differences between female and male respondents in the AEG-3 sample in terms of their own personal perceptions of entrepreneurial attitudes (ATE test) and intentions (EIQ) at the time of pre-testing.

8.5.5.2 Differences in means for the demographic variable ‘type of school’ (P¹³ and P¹⁴)

Research has indicated that pupils attending private schools are more positive about future self-employment than pupils attending public (state) schools (Curran & Blackburn, 1990). This proposition was examined by performing *t*-tests and calculating effect sizes (Cohen’s *d*) for the differences in means in the ATE test and EIQ pre-test scores for the demographic variable ‘type of school’. The results of these tests are presented in tables 8.16 (ATE test) and 8.17 (EIQ) on the following page.

Table 8.16 Differences in the ATE test mean scores: Type of school (P¹³)

Type of school:	Public			Private			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Creativity	803	35.70	5.145	75	36.51	4.434	.189	0.16
Leadership	802	32.23	6.472	75	32.36	5.904	.863	0.02
Achievement	803	38.51	4.379	75	38.72	3.797	.693	0.05
Personal control	803	39.11	4.305	75	39.72	2.994	.231	0.14
Risk-taking	803	35.79	5.740	75	35.88	5.019	.891	0.02

*Equal variances assumed

The results in table 8.16 confirm that there were no statistically significant differences in the mean scores of learners attending public or private schools at the time of pre-testing as indicated by $p > 0.05$ for all five constructs of the ATE test.

Proposition P¹³ ('there were differences between the entrepreneurial attitudes of respondents [total sample] attending public or private schools as measured by the constructs of the ATE test at the time of pre-testing) is **rejected**.

Analysis of the EIQ pre-test dataset produced similar results. The p -value for all four constructs underlying entrepreneurial intentions was greater than 0.05 as shown in table 8.17, indicating that there were no statistically significant differences in the mean scores of learners attending public or private schools at the time of pre-testing.

Table 8.17 Differences in the EIQ mean scores: Type of school (P¹⁴)

Type of school:	Public			Private			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Personal attitude	802	5.98	1.238	75	5.79	1.240	.221	0.15
Subjective norms	798	5.86	1.185	74	6.06	0.980	.160	0.17
Perceived behavioural control	801	5.54	1.272	73	5.38	0.994	.284	0.13
Entrepreneurial intention	802	5.55	1.574	74	5.21	1.601	.077	0.21

*Equal variances assumed

Proposition P¹⁴ ('there were differences between the entrepreneurial intentions of respondents [total sample] attending public or private schools as measured by the constructs of the EIQ at the time of pre-testing') is **rejected**.

It is concluded that there were no visible or practically significant differences between learners in the AEG-3 sample attending either public or private schools in terms of their own personal perceptions of entrepreneurial attitudes (ATE test) and intentions (EIQ) at the time of pre-testing.

8.5.5.3 Differences in means for the demographic variable ‘parents’ employment’ (P¹⁶ and P¹⁷)

The analysis was repeated to examine the proposition that a family background of self-employment has a positive influence on young people’s decisions to become self-employed (Athayde, 2009a; Gird & Bagraim, 2008: 711; Lewis, 2005: 481; Moen *et al.*, 2004; Davies, 2002; Curran & Blackburn, 1990). The results for the ATE test and the EIQ pre-test data are presented respectively in tables 8.18 below and 8.19 on the following page.

Table 8.18 Differences in the ATE test mean scores: Parents’ employment (P¹⁶)

Parents’ employment:	Self-employed			Not self-employed			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Creativity	296	35.78	5.157	586	35.79	5.041	.982	0.00
Leadership	296	32.94	6.397	585	31.92	6.415	.026	0.16
Achievement	296	38.48	4.379	586	38.62	4.251	.644	0.03
Personal control	296	38.96	4.517	586	39.31	3.937	.237	0.08
Risk-taking	296	35.96	5.800	586	35.67	5.681	.479	0.05

*Equal variances assumed

Table 8.18 indicates statistically significant differences in the means of learners with self-employed parents and learners whose parents are not self-employed for the construct ‘leadership’ with a *p*-value of 0.026 ($p < 0.05$). These differences were neither visible nor practically significant as indicated by the small effect size of $d = 0.16$.

Proposition P¹⁶ (‘there were differences between the entrepreneurial attitudes of respondents [total sample] with or without self-employed parents as measured by the constructs of the ATE test at the time of pre-testing’) is **rejected**.

Table 8.19 on the following page presents the results of the analysis for the EIQ pre-test data. The *p*-value for all of the constructs is greater than 0.05, indicating that there were no statistically significant differences in the means of learners with or without self-employed parents for any of the EIQ constructs.

Table 8.19 Differences in the EIQ mean scores: Parents' employment (P¹⁷)

Parents' employment:	Self-employed			Not self-employed			Comparison	
Construct	N	$\bar{x}$	s	N	$\bar{x}$	s	p*	d*
Personal attitude	296	5.98	1.199	585	5.96	1.245	.802	0.02
Subjective norms	294	5.86	1.135	582	5.89	1.185	.750	0.02
Perceived behavioural control	295	5.60	1.182	583	5.48	1.294	.173	0.09
Entrepreneurial intention	296	5.55	1.524	584	5.50	1.592	.617	0.04

*Equal variances assumed

Proposition P¹⁷ ('there were differences between the entrepreneurial intentions of respondents [total sample] with or without self-employed parents as measured by the constructs of the EIQ at the time of pre-testing') is **rejected**.

Consequently, it is concluded that there were no visible or practically significant differences between learners with or without self-employed parents insofar their own personal perceptions of entrepreneurial attitudes (ATE test) and intentions (EIQ) were concerned at the time of pre-testing.

8.5.6 Differences at the time of pre-testing: Socio-economic sub-groups (P¹⁹ and P²⁰)

One would generally expect young people from higher socio-economic backgrounds to outperform those from lower socio-economic backgrounds in most facets of life, simply due to the former having greater access to resources. This proposition was examined using data collected from part E (socio-economic information) of the AEG-3 survey and methodology similar to that applied for the examination of the demographic sub-groups described in section 8.5.5 above.

A comparative analysis was carried out for differences in the means using the LSM[®] groups of the South African Advertising Research Foundation (SAARF, 2010), but narrowed down to the four lifestyle levels of Consumer Scope (2009) presented early on in table 8.2. The desired approach was to compare the means of the two extremities, i.e., level A ('rich') against level D ('poor'), but only one respondent in the AEG-3 dataset reported being from a poor household. Consequently, the analysis was performed for level A ('rich') and level C ('middle class') with the added advantage of these levels representing comparative proportions of the AEG-3 sample (respectively 28.8% and 25.7%).

The results of the analysis are presented in tables 8.20 (ATE test) and 8.21 (EIQ) below.

Table 8.20 Differences in the ATE test mean scores: LSM[®] groups (P¹⁹)

LSM [®] group:	Middle class			Rich			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Creativity	231	36.06	5.197	258	36.07	4.820	.983	0.00
Leadership	230	32.55	6.503	258	32.80	5.980	.653	0.04
Achievement	231	38.43	4.656	258	38.79	3.906	.361	0.08
Personal control	231	39.30	4.549	258	39.25	4.012	.895	0.01
Risk-taking	231	35.62	5.826	258	36.29	5.232	.177	0.12

*Equal variances assumed

The *p*-values in table 8.20 ($p > 0.05$ for all five constructs measuring entrepreneurial attitudes) show that there were no statistically significant differences in the mean scores of respondents from ‘middle class’ or ‘rich’ households at the time of pre-testing.

Proposition P¹⁹ (‘there were differences between the entrepreneurial attitudes of respondents [total sample] from different socio-economic backgrounds as measured by the constructs of the ATE test at the time of pre-testing’) is **rejected**.

The analysis of the EIQ pre-test results, shown in table 8.21 below, revealed statistically significant differences in the means of learners from middle class and rich households for the constructs ‘personal attitude’ ($p = 0.043$), ‘perceived behavioural control’ ($p = 0.021$) and ‘entrepreneurial intention’ ($p = 0.012$).

Table 8.21 Differences in the EIQ mean scores: LSM[®] groups (P²⁰)

LSM [®] group:	Middle class			Rich			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Personal attitude	231	6.15	1.098	257	5.94	1.259	.043	0.17
Subjective norms	230	5.93	1.072	256	5.92	1.158	.919	0.01
Perceived behavioural control	231	5.73	1.102	255	5.46	1.374	.021	0.19
Entrepreneurial intention	231	5.72	1.399	257	5.35	1.752	.012	0.21

*Equal variances assumed

Surprisingly, though, was that learners from middle class backgrounds scored higher mean scores for these constructs than learners from rich backgrounds, suggesting that greater access to resources may not be a pre-condition for the development of personal attitudes,

perceived behavioural control and entrepreneurial intentions conducive for the pursuance of an entrepreneurial lifestyle. It should be observed that these differences were neither visible ($0.5 \leq d < 0.8$) nor practically significant ($d \geq 0.8$) as indicated by small effect sizes ($d = 0.2$) of respectively 0.17, 0.19 and 0.21 for the three constructs.

As a result, **Proposition P²⁰** ('there were differences between the entrepreneurial intentions of respondents [total sample] from different socio-economic backgrounds as measured by the constructs of the EIQ at the time of pre-testing') is **rejected**.

It is concluded that there were no visible or practically significant differences between respondents from different socio-economic backgrounds in the AEG-3 sample in terms of their own personal perceptions of entrepreneurial attitude (ATE test) and intentions (EIQ) at the time of pre-testing.

8.5.7 Differences at the time of post testing: Test versus control groups (P²² and P²³)

The preceding sections confirmed that there were no differences between the test and control groups at the time of pre-testing (section 8.5.4), as well as between learners from different demographic (section 8.5.5) and socio-economic sub-groups (section 8.5.6). Although statistically significant differences existed in some instances, these differences were not large enough to be visible or practically significant. Consequently, it was concluded that the test and control groups were 'equal' at the time of pre-testing insofar their own personal perceptions of entrepreneurial attitude and intentions were concerned.

After the test group had completed the Mini-Enterprise Programme (MEP) of Junior Achievement South Africa (JASA) around August 2012, respondents in both the test and control groups were subjected to post testing using the AEG-3 survey. Having concluded earlier that there were no differences between the test and control groups at the time of pre-testing, the post test data obtained from the Attitude toward Enterprise (ATE) test and the Entrepreneurial Intention Questionnaire (EIQ) in the AEG-3 survey could subsequently be used to examine the dataset for any differences as a result of JASA's training intervention.

As a starting point, the approach to the statistical analysis of the post test dataset was identical to that employed for the pre-test data (see discussion in section 8.5.4). This approach was to examine for differences (if any) between the mean scores of respondents in

the test and control groups for each of the constructs underlying entrepreneurial attitudes in the ATE test and entrepreneurial intentions in the EIQ.

The importance of practical significance is re-emphasised for the analysis of the post test data seeing that *effective* entrepreneurship education and training should have a large enough impact on learners to have an effect in *practice*. Consequently, the first analysis of the post test data included group statistics (mean scores), Levene's test for equality of variances and *t*-tests for equality of means to examine the dataset for mean differences with statistical significance. Effect sizes (Cohen's *d*) were again used as the deciding factor to determine whether or not any real (i.e., practically significant) differences existed between respondents in the test and control groups at the time of post testing.

8.5.7.1 Differences between the test and control groups: ATE test (P²²)

The group statistics presented in table 8.22 below indicate that the entrepreneurial attitudes of respondents in the test group towards creativity, leadership, achievement, personal control and risk-taking were more positive than the attitudes of respondents in the control group as indicated by the higher mean scores of the test group for all five constructs.

Table 8.22 Group statistics for the ATE test: Test versus control groups

Group statistics					
Construct	Group	<i>N</i>	Mean	Std. deviation	Std. error mean
Creativity	Test group	343	35.08	6.164	.333
	Control group	403	34.42	5.992	.298
Leadership	Test group	342	31.87	6.922	.374
	Control group	403	29.83	6.754	.336
Achievement	Test group	341	38.32	5.166	.280
	Control group	402	37.41	5.076	.253
Personal control	Test group	342	38.63	5.666	.306
	Control group	403	38.56	5.163	.257
Risk-taking	Test group	340	35.90	6.390	.347
	Control group	404	34.79	6.471	.322

Levene's test for equality of variances, presented in table 8.23 on the following page, was non-significant ($p > 0.05$) for all five constructs, confirming that variances in the test and control groups were roughly equal in all instances.

Table 8.23 Levene's test for the ATE test: Test vs. control groups

Levene's test			
Construct	<i>F</i>	Sig.*	Result
Creativity	0.111	.739	$p > .05$; assumption of equal variances confirmed
Leadership	0.028	.866	$p > .05$; assumption of equal variances confirmed
Achievement	1.015	.314	$p > .05$; assumption of equal variances confirmed
Personal control	0.084	.772	$p > .05$; assumption of equal variances confirmed
Risk-taking	0.369	.544	$p > .05$; assumption of equal variances confirmed

*Equal variances assumed

The results in table 8.23 confirmed that the independent *t*-test presented in table 8.24 below should be interpreted using the assumption of equal variances ($p > 0.05$; not significant).

Table 8.24 Differences in the ATE test mean scores: Test vs. control groups (P²²)

Independent samples test						
Construct	<i>t</i> -test for equality of means					Effect size
	<i>t</i>	<i>df</i>	Sig.*	Mean diff.	Std. error diff.	<i>d</i>
Creativity**	-1.467	744	.143	-0.654	0.446	0.11
Leadership**	-4.056	743	.000	-2.037	0.502	0.29
Achievement**	-2.426	741	.015	-0.914	0.377	0.18
Personal control**	-0.183	743	.854	-0.073	0.397	0.01
Risk-taking**	-2.346	742	.019	-1.111	0.474	0.17

*Significance two-tailed; **assumption of equal variances confirmed in table 8.23

Table 8.24 indicates that there were no statistically significant differences ($p > 0.05$) in the mean scores of the test and control groups during post testing for the constructs 'creativity' ($p = 0.143$) and 'personal control' ($p = 0.854$). Although there were statistically significant differences ($p \leq 0.05$) between the test and control group mean scores for the constructs 'leadership' ($p = 0.000$), 'achievement' ($p = 0.015$) and 'risk-taking' ($p = 0.019$), these differences were neither visible ($0.5 \leq d < 0.8$) nor practically significant ($d \geq 0.8$) as indicated by small effect sizes ($d = 0.2$) for leadership ($d = 0.29$), achievement ($d = 0.18$) and risk-taking ($d = 0.17$).

From this perspective it may be concluded that there were no visible or practically significant differences in the entrepreneurial attitudes of respondents in the AEG-3 test and control groups at the time of post testing, even though the test group had been exposed to the training

intervention of JASA. However, the results presented in tables 8.22 to 8.24 above followed a comparative analysis of the test and control groups, or in other words, an examination for differences in the mean scores of the test and control groups at the time of post testing (similar to the tests performed on the pre-test dataset discussed in section 8.5.4).

Further analysis was deemed appropriate to examine the dataset separately for the test and control groups to determine whether differences in the mean scores existed between the pre- and post test results for each of the two groups. As a result, independent samples tests (*t*-tests) were carried out for each of the test and control groups and effect sizes (*d*-values) calculated as shown in table 8.25 below.

Table 8.25 Differences in the ATE test mean scores: Test and control groups (P²²)

Stage of testing:	Pre-test			Post test			Comparison	
Construct/group	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Creativity								
Test group	471	36.12	5.075	344	35.10	6.163	.010	0.17
Control group	427	35.42	5.107	402	34.41	5.991	.009	0.17
Leadership								
Test group	471	33.00	5.937	343	31.87	6.912	.013	0.16
Control group	426	31.40	6.813	402	29.83	6.762	.001	0.23
Achievement								
Test group	471	38.86	4.352	342	38.32	5.159	.105	0.11
Control group	427	38.22	4.221	401	37.40	5.082	.012	0.16
Personal control								
Test group	471	39.51	4.236	343	38.64	5.659	.012	0.16
Control group	427	38.80	4.133	402	38.55	5.168	.439	0.05
Risk-taking								
Test group	471	36.34	5.627	341	35.91	6.383	.315	0.07
Control group	427	35.15	5.764	403	34.78	6.475	.380	0.06

*Equal variances assumed

It is of interest to note from table 8.25 that the mean scores of the test group were consistently higher for all five constructs – although marginal in some instances – than the mean scores of the control group for both the pre- and post testing phases of the study. Also of interest, and again for all five constructs, the mean scores of both the test and control groups were lower at post testing when compared to the pre-testing exercise earlier in 2012.

Inference from the mean scores presented in table 8.25 suggests that learners in the test group were more positive about ‘creativity’, ‘leadership’, ‘achievement’, ‘personal control’ and ‘risk-taking’ as constructs underlying entrepreneurial attitude than their counterparts in the control group, both prior to and at the end of the period in which the empirical study had been conducted. At the same time, and of grave concern, both the test and control groups had ‘lost’ some of their respective positivity at the end of the study, i.e., at the time of post testing.

Although the analysis produced statistically significant differences ($p \leq 0.05$) between the pre- and post test mean scores for each of the two groups in some instances, such as for creativity (test and control groups); leadership (test and control groups); achievement (control group) and personal control (test group), these differences were neither visible nor practically significant as indicated by small effect sizes ($d = 0.20$).

Proposition P²² (‘there were differences between the entrepreneurial attitudes of the test group and the control group after exposure of the test group to entrepreneurship education and training as measured by the constructs of the ATE test at the time of post testing’) is **rejected**.

8.5.7.2 Differences between the test and control groups: EIQ (P²³)

The statistical procedures employed in the preceding section were repeated for the EIQ. The group statistics for the EIQ post test dataset are presented in table 8.26 below.

Table 8.26 Group statistics for the EIQ: Test versus control groups

Group statistics					
Construct	Group	N	Mean	Std. deviation	Std. error mean
Personal attitude	Test group	341	5.79	1.358	0.074
	Control group	404	5.52	1.360	0.068
Subjective norms	Test group	339	5.71	1.252	0.068
	Control group	404	5.68	1.161	0.058
Perceived behavioural control	Test group	339	5.61	1.168	0.063
	Control group	403	5.20	1.307	0.065
Entrepreneurial intention	Test group	342	5.34	1.538	0.083
	Control group	403	5.03	1.577	0.079

The results in table 8.26 suggest that respondents in the test group had higher entrepreneurial intentions from the perspectives of personal attitude, subjective norms, perceived behavioural control and entrepreneurial intention than respondents in the control group as indicated by the higher mean scores of the test group for all four constructs. Subsequently, Levene's test for equality of variances produced p -values greater than 0.05 for all four constructs, confirming the assumption of equal variances as shown in table 8.27 below.

Table 8.27 Levene's test for the EIQ: Test vs. control groups

Levene's test			
Construct	F	Sig.*	Result
Personal attitude	0.248	.619	$p > .05$; assumption of equal variances confirmed
Subjective norms	0.746	.388	$p > .05$; assumption of equal variances confirmed
Perceived behavioural control	2.695	.101	$p > .05$; assumption of equal variances confirmed
Entrepreneurial intention	0.294	.588	$p > .05$; assumption of equal variances confirmed

*Equal variances assumed

An independent samples test (t -test) produced p -values smaller than 0.05 for the constructs 'personal attitude' ($p = 0.007$), 'perceived behavioural control' ($p = 0.000$) and 'entrepreneurial intention' ($p = 0.008$) indicating statistically significant differences in the post test mean scores of the test and control groups as shown in table 8.28 below.

Table 8.28 Differences in the EIQ mean scores: Test vs. control groups (P^{23})

Independent samples test						
Construct	t -test for equality of means					Effect size
	t	df	Sig.*	Mean diff.	Std. error diff.	d
Personal attitude	-2.687	743	.007	-0.269	0.100	0.20
Subjective norms	-0.365	741	.715	-0.032	0.089	0.03
Perceived behavioural control	-4.409	740	.000	-0.405	0.092	0.31
Entrepreneurial intention	-2.647	743	.008	-0.303	0.115	0.19

*Significance two-tailed; assumption of equal variances confirmed in table 8.27

These differences were not visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$) as indicated by small effect sizes ($d = 0.2$) for personal attitude ($d = 0.20$) and entrepreneurial intention ($d = 0.19$). The effect size for perceived behavioural control was slightly larger at $d = 0.31$, but still below the threshold for visibility or practical significance.

These findings raise serious concerns for the impact of entrepreneurship training on young learners' intentions to become entrepreneurs if one compares the EIQ pre- and post test results. At the time of pre-testing effect sizes (d -values) of 0.39, 0.19, 0.31 and 0.43 were recorded respectively for the four constructs 'personal attitude', 'subjective norms', 'perceived behavioural control' and 'entrepreneurial intention' (see table 8.13). After exposure of the test group to JASA's training intervention (i.e., at the time of post testing), the effect sizes had contracted for three of the constructs including personal attitude ($d = 0.20$), subjective norms ($d = 0.03$) and entrepreneurial intention ($d = 0.19$).

The earlier expectation that the effect size for entrepreneurial intention would increase exponentially after exposure of the test group to the training intervention (see discussion in section 8.5.4.2) was unfounded. From this perspective it may be concluded that there were no visible or practically significant differences in the entrepreneurial intentions of the test and control groups at the time of post testing.

As with the ATE test, further analysis was carried out separately for the test and control groups to examine the dataset for differences in the mean scores between the pre- and post test results of each of the two groups. The results are shown in table 8.29 below.

Table 8.29 Differences in the EIQ mean scores: Test and control groups (P²³)

Stage of testing:	Pre-test			Post test			Comparison	
Construct/group	N	$\bar{x}$	s	N	$\bar{x}$	s	p^*	d^*
Personal attitude (PA)								
Test group	471	6.22	1.015	342	5.79	1.356	.000	0.32
Control group	426	5.68	1.382	403	5.52	1.362	.084	0.12
Subjective norms (SN)								
Test group	470	6.00	1.084	340	5.70	1.253	.000	0.23
Control group	422	5.76	1.240	403	5.68	1.161	.326	0.07
Perceived behavioural control (PBC)								
Test group	470	5.73	1.112	340	5.61	1.167	.136	0.10
Control group	424	5.30	1.365	402	5.20	1.308	.284	0.07
Entrepreneurial intention (EI)								
Test group	470	5.88	1.289	343	5.33	1.536	.000	0.35
Control group	426	5.12	1.751	402	5.03	1.579	.468	0.05

*Equal variances assumed

The comparative results shown in table 8.29 are similar to the findings reported for the ATE test (see table 8.25): The mean scores for the test group were consistently higher than for the control group at both the pre- and post testing phases, but the mean scores for both groups were lower at the time of post testing. This finding may be interpreted as meaning that the entrepreneurial intentions of respondents in both the test and control groups had in fact diminished during the study.

Even though the reported differences were statistically significant ($p \leq 0.05$) in some instances, the effect sizes in table 8.29 confirm that there were no visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$) differences between the pre- and post test results separately for the test and control groups.

Based on these findings, **proposition P²³** ('there were differences between the entrepreneurial intentions of the test group and the control group after exposure of the test group to entrepreneurship education and training as measured by the constructs of the EIQ at the time of post testing') is **rejected**.

It is concluded that there were no visible or practically significant differences between the entrepreneurial attitudes and intentions of the test and control groups after exposure of the test group to the entrepreneurial training intervention and as measured by the constructs of the ATE test and the EIQ.

8.5.8 Differences at the time of post testing: Individual respondents (P²⁵ and P²⁶)

The final stage in the statistical analysis of the AEG-3 dataset was to examine the differences in the mean scores of respondents in the test and control group at the individual level; i.e., those cases where the pre- and post test questionnaires of individual respondents could be compared using the longitudinal questionnaire ID (see part F of the AEG-3 survey in appendix two).

Two approaches were employed for this analysis: Firstly, differences in the mean scores calculated from the matched pre- and post test questionnaires of individual respondents were examined separately for the test and control groups using paired samples tests (*t*-tests) and effect sizes (Cohen's *d*). Secondly, an extension of ANOVA (analysis of variance) known as ANCOVA (analysis of covariance), was used to reduce within-group variance and eliminate confounds (Field, 2009: 396-397) in the exploration of the AEG-3 dataset.

The main advantage of ANCOVA is its ability to exert stricter experimental control by taking account of confounding variables, and in so doing, provide a ‘purer’ measure of the effect of the experimental manipulation (Field, 2009: 406), in this case, the training intervention of Junior Achievement South Africa (JASA). Accordingly, ANCOVA was deemed best suited to identify statistically significant, visible or practically significant differences between the mean scores of respondents at the pre- and post testing phases, particularly when considering that the analysis was carried out only for respondents of whom the pre- and post test surveys could be linked using the questionnaire ID.

8.5.8.1 Differences between individuals’ pre- and post tests: ATE test (P^{25})

The ATE test data was examined for differences in the mean scores calculated respectively from the pre- and post test questionnaires of individual respondents that had been linked with the longitudinal questionnaire ID. The results of the paired samples tests (t -tests) carried out for this purpose are shown in table 8.30 below with the effect size separately for the test and control groups and for each construct.

Table 8.30 Differences in the ATE test mean scores: Matched respondents (P^{25})

Stage of testing:	Pre-test			Post test			Comparison	
Construct/group	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	p^*	<i>d</i>
Creativity								
Test (matched surveys)	124	36.07	4.571	124	35.37	5.084	.080	0.15
Control (matched surveys)	113	35.02	4.986	113	34.93	4.845	.851	0.02
Leadership								
Test (matched surveys)	124	32.52	5.864	124	31.71	7.172	.152	0.14
Control (matched surveys)	113	31.20	6.672	113	29.63	6.467	.009	0.24
Achievement								
Test (matched surveys)	123	39.08	3.104	123	38.87	2.874	.532	0.07
Control (matched surveys)	113	38.71	3.676	113	37.78	3.547	.008	0.25
Personal control								
Test (matched surveys)	124	39.77	3.068	124	39.45	3.367	.339	0.11
Control (matched surveys)	113	39.09	3.280	113	39.21	3.109	.714	0.04
Risk-taking								
Test (matched surveys)	125	36.45	5.282	125	36.55	5.453	.850	0.02
Control (matched surveys)	113	35.57	5.014	113	35.68	5.489	.822	0.02

*Significance 2-tailed

The results in table 8.30 indicate that learners in the test group were more positive about the constructs ‘creativity’, ‘leadership’, ‘achievement’, ‘personal control’ and ‘risk-taking’ than learners in the control group as indicated by the consistent higher mean scores of learners in the test group both at the time of pre- and post testing. It is again of interest to note that the mean scores of respondents in both the test and control groups for the constructs ‘creativity’, ‘leadership’ and ‘achievement’ were lower at the time of post testing, suggesting that their entrepreneurial attitudes had weakened during the study.

To the contrary, the mean scores of respondents had increased marginally for the constructs ‘personal control’ (control group only) and ‘risk-taking’ (both groups) from the pre-test to the post testing phase. Statistically significant differences ($p \leq 0.05$) existed between the pre- and post test mean scores of the matched control group for the constructs ‘leadership’ ($p = 0.009$) and ‘achievement’ ($p = 0.008$), but none of these differences were visible or practically significant as indicated by the small effect sizes of respectively $d = 0.24$ and $d = 0.25$.

The results for the analysis of covariance (ANCOVA) where the dataset had been corrected for the pre-test results are presented in table 8.31 below.

Table 8.31 ANCOVA for the ATE test mean scores: Matched respondents (P²⁵)

Group:	Test group			Control group			Comparison	
Construct	<i>N</i>	$\bar{x}$	Std. error	<i>N</i>	$\bar{x}$	Std. error	<i>p</i>	<i>d</i>
Creativity	124	35.09	.379	113	35.24	.398	.793	0.03
Leadership	124	31.34	.517	113	30.04	.542	.086	0.23
Achievement	123	38.81	.270	113	37.85	.281	.015	0.32
Personal control	124	39.34	.275	113	39.34	.288	.992	0.00
Risk-taking	125	36.37	.449	113	35.88	.472	.453	0.10

Note: Abridged results; full results presented in appendix eight.

The results in table 8.31 reveal higher mean scores for the matched test group for the constructs ‘leadership’, ‘achievement’ and ‘risk-taking’, but statistically significant differences ($p \leq 0.05$) only for the construct ‘achievement’ ($p = 0.015$). These differences were neither visible ($0.5 \leq d < 0.8$) nor practically significant ($d \geq 0.8$) as indicated by the effect size of $d = 0.32$.

Proposition P²⁵ ('there were differences between the entrepreneurial attitudes of individual respondents from the test and control groups after exposure of the test group to entrepreneurship education and training as measured by the constructs of the ATE test at the time of post testing') is **rejected**.

8.5.8.2 Differences between individuals' pre- and post tests: EIQ (P²⁶)

A similar analysis was carried out for the EIQ dataset. The results in table 8.32 below suggest that learners in the matched test group had higher entrepreneurial intentions than their peers in the matched control group at both the time of pre- and post testing as indicated by the higher mean scores of the test group for all four constructs.

Table 8.32 Differences in the EIQ mean scores: Matched respondents (P²⁶)

Stage of testing:	Pre-test			Post test			Comparison	
Construct/group	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i>
Personal attitude (PA)								
Test (matched surveys)	124	6.20	1.090	124	5.81	1.436	.001	0.36
Control (matched surveys)	113	5.71	1.356	113	5.48	1.321	.039	0.17
Subjective norms (SN)								
Test (matched surveys)	123	6.02	1.123	123	5.80	1.233	.063	0.20
Control (matched surveys)	112	5.81	1.204	112	5.76	1.096	.654	0.05
Perceived behavioural control (PBC)								
Test (matched surveys)	123	5.61	1.154	123	5.56	1.230	.650	0.05
Control (matched surveys)	111	5.18	1.488	111	4.97	1.305	.072	0.14
Entrepreneurial intention (EI)								
Test (matched surveys)	124	5.71	1.445	124	5.36	1.586	.010	0.24
Control (matched surveys)	112	4.95	1.778	112	4.73	1.600	.156	0.12

*Significance 2-tailed

Table 8.32 also reveals that the mean scores of both the matched test and control groups were lower at the time of post testing, again indicating that the entrepreneurial intentions of both groups had diminished to some extent during the course of the study. From this perspective, statistically significant differences ($p \leq 0.05$) were recorded for the constructs 'personal attitude' (test group, $p = 0.001$; control group, $p = 0.039$) and 'entrepreneurial intention' (test group only, $p = 0.010$). None of these differences were visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$) as indicated by effect sizes of $d = 0.36$, $d = 0.17$ and $d = 0.24$ respectively.

The results for the analysis of covariance (ANCOVA) where the dataset had been corrected for the pre-test results are presented in table 8.33 below.

Table 8.33 ANCOVA for the EIQ mean scores: Matched respondents (P²⁶)

Group:	Test group			Control group			Comparison	
Construct	<i>N</i>	$\bar{x}$	Std. error	<i>N</i>	$\bar{x}$	Std. error	<i>p</i>	<i>d</i>
Personal attitude	124	5.67	.104	113	5.65	.109	.895	0.02
Subjective norms	123	5.76	.099	112	5.80	.104	.815	0.03
Perceived behavioural control	123	5.46	.097	111	5.09	.103	.010	0.34
Entrepreneurial intention	124	5.17	.123	112	4.94	.129	.213	0.17

Note: Abridged results; full results presented in appendix eight.

The results in table 8.33 show higher mean scores (marginally) on the part of the matched test group for the constructs ‘personal attitude’, ‘perceived behavioural control’ and ‘entrepreneurial intention’, but statistically significant differences ($p \leq 0.05$) only for the construct ‘perceived behavioural control’ with a p -value of 0.010. These differences were again below the threshold of $d \geq 0.5$ for effect sizes indicating visibility and $d \geq 0.8$ for practical significance as indicated by the d -value of 0.34.

Proposition P²⁶ (‘there were differences between the entrepreneurial intentions of individual respondents from the test and control groups after exposure of the test group to entrepreneurship education and training as measured by the constructs of the EIQ at the time of post testing’) is **rejected**.

Having exhausted various solutions for comparative tests to examine the AEG-3 dataset for differences in the mean scores of the test and control groups, even to the point where the analysis focused exclusively on the matched pre- and post test results of individual respondents, it is concluded that there were no visible or practically significant differences between the entrepreneurial attitudes (ATE test) and entrepreneurial intentions (EIQ) of the test and control groups after exposure of the test group to the training intervention of JASA and at the time of post testing.

8.6 CHAPTER SUMMARY

Chapter eight reported on the design, results and discussion of the AEG-3 empirical study, introduced with the design of the study, discussion of structural improvements to the original

version of the AEG-3 survey and the incorporation of a pre- and post test control-group design.

The sampling method was described as convenience sampling and the method used for the gathering of data was explained in detail. The AEG-3 study sample was defined as comprising 898 respondents in the pre-test phase, followed by 751 respondents in the post testing phase. An introduction to the statistical analysis of the dataset followed, including a list of 27 propositions identified for examination to address the primary objective and some of the secondary objectives of the study.

The chapter progressed to the analysis and presentation of the demographic and socio-economic profiles of the sample both at the time of pre-testing and subsequent post testing for comparison with the South African population as reported in Census 2011 (Stats SA, 2012) and by Consumer Scope (2009).

Following these introductory sections, the construct validity of the AEG-3 measuring instruments was examined using principal factors analysis and SPSS (2011) software. Two of the AEG-3 instruments, the Attitude toward Enterprise (ATE) test and the Entrepreneurial Intention Questionnaire (EIQ), loaded to a sufficient extent with acceptable levels of factor interpretability, and were subsequently accepted for further analysis. The factor analysis for the third instrument, the General Enterprising Tendency (GET) test, failed to produce sufficient factor loadings, causing concerns for the usability of the instrument in the study.

The next section of the chapter presented the results of reliability testing for each of the AEG-3 measuring instruments using Cronbach's alpha (α). The ATE test was shown to have acceptable levels of reliability measured against the predetermined threshold of $\alpha \geq 0.50$, but the construct 'intuition in problem-solving' was excluded from further analysis due to a borderline alpha of 0.510 and based upon the earlier research findings of Athayde (2009a), Steenekamp (2009) and Steenekamp *et al.* (2011b). The EIQ had high levels of reliability for three of the constructs ($\alpha > 0.80$), whereas the fourth construct ('subjective norms') had an alpha of 0.643 (still above the acceptable threshold of $\alpha \geq 0.50$).

As a result of these findings, both these instruments were accepted for further analysis (subject to the specified exclusions). The GET test produced low alphas ($\alpha < 0.50$) for all five constructs. This finding, combined with poor factor loading experienced during principal

factors analysis, resulted in exclusion of the GET test from any further analysis for the remainder of the discussion.

The analysis of the data progressed to the examination of differences in the mean scores of the test and control groups at pre-testing. These tests were carried out to determine whether the test and control groups were 'equal' at the onset of the research project. Independent samples tests (*t*-tests) were carried out to examine the respective datasets for statistically significant differences, but effect sizes (Cohen's *d*) were used to determine whether any visible or practically significant differences existed between the two groups.

The results indicated that there were statistically significant differences in the mean scores of the test and control groups, but none of these differences were visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$). As a result, it was concluded that there were no differences between the test and control groups in terms of their entrepreneurial attitudes (ATE test) and entrepreneurial intentions (EIQ) at the time of pre-testing. This finding suggested that any differences between the test and control groups at the time of post testing and after the test group had been exposed to the training intervention of Junior Achievement South Africa (JASA), could be ascribed to the impact of the intervention on the test group.

Similar tests were carried out to examine the datasets for differences in the mean scores of respondents from different demographic sub-groups, including the variables 'gender', 'type of school' and 'parents' employment'. Statistically significant differences existed in some instances, but none of these differences were large enough to produce effect sizes indicating visible or practically significant differences for both the ATE test and the EIQ. As a consequence, it was concluded that there were no differences between respondents originating from different demographic groups in South Africa.

These tests were repeated for the socio-economic sub-groups included in the sample using the LSM[®] groups of the South African Advertising Research Foundation (SAARF, 2010), but narrowed down to the four lifestyle levels of Consumer Scope (2009). Statistically significant differences were recorded in some instances (EIQ only), but none of these differences were visible or practically significant. As a result, it was concluded that there were no differences between respondents originating from different socio-economic groups in South Africa.

Having concluded that there were no visible or practically significant differences between the test and control groups or respondents (total sample) from different demographic and socio-

economic groups at the time of pre-testing, the statistical analysis turned to the post test datasets to examine for differences in the mean scores after the test group had been exposed to JASA's Mini-Enterprise Programme (MEP).

The analysis followed the same approach as for the pre-test data (i.e., independent samples tests and the calculation of effect sizes), but included tests for both the test versus the control groups using the post test datasets and separately for the test and control groups using the pre- and post test results for each group. The results for both instruments (ATE test and the EIQ) and for both approaches indicated statistically significant differences in several instances, but again none of these differences were large enough to be recognised as being visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$). This finding led to the conclusion that there were no differences in the entrepreneurial attitudes and intentions of the test and control groups after exposure of the test group to entrepreneurship education and training.

The final analysis focused on individual respondents of whom the pre- and post test AEG-3 surveys could be matched using the longitudinal questionnaire ID included in the survey. This approach resulted in a much smaller sample and focused, firstly, on differences in the mean scores between the pre- and post test surveys of individual respondents calculated separately for the test and control groups using paired samples tests (*t*-tests), and secondly, using analysis of covariance (ANCOVA) to reduce within-group variance and eliminate confounds in a comparative analysis between matched respondents respectively in the test and control groups.

The results for both analyses revealed statistically significant differences ($p \leq 0.05$) for both the ATE test and the EIQ in some instances, but none of these differences had visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$) effect sizes. As a result of these findings, it was concluded that there were no differences between the entrepreneurial attitudes and intentions of individual respondents in the test and control groups after exposure of the test group to entrepreneurship education and training.

In summary chapter eight concludes that the Mini-Enterprise Programme (MEP) of Junior Achievement South Africa (JASA) did not have a large enough impact on the entrepreneurial attitudes (ATE test) and intentions (EIQ) of learners in the test group to be visible or to have any real effect in practice (i.e., be practically significant).

CHAPTER NINE

EMPIRICAL RESEARCH PART THREE:

PMY-3 MAIN STUDY DESIGN, RESULTS AND DISCUSSION

9.1 INTRODUCTION

Chapter nine is the second of two chapters describing the main empirical study using two mutually exclusive samples from secondary school learners in South Africa. It specifically deals with the gathering of data, the statistical analysis of the data and the presentation and discussion of the results flowing from the PMY-3 Youth Entrepreneurship Survey (hereinafter referred to as the PMY-3 study).

The PMY-3 study represents the second tier of a ‘two-in-one’ approach (see chapter seven, section 7.7.1) to empirical research aimed at examining youth entrepreneurship and the impact of entrepreneurship education and training on young learners in South African secondary schools. More specifically, the overriding objective of the PMY-3 study was to determine whether an entrepreneurship training programme has had any statistically quantifiable impact on the personal wellbeing, adaptive cognition and innovative skills of young learners exposed to an entrepreneurial training programme (the ‘test’-group) when measured against non-participating learners (the ‘control’-group).

Accordingly, the remainder of this chapter focuses on the PMY-3 study design, the sampling method, the gathering of data, the statistical analysis of the data and the presentation and discussion of the results for the pre-testing phase, the post testing phase and finally, comparisons between the test and control groups over the same period as the AEG-3 study.

9.2 THE DESIGN OF THE PMY-3 STUDY

Following several structural improvements to the PMY-3 Youth Entrepreneurship Survey for School Learners (version 2.1) described in section 7.6 of chapter seven, the PMY-3 Youth Entrepreneurship Survey version 2.2 (see appendix two) was incorporated into the main PMY-3 study as the appropriate instrument to examine the personal wellbeing, adaptive cognition and innovative skills of respondents in the study.

The design of the PMY-3 study is also based upon a pre- and post test control-group design. Similar to the design of the AEG-3 study described in section 8.2 of chapter eight,

respondents in both the test and control groups had to be tested prior to application of the planned intervention, followed by exposure of only the test group to entrepreneurship education and training for a period of time, and subsequent post testing of both the test and control groups to examine whether the intervention has had any quantifiable impact on respondents in the test group.

Once the preparations for the PMY-3 study had been finalised (see section 7.7 of chapter seven, and in particular, the discussions surrounding the training of the research partner[s] and logistical issues), the researcher, in close collaboration with Junior Achievement South Africa (JASA) and JASA partners/agents spread throughout the country, commenced with the identification of learners in South African secondary schools for the test and control groups and arrangements to conduct the pre-testing procedure prior to any of the learners (test group) receiving exposure to the training programme of JASA.

9.3 THE PMY-3 STUDY SAMPLING METHOD

The sample for the PMY-3 study was also based upon the method of convenience sampling due to concurrent compilation with the AEG-3 sample (see discussion in section 8.3, chapter eight). From a sample of 26 secondary schools in seven of the nine provinces of South Africa (see appendix seven), approximately fifty percent of learners who had shown the desire to participate in JASA's 'Mini-Enterprise Programme' (MEP) (the balance of the AEG-3 test group allocation) were allocated to the PMY-3 test group, whereas approximately fifty percent of learners who were not interested in participating in JASA's programme (the balance of the AEG-3 control group) were allocated to the PMY-3 control group.

9.4 DATA GATHERING FOR THE PMY-3 STUDY

The data gathering process for the PMY-3 study ran concurrently with data collection for the AEG-3 study. In order to prevent duplication the reader is referred to section 8.4 of chapter eight where the concomitant discussion applies in its entirety to the PMY-3 study, save for the administration of a different instrument (the PMY-3 survey).

9.4.1 Method of data gathering: PMY-3 study

The data gathering method for the PMY-3 study was identical to the methodology described for the AEG-3 study in section 8.4.1 of chapter eight and will not be repeated to prevent

duplication. Following the completion, group-coding, collection and phase-coding of both the pre- and post test questionnaires, the coded, numbered PMY-3 surveys were delivered together with the completed AEG-3 surveys to Statistical Consultation Services of the North-West University (Potchefstroom campus) for data capturing and subsequent statistical analysis.

9.4.2 The PMY-3 study sample

The responses of all participating learners were included in the sample. A total of 910 completed PMY-3 surveys were collected during pre-testing, later followed by 749 surveys during post testing as shown in table 9.1 below.

Table 9.1 Sample size of the PMY-3 study

Sample size of the PMY-3 study						
Group	Pre-test		Post test		Difference at post testing	
	<i>n</i>	Percent	<i>n</i>	Percent	<i>n</i>	Percent
Test	487	53.5	376	50.2	-111	-22.8
Control	423	46.5	373	49.8	-50	-11.8
Total	910	100.0	749	100.0	-161	-17.7

Table 9.1 shows that a significant number of learners (22.8%) either withdrew from the JASA programme during the study or failed to participate in the post testing exercise. The control group appeared to be more stable with the loss of 11.8 percent of learners. Overall, the number of participating learners decreased by 161 (17.7%) between the pre- and post testing phases of the study. The sample sizes for both the pre- and post testing phases of the PMY-3 study were subsequently accepted for further analysis.

9.4.3 Statistical analysis of the PMY-3 dataset

Similar to the approach followed for the AEG-3 study in chapter eight, the PMY-3 dataset was analysed by Statistical Consultation Services of the North-West University (Potchefstroom campus) using Statistica (Statsoft, 2011) and SPSS (SPSS, 2011) computer software. Basic analysis included the composition and characteristics of the sample by means of descriptive statistics, followed by examination of the construct validity and reliability of the PMY-3 measuring instruments by respectively performing factor analysis and calculating Cronbach's alpha coefficients.

Data obtained from measuring instruments in the PMY-3 survey that had acceptable levels of construct validity and reliability was further analysed using *t*-tests and effect sizes (*d*-values) to examine the relationship between the extracted factors and the test and control groups to determine whether any statistically significant and practically significant differences existed at both the time of pre- and post testing.

The relationships between the extracted factors and some of the demographical variables, as well as the socio-economic variables obtained using the Living Standard Measure (LSM[®]) of the South African Advertising Research Foundation (SAARF, 2010), were analysed in an attempt to isolate potentially significant influences on the personal wellbeing, adaptive cognition and innovation skills of young learners.

The overall approach to the statistical analysis of the PMY-3 dataset was to address the following propositions underlying both the primary objective (see section 1.4.1, chapter one) and some of the secondary objectives (see section 1.4.2.2, chapter one) of this study:

- P²⁸:** The Personal Wellbeing Index (PWI-SC) in the PMY-3 survey has acceptable levels of construct validity.
- P²⁹:** The Measure of Adaptive Cognition (MAC) in the PMY-3 survey has acceptable levels of construct validity.
- P³⁰:** The Youth Innovation Skills Measurement Tool (YISQ) in the PMY-3 survey has acceptable levels of construct validity.
- P³¹:** The PWI-SC in the PMY-3 survey has acceptable levels of reliability.
- P³²:** The MAC in the PMY-3 survey has acceptable levels of reliability.
- P³³:** The YISQ in the PMY-3 survey has acceptable levels of reliability.
- P³⁴:** There were no differences between the personal wellbeing of the test group and the control group as measured by the constructs of the PWI-SC at the time of pre-testing.
- P³⁵:** There were no differences between the adaptive cognition of the test group and the control group as measured by the constructs of the MAC at the time of pre-testing.

- P³⁶:** There were no differences between the innovative skills of the test group and the control group as measured by the constructs of the YISQ at the time of pre-testing.
- P³⁷:** There were differences between the personal wellbeing of female and male respondents (total sample) as measured by the constructs of the PWI-SC at the time of pre-testing.
- P³⁸:** There were differences between the adaptive cognition of female and male respondents (total sample) as measured by the constructs of the MAC at the time of pre-testing.
- P³⁹:** There were differences between the innovative skills of female and male respondents (total sample) as measured by the constructs of the YISQ at the time of pre-testing.
- P⁴⁰:** There were differences between the personal wellbeing of respondents (total sample) attending public or private schools as measured by the constructs of the PWI-SC at the time of pre-testing.
- P⁴¹:** There were differences between the adaptive cognition of respondents (total sample) attending public or private schools as measured by the constructs of the MAC at the time of pre-testing.
- P⁴²:** There were differences between the innovative skills of respondents (total sample) attending public or private schools as measured by the constructs of the YISQ at the time of pre-testing.
- P⁴³:** There were differences between the personal wellbeing of respondents (total sample) with or without self-employed parents as measured by the constructs of the PWI-SC at the time of pre-testing.
- P⁴⁴:** There were differences between the adaptive cognition of respondents (total sample) with or without self-employed parents as measured by the constructs of the MAC at the time of pre-testing.
- P⁴⁵:** There were differences between the innovative skills of respondents (total sample) with or without self-employed parents as measured by the constructs of the YISQ at the time of pre-testing.

- P⁴⁶:** There were differences between the personal wellbeing of respondents (total sample) from different socio-economic backgrounds as measured by the constructs of the PWI-SC at the time of pre-testing.
- P⁴⁷:** There were differences between the adaptive cognition of respondents (total sample) from different socio-economic backgrounds as measured by the constructs of the MAC at the time of pre-testing.
- P⁴⁸:** There were differences between the innovative skills of respondents (total sample) from different socio-economic backgrounds as measured by the constructs of the YISQ at the time of pre-testing.
- P⁴⁹:** There were differences between the personal wellbeing of the test group and the control group after exposure of the test group to entrepreneurship education and training as measured by the constructs of the PWI-SC at the time of post testing.
- P⁵⁰:** There were differences between the adaptive cognition of the test group and the control group after exposure of the test group to entrepreneurship education and training as measured by the constructs of the MAC at the time of post testing.
- P⁵¹:** There were differences between the innovative skills of the test group and the control group after exposure of the test group to entrepreneurship education and training as measured by the constructs of the YISQ test at the time of post testing.
- P⁵²:** There were differences between the personal wellbeing of individual respondents from the test and control groups after exposure of the test group to entrepreneurship education and training as measured by the constructs of the PWI-SC at the time of post testing.
- P⁵³:** There were differences between the adaptive cognition of individual respondents from the test and control groups after exposure of the test group to entrepreneurship education and training as measured by the constructs of the MAC at the time of post testing.
- P⁵⁴:** There were differences between the innovative skills of individual respondents from the test and control groups after exposure of the test group to entrepreneurship education and training as measured by the constructs of the YISQ test at the time of post testing.

9.5 RESULTS AND DISCUSSION OF THE PMY-3 STUDY

The remainder of this chapter firstly examines the demographic profile of the PMY-3 study sample, followed by the presentation and discussion of statistical evidence to support either acceptance or rejection of the propositions listed in section 9.4.3 above.

9.5.1 Demographic and socio-economic profiles

The demographic and socio-economic profiles of the PMY-3 sample again include respondents' province of residence, type of school being attended, grade at school, age, gender, ethnic grouping, having (a) self-employed parent(s) or not, and standard of living as measured by the Living Standard Measure (LSM[®]) of the South African Advertising Research Foundation (SAARF, 2010), but reported in accordance with the four 'Lifestyle Levels' developed by Consumer Scope (2009).

Table 9.2 below presents comparative figures for the pre- and post testing phases of the PMY-3 study for each of these demographic and socio-economic variables.

Table 9.2 Sample characteristics of the PMY-3 study

Sample characteristics of the PMY-3 study							
Stage of testing		Pre-test			Post test		
Characteristic		<i>n</i>	%	Cum. %	<i>n</i>	%	Cum. %
Province	Eastern Cape	0	0.0	0.0	0	0.0	0.0
	Free State	49	5.4	5.4	46	6.1	6.1
	Gauteng	345	37.9	43.3	300	40.0	46.1
	KwaZulu-Natal	190	20.9	64.2	157	21.0	67.1
	Limpopo	0	0.0	64.2	1	0.1	67.2
	Mpumalanga	98	10.8	75.0	61	8.2	75.4
	Northern Cape	27	2.9	77.9	35	4.7	80.1
	North-West	90	9.9	87.8	66	8.8	88.9
	Western Cape	107	11.8	99.60	77	10.3	99.2
	Not answered	4	0.4	100.0	6	0.8	100.0
	Total	910	100.0	100.0	749	100.0	100.0
Type of school	Public	818	89.9	89.9	669	89.3	89.3
	Private	78	8.6	98.50	71	9.5	98.8
	Not answered	14	1.5	100.0	9	1.2	100.0
	Total	910	100.0	100.0	749	100.0	100.0

Table 9.2 cont.

Sample characteristics of the PMY-3 study

Stage of testing		Pre-test			Post test		
Characteristic		<i>n</i>	%	Cum. %	<i>n</i>	%	Cum. %
Grade at school	9	10	1.1	1.1	6	0.8	0.8
	10	418	45.9	47.0	330	44.0	44.8
	11	463	50.9	97.90	411	54.9	99.7
	12	16	1.8	99.7	0	0.0	99.7
	Not answered	3	0.3	100.0	2	0.3	100.0
	Total	910	100.0	100.0	749	100.0	100.0
Age	14	18	2.0	2.0	4	0.5	0.5
	15	155	17.0	19.0	93	12.4	12.9
	16	315	34.6	53.6	248	33.1	46.0
	17	287	31.5	85.1	270	36.1	82.1
	18	87	9.6	94.7	70	9.4	91.5
	Older than 18	45	5.0	99.7	60	8.0	99.5
	Not answered	3	0.3	100.0	4	0.5	100.0
	Total	910	100.0	100.0	749	100.0	100.0
Gender	Female	693	76.2	76.2	564	75.3	75.3
	Male	214	23.5	99.7	184	24.6	99.9
	Not answered	3	0.3	100.00	1	0.1	100.0
	Total	910	100.0	100.0	749	100.0	100.0
Ethnic origin	Asian/Indian	49	5.4	5.4	42	5.6	5.6
	Black African	730	80.2	85.6	614	82.0	87.6
	Coloured	111	12.2	97.8	87	11.6	99.2
	White	3	0.3	98.1	2	0.3	99.5
	Not answered	17	1.9	100.0	4	0.5	100.0
	Total	910	100.0	100.0	749	100.0	100.0
Self-employed parent(s)	Yes	297	32.7	32.7	235	31.4	31.4
	No	600	65.9	98.6	493	65.8	97.2
	Not answered	13	1.4	100.0	21	2.8	100.0
	Total	910	100.0	100.0	749	100.0	100.0
Living standard (LSM® groups)	Level D: Poor	1	0.1	0.1	0	0.0	0.0
	Level C: Middle class	218	23.9	24.0	1	0.1	0.1
	Level B: Upper middle class	442	48.6	72.60	1	0.1	0.2
	Level A: Rich	249	27.4	100.00	747	99.8	100.0
	Total	910	100.0	100.0	749	100.0	100.0

Note: Frequencies in red indicate inconsistencies between the pre- and post test datasets.

Table 9.2 reveals significant similarities with the characteristics of the AEG-3 sample (see table 8.2, section 8.5.1, chapter eight). This phenomenon is attributable to the methodology used for the selection of the samples for the study, i.e., the selection of both samples from the same schools in the respective provinces of South Africa. Accordingly, the majority of respondents in the PMY-3 sample can once again be described as female black Africans aged

15 to 17 years attending grades 10 and 11 at public schools mainly in Gauteng and KwaZulu-Natal. Slightly more respondents (48.6% as opposed to the 45.4% in the AEG-3 sample) came from upper middle class homes and one third of the sample (same as for the AEG-3 sample) had self-employed parents.

As with the AEG-3 sample discussed in section 8.5.1 of chapter eight, the PMY-3 sample was representative of the black African population at 80.2% (Census 2011: 79.2%), but somewhat over-representative of the Asian/Indian and Coloured population respectively at 5.4% and 12.2% of the sample (Census 2011: 2.5% and 8.9% respectively). The white population was slightly more under-represented at 0.3% of the sample compared with the 0.7% reported for the AEG-3 sample and significantly lower than the 8.9% reported by Census 2011 (Stats SA, 2012: 21).

The PMY-3 sample, not unlike the AEG-3 sample, was skewed in terms of gender-based participation with 76.2% females and 23.5% males (0.3% of respondents did not disclose gender) compared with the 51.3% females and 48.7% males reported by Census 2011 (Stats SA, 2012: 19). The gender-based sample ratio did not change much for the duration of the empirical study with 564 (75.3%) females and 184 (24.6%) males participating in the post testing phase towards the latter part of 2012.

The living standards of respondents in the PMY-3 sample revealed a similar trend as reported for the AEG-3 sample in chapter eight. During pre-testing more than 27% of respondents reported coming from 'rich' homes, whereas more than double the estimate of 20% upper middle class homes in South Africa (Consumer Scope, 2009) was reported by 48.6% of respondents. Again, only one respondent (0.1%) from the total sample of 910 reported living in conditions of poverty at the time of pre-testing.

These figures changed dramatically during post testing with 99.8% of respondents indicating a lifestyle level classified by Consumer Scope (2009) as being rich. It is once again uplifting that so many South Africans in the PMY-3 sample are living in abundance, but again, these results should be approached with caution as the statements comprising the socio-economic part of the PMY-3 survey (part E in appendix two) are identical to those in the AEG-3 survey, and therefore, also subject to misapprehension and possible inaccuracies.

9.5.2 Construct validity of the PMY-3 measuring instruments (P²⁸ to P³⁰)

The PMY-3 pre-test dataset was analysed to assess the discriminant validity of the various items in each of the three measuring instruments respectively aimed at examining the personal wellbeing, adaptive cognition and innovative skills of respondents by performing factor analysis using SPSS (2011) software. The purpose of the factor analysis was to determine whether the questions/statements included in the respective instruments are indeed related to the different constructs targeted for measurement (Field, 2009: 645).

Principal factors analysis (principal axis factoring) with oblique rotation (oblimin with Kaiser Normalisation) was again selected as the most appropriate extraction method to explore the dataset and examine the propositions set out in section 9.4.3 above. The reader is reminded that this technique assumes that the sample is the population of interest and care should again be exercised when extrapolating the results discussed below beyond the PMY-3 sample (Field, 2009: 636-637). The conclusions to be presented henceforth are restricted to the PMY-3 sample and any generalisation of the results can only be confirmed if the same factor structures are revealed with different samples.

The approach to examining the construct validity of the PMY-3 measuring instruments is identical to that of the AEG-3 study (chapter eight; section 8.5.2) and will not be reiterated, save for confirming that Kaiser's criterion (the retention of factors with eigenvalues greater than one) will be applied (Field, 2009: 640) and factor loadings greater than 0.30 will again be considered significant due to the size of the PMY-3 sample ($n > 600$) for reasons presented earlier.

9.5.2.1 Factor analysis of the Personal Wellbeing Index (PWI-SC) (P²⁸)

A principal factors analysis was conducted on the single construct of the PWI-SC with oblique rotation (oblimin with Kaiser Normalisation). The Kaiser-Meyer-Olkin (KMO) measure was used to test the dataset for sampling adequacy and the value of KMO 0.691 was above the acceptable limit of 0.50 (Field, 2009: 660).

Bartlett's test of sphericity yielded a significance of $p < 0.001$ for the singular factor, indicating that correlation between the seven items in the factor was sufficiently large for principal factors analysis (Field, 2009: 671).

The principal factors analysis confirmed one factor with an eigenvalue greater than one as shown in table 9.3 below.

Table 9.3 Principal factors analysis for the PWI-SC (P²⁸)

Principal factors analysis for the PWI-SC (N = 910)			
№	Item	Variables	
		HAPPINESS	OTHER
A.2	How happy are you about the things you have? Like the money you have and the things you own?	.427	
A.3	How happy are you with your health?	.412	
A.4	How happy are you with the things you want to be good at?	.597	
A.5	How happy are you about getting on with the people you know?	.330	.225
A.6	How happy are you about how safe you feel?	.394	.143
A.7	How happy are you about doing things away from your home?	-.110	.689
A.8	How happy are you about what may happen to you later on in your life?	.152	.406
Eigenvalues		1.272	
Kaiser-Meyer-Olkin (KMO) measure		.691	

Note: Factor loadings greater than 0.30 are considered significant based on the sample size.

After rotation (converged in six iterations), one factor was confirmed as the theoretical dimension of overall happiness with life (HAPPINESS) as a latent variable in the measurement of the personal wellbeing of school children.

The single factor, labelled HAPPINESS ('overall happiness with life as a whole'), extracted five items (A.2, A.3, A.4, A.5, A.6) with factor loadings greater than 0.30. Items A.5 and A.6 also loaded onto a second factor with respective loadings of 0.225 and 0.143, but the higher factor loadings (respectively 0.330 and 0.394) onto HAPPINESS were recognised.

Items A.7 and A.8 loaded onto HAPPINESS respectively with small factor loadings of -0.110 and 0.152, but onto a second factor with significant factor loadings of 0.689 (A.7) and 0.406

(A.8). Item A.7 examines the PWI domain ‘feeling part of the community’, and it is conceivable that the question ‘how happy are you about doing things away from your home?’ is related to feeling part of a community. As a result, there is sufficient cause to accept the higher factor loading of 0.689 for the HAPPINESS construct.

A similar point can be argued for item A.8: Cummins and Lau (2005) allocate this item to the PWI domain ‘future security’, and the question ‘how happy are you about what may happen to you later on in your life?’ can be linked to the concept of future security. Again there is sufficient cause to accept the higher factor loading of 0.406 for the HAPPINESS construct.

The interpretability of the factor loadings in table 9.3 provides some evidence of construct validity, but Cummins and Lau (2005) recommend that construct validity of the PWI domains be tested through multiple regression. It is proposed that the PWI is designed as the first level deconstruction of ‘life as a whole’, and that regression of the seven domains in A.2 to A.8 against item A.1 should produce unique variance for each domain as well as total explained variance in excess of 50% (Cummins & Lau, 2005: 12).

As a result, the seven domains tested in items A.2 to A.8 (independent variables) were modelled against the dependent variable (A.1: ‘overall happiness with life as a whole’) to test the construct validity of the PWI-SC domains (A.2 to A.8). The results are presented in table 9.4 below.

Table 9.4 Summary of the PWI-SC multiple regression model (P²⁸)

Summary of the PWI-SC multiple regression model				
Model	<i>R</i>	<i>R</i> Square	Adjusted <i>R</i> Square	Std. error of the estimate
1	.410*	.168	.162	1.899

*Predictors: (Constant A.1), A.2, A.3, A.4, A.5, A.6, A.7, A.8.

The *R*-square (R^2) statistic in table 9.4 indicates how much of the variability in the outcome is accounted for by the predictors or independent variables (Field, 2009: 235), in this case, the various domains examined in items A.2 to A.8. The R^2 statistic of 0.168 means that the PWI domains ‘standard of living’ (A.2), ‘personal health’ (A.3), ‘achievement in life’ (A.4), ‘personal relationships’ (A.5), ‘personal safety’ (A.6), ‘feeling part of the community’ (A.7) and ‘future security’ (A.8) account for 16.8% of the variation in respondents’ ‘overall happiness with life as a whole’ (A.1). This outcome is below the $R^2 > 0.50$ (greater than 50%)

recommended by Cummins and Lau (2005), suggesting that the PWI-SC lacks construct validity insofar the PMY-3 dataset is concerned.

Cummins and Lau (2005: 12) further propose that regression of the seven domains (A.2 to A.8) against the dependent variable (A.1) should produce unique variance for each of the domains. This proposition was also examined as shown in table 9.5 below.

Table 9.5 Coefficients for the PWI-SC multiple regression model (P²⁸)

Coefficients* for the PWI-SC regression model						
Model	Items	Un-standardised coefficients		Standardised coefficients	<i>t</i>	Sig.
		<i>B</i>	Std. error	β		
1	A.1 (Constant)	3.096	.401		7.730	.000
	A.2	.143	.029	.163	5.009	.000
	A.3	.087	.028	.100	3.104	.002
	A.4	.123	.031	.135	3.985	.000
	A.5	.123	.035	.116	3.528	.000
	A.6	.109	.029	.123	3.701	.000
	A.7	-.029	.025	-.038	-1.181	.238
	A.8	.072	.027	.088	2.657	.008

*Dependent variable: A.1

The *b*-values (column labelled '*B*') explain the relationships between 'overall happiness' (A.1) and each of the predictors (A.2 to A.8): A positive *b*-value indicates a positive relationship between the predictor and the outcome, whereas a negative *b*-value represents a negative relationship (Field, 2009: 238).

Table 9.5 shows that all but one of the predictors (A.7) have a positive relationship with 'overall happiness'. It follows that respondents experienced the idea of 'doing things away from their homes' (A.7) as having a negative influence on their perceptions of overall happiness with life. To the contrary, the remaining predictors were experienced as having a positive influence on respondents' feelings of personal wellbeing.

More important for this discussion, though, is to determine whether each of the domains produced unique variance during regression as proposed by Cummins and Lau (2005). According to Field (2009: 239), standardised beta values (β) indicate the number of standard deviations a specific outcome will change as a result of one standard deviation change in the

predictor. Standardised beta values are all measured in standard deviation units, thus providing better insight into the importance of a given predictor in a model.

From table 9.5 it is evident that the PWI-SC domains (predictors) produced unique variance as indicated by standardised beta values of (in descending order) $\beta = 0.163$ for ‘standard of living’ (A.2), $\beta = 0.135$ for ‘achievement in life’ (A.4), $\beta = 0.123$ for ‘personal safety’ (A.6), $\beta = 0.116$ for ‘personal relationships’ (A.5), $\beta = 0.100$ for ‘personal health’ (A.3), $\beta = 0.088$ for ‘future security’ (A.8) and $\beta = -0.038$ for ‘feeling part of the community’ (A.7). These standardised beta values also confirm the results of the principal factors analysis in table 9.3 by indicating that items A.2 to A.6 with significant factor loadings onto the construct HAPPINESS represent the more important predictors in the outcome of subsequent analyses.

Notwithstanding the total explained variance in table 9.4 being below the threshold of $R^2 > 0.50$, it is concluded that there is evidence of construct validity for the PWI-SC as indicated by the interpretability of the factor loadings during principal factors analysis (table 9.3) and unique variance for each of the seven domains during multiple regression modelling (table 9.5). **Proposition P²⁸** (‘the Personal Wellbeing Index [PWI-SC] in the PMY-3 survey has acceptable levels of construct validity’) is **accepted**.

9.5.2.2 Factor analysis of the Measure of Adaptive Cognition (MAC) (P²⁹)

A principal factors analysis was conducted for each of the five factors of the MAC with oblique rotation (oblimin with Kaiser Normalisation). The Kaiser-Meyer-Olkin (KMO) measure was used to test the dataset for sampling adequacy and all values for the individual factors (KMO of 0.699 to 0.811) were above the acceptable limit of 0.50 (Field, 2009: 660). Bartlett’s test of sphericity yielded a significance of $p < 0.001$ for all factors, indicating that correlation between items in these factors was sufficiently large for principal factors analysis (Field, 2009: 671).

The principal factors analysis for each of the five factors produced eigenvalues greater than one as shown in table 9.6 on the following pages. The results are again presented in one table, but should be interpreted as separate factor analyses for each of the factors as shown in the table. Factor loadings in the column labelled ‘other’ again refer to items that did not load onto the factor corresponding with the unshaded boxes in table 9.6, or items that loaded onto both the corresponding factor and another (unidentified) factor.

Table 9.6 Principal factors analysis for the MAC (P²⁹)

Principal factors analysis for the MAC (N = 910)							
№	Item	Variables					
		GOAL	META-K	META-E	META-C	MONIT	OTHER
B.1	I often define goals for myself.	.573					
B.2	I understand how the successful completion of a task relates to my goals.	.424					
B.3	I set specific goals before I begin a task.	.555					
B.4	I ask myself how well I have reached my goals once I have finished a task.	.574					
B.5	When doing a task, I often measure my progress against my goals.	.508					
B.6	I think of many different ways to solve a problem and then choose the best one.		.486				
B.7	I challenge my own thoughts about a task before I begin.		.527				
B.8	I think about how other people may react to my actions.		.123				.266
B.9	I find myself automatically using strategies that have worked in the past.		-.103				.823
B.10	I perform best when I already have knowledge of the task.		.225				
B.11	I create my own examples to understand information better.		.473				
B.12	I try to use strategies (methods) that have worked in the past.						.655
B.13	I ask myself questions about the task before I begin.		.486				
B.14	I try to translate new information into my own words.		.509				
B.15	I try to break problems down into smaller parts.		.500				

Table 9.6 cont. Principal factors analysis for the MAC (*N* = 910)

№	Item	Variables					
		GOAL	META-K	META-E	META-C	MONIT	OTHER
B.16	I focus on the meaning and importance of new information.		.611				
B.17	I think about what I really need to achieve before I begin a task.			.445			
B.18	I use different strategies (methods) depending on the situation.			.406			.134
B.19	I organise my time to best achieve my goals.			.503			
B.20	I am good at organising information.			.623			-.104
B.21	I know what kind of information is important to consider when faced with a problem.			.575			
B.22	I focus my attention on important information.			.532			
B.23	Something inside me tells me when a given strategy I use will be most effective.			.153			.386
B.24	I depend on my intuition (feeling) to help me develop strategies.						.623
B.25	I ask myself if I have considered all the options when solving a problem.				.530		
B.26	I ask myself if there was an easier way to do things after I finish a task.				.410		
B.27	I ask myself if I have considered all the options after I solve a problem.				.700		
B.28	I rethink my own thoughts when I get confused.				.357		
B.29	I ask myself if I have learned as much as I could have after I finish a task.				.422		
B.30	I often review to help me understand important relationships.					.410	
B.31	I stop and go back over information that is not clear.					.439	

Table 9.6 cont. Principal factors analysis for the MAC (*N* = 910)

№	Item	Variables					
		GOAL	META-K	META-E	META-C	MONIT	OTHER
B.32	I am aware of what strategies I use when busy with a given task.					.581	
B.33	I find myself analysing the usefulness of a given strategy when busy with a task.					.507	
B.34	I find myself pausing regularly to check my understanding of the problem or situation at hand.					.551	
B.35	I ask myself how well I am doing while I am performing a new task.					.506	
B.36	I stop and reread when I get confused.					.420	
Eigenvalues		1.40	2.21	1.95	1.24	1.69	
Kaiser-Meyer-Olkin (KMO) measure		.756	.773	.811	.699	.783	

Note: Factor loadings greater than 0.30 are considered significant based on the sample size.

The analysis confirmed five factors as the theoretical dimensions of goal orientation (GOAL), metacognitive knowledge (META-K), metacognitive experience (META-E), metacognitive choice (META-C) and monitoring (MONIT) as latent variables in the measurement of the meta-cognition (the ability to understand and control one's learning) of young people (see section 6.4.4 in chapter six for an explanation of these constructs).

Factor one, labelled GOAL ('goal orientation'), extracted all five items (B.1 to B.5) with factor loadings greater than 0.40. The significant loading of all five items included by Haynie and Shepherd (2009) confirmed that respondents regarded these items as being related to their personal goal orientation.

Factor two, labelled META-K ('metacognitive knowledge'), extracted seven items (B.6, B.7, B.11, B.13, B.14, B.15 and B.16) with factor loadings greater than 0.40, indicating that these items were regarded by respondents as being associated with their metacognitive knowledge. Item B.8 ('I think about how other people may react to my actions') loaded onto META-K and another factor with low (insignificant) factor loadings of 0.123 and 0.266 respectively. Item B.10 ('I perform best when I already have knowledge of the task') loaded only onto

META-K, but with a low factor loading of 0.225. The analysis could not produce any solution for these two items (B.8 and B.10).

Item B.9 loaded onto META-K with a factor loading of -0.103, but onto a second factor with a significant loading of 0.823. Subsequent revaluation of the statement ‘I find myself automatically using strategies that have worked in the past’ indicated that it can be associated with knowledge gained by an individual, and as a result, the higher factor loading of 0.823 was retained for the META-K factor.

The same consideration was applied to item B.12 (‘I try to use strategies [methods] that have worked in the past’) due to obvious similarities with item B.9. Item B.12 did not load onto META-K at all, but onto a second factor with a significant loading of 0.655. The higher factor loading was recognised for the META-K factor.

Factor three, labelled META-E (‘metacognitive experience’), extracted six items (B.17 to B.22) with factor loadings greater than 0.40, indicating that respondents regarded these items as being related to their levels of metacognitive experience. Items B.18 and B.20 also loaded onto a second factor, but with insignificant factor loadings of respectively 0.134 and -0.104. The higher factor loadings onto META-E (0.406 and 0.623) were acknowledged.

Item B.23 (‘something inside me tells me when a given strategy I use will be most effective’) loaded onto META-E with a low factor loading of 0.153, but onto a second factor with a significant loading of 0.386. Item B.23 is associated with the so-called ‘gut-feeling’ directing behaviour, and accordingly, it can be associated with metacognitive experience gained by an individual. As a consequence, the higher factor loading of 0.386 was retained for the META-E factor.

Item B.24 (‘I depend on my intuition [feeling] to help me develop strategies’) is of a similar nature and can again be associated with metacognitive experience. Although this item did not load onto META-E at all, the significant factor loading of 0.623 onto a second factor was accepted for the META-E factor.

Factor four, labelled META-C (‘metacognitive choice’), extracted all five items (B.25 to B.29) with factor loadings greater than 0.30. The significant loading of all five items included by Haynie and Shepherd (2009) confirmed that respondents associated these items with their exertion of choice between alternative decision frameworks.

Factor five, labelled MONIT ('monitoring'), extracted all seven items (B.30 to B.36) with factor loadings greater than 0.40. The significant loading of all seven items included by Haynie and Shepherd (2009) confirmed that respondents regarded these items as being related to the selection and employment of a particular framework to elicit some cognitive or behavioural outcome.

The results of the principal factors analysis, combined with the interpretability of the factors presented above, provides sufficient evidence of construct validity. **Proposition P²⁹** ('the Measure of Adaptive Cognition [MAC] in the PMY-3 survey has acceptable levels of construct validity') is **accepted**.

9.5.2.3 Factor analysis of the Youth Innovation Skills Measurement Tool (YISQ) (P³⁰)

A principal factors analysis was conducted for each of the six constructs of the YISQ with oblique rotation (oblimin with Kaiser Normalisation). The Kaiser-Meyer-Olkin (KMO) measure was used to test the dataset for sampling adequacy and all values for the individual factors (KMO of 0.515 to 0.801) were above the acceptable limit of 0.50 (Field, 2009: 660).

Bartlett's test of sphericity yielded a significance of $p < 0.001$ for all factors, indicating that correlation between items in these factors was sufficiently large for principal factors analysis (Field, 2009: 671).

The principal factors analysis for each of the six factors produced eigenvalues greater than one for five of the factors. The sixth factor, labelled RISK ('risk-propensity'), had to be discarded due to the eigenvalue of 0.813 being smaller than one.

The results of the principal factors analysis for each of the factors are presented in table 9.7 on the following pages, but should again be interpreted separately for each factor. Also note that factor loadings in the column labelled 'other' again refer to items that did not load onto the factor corresponding with the unshaded boxes in table 9.7, or items that loaded onto both the corresponding factor and another (unidentified) factor.

Table 9.7 Principal factors analysis for the YISQ (P³⁰)

Principal factors analysis for the YISQ (N = 910)								
№	Item	Variables						
		DEPENDENT	Independent					
			CREATE	LEAD	ENER	EFFIC	RISK	OTHER
C.1	I would like to invent something that is new to the world.	.529						
C.2	My dream is to set up a new company that offers something completely new.	.564						
C.3	I intend getting a job in a large company and using my skills to develop new products or services.	.467						
C.4	I intend to design or create something new such as in music, software, buildings, dance, film, television, or fashion.	.403						
C.5	I would like to do something no one has ever thought of before that would bring about positive changes to society, the...	.540						
C.6	I would like my lessons to involve lots of different creative activities.		.589					
C.7	I would like lessons that involve different activities rather than just sitting at a desk.		.510					
C.8	I feel proud when I have designed and made something myself.		.384					
C.9	I like doing things that are very practical.		.476					
C.10	I have chosen subjects at school that give me the freedom to express my own ideas.							-.700
C.11	The subjects I have chosen at school require my imagination.							-.703
C.12	I really like being the leader of a group.			.686				
C.13	Project work gives me the chance to take a leading role in the group.			.713				
C.14	When working in a group, I do my best to convince other students to accept my ideas.			.433				

Table 9.7 cont. Principal factors analysis for the YISQ (N = 910)

№	Item	Variables						
		DEPENDENT	Independent					
			CREATE	LEAD	ENER	EFFIC	RISK	OTHER
C.15	I am often chosen to be the team leader or captain of my team.			.652				
C.16	I like organising other people.			.620				
C.17	My friends follow my suggestions when they cannot make up their minds.			.476				
C.18	It gives me energy when I am rewarded for good work (e.g., a school day trip).							.704
C.19	I feel really motivated when I produce something that no one else has.							.382
C.20	I feel really enthusiastic (happy and excited) about my chosen subjects at school.				.417			
C.21	It is energising and rewarding to help other people.				.271			.348
C.22	I really push myself hard to get good grades at school.				.758			-.112
C.23	When I am doing something, I like to feel that it has a purpose or a goal.				.492			
C.24	I have lots of energy for work and play.				.352			
C.25	I like to follow my interests outside school where I feel more in control.					.105		-.382
C.26	I want my future work to have many challenges that I would find interesting.					.571		
C.27	Once I start something I like to finish it.					.426		
C.28	I would join a club or group if it was something I really wanted to do, even if my friends would not also join.					.326		
C.29	I am not easily turned by other people's opinions, but do what I think is best.					.416		

Table 9.7 cont. Principal factors analysis for the YISQ (N = 910)

№	Item	Variables						
		DEPENDENT	Independent					
			CREATE	LEAD	ENER	EFFIC	RISK	OTHER
C.30	Learners should have a say in how a school is run.							-.392
C.31	My spending money is important because it gives me a sense of independence.							-.627
C.32	I have been brought up to think for myself.							-.298
C.33	When I make choices I want to be as sure as possible what the future results will be for me.						.667	.113
C.34	I want my work to provide me with opportunities to show that I can solve problems.						.550	
C.35	I would not take a risk on an activity that might spoil my chances of getting good grades.						.165	.479
C.36	Fearing that I might fail my exams is a powerful motivator at school.							.254
Eigenvalues		1.27	1.37	2.20	1.69	1.32	0.81	
Kaiser-Meyer-Olkin (KMO) measure		.700	.651	.801	.776	.735	.515	

Note: Factor loadings greater than .30 are considered significant based on the sample size.

After rotation (converged in four to eight iterations) five factors could be confirmed as the theoretical dimensions of a stronger or weaker innovation pathway (dependent variables), and CREATE ('creativity'), LEAD ('leadership'), ENER ('energy') and EFFIC ('self-efficacy') as latent variables in the measurement of the innovative skills of young people.

Factor one, labelled DEPENDENT ('dependent variables'), extracted all five items (C.1 to C.5) with factor loadings greater than 0.40. The significant loading of all five items included by Chell and Athayde (2009) confirmed that these items group together to distinguish between respondents pursuing stronger or weaker innovation pathways.

Factor two, labelled CREATE ('creativity'), extracted four items (C.6 to C.9) with factor loadings greater than 0.35, indicating that respondents associated these items with their own

creativity. Items C.10 and C.11 loaded onto a second factor respectively with factor loadings of -0.700 and -0.703, but reference to phrases such as ‘freedom to express one’s own ideas’ (C.10) and ‘subjects that require imagination’ (C.11) can indeed be associated with the construct of creativity. As a result, the respective factor loadings were retained for factor two (CREATE).

Factor three, labelled LEAD (‘leadership’), extracted all six items (C.12 to C.17) with factor loadings greater than 0.40. The significant loading of all six items included by Chell and Athayde (2009) confirmed that respondents regarded these items as being related to their leadership skills.

Factor four, labelled ENER (‘energy’), extracted four items (C.20, C.22, C.23 and C.24) with factor loadings greater than 0.35. Items C.18 and C.19 loaded onto a second factor with respective factor loadings of 0.704 and 0.382, but both items are related to uplifting feelings (‘energy givers’) following ‘rewards for good work’ (C.18) and ‘contributing something unique’ (C.19). Accordingly, the significant factor loadings were acknowledged for the ENER-factor. Item C.21 loaded onto ENER with a below-par factor loading of 0.271, but onto a second factor with a significant factor loading of 0.348. This item examines the concept of feeling ‘energised’ and ‘rewarded’ after helping other people, providing sufficient cause to retain the higher factor loading for the ENER-factor.

Factor five, labelled EFFIC (‘self-efficacy’), extracted four items (C.26, C.27, C.28 and C.29) with factor loadings greater than 0.30. It follows that these items were regarded by respondents as being related to their personal self-efficacy. Item C.25 (‘I like to follow my interests outside school where I feel more in control’) loaded onto EFFIC with an insignificant loading of 0.105, but onto a second factor with a factor loading of -0.382. The reference to ‘feeling in control’ in item C.25 provided sufficient cause to retain the higher factor loading for the EFFIC-factor.

Still with factor five (EFFIC), items C.30 and C.31 loaded onto a different factor with respective loadings of -0.392 and -0.627. The statements ‘learners should have a say in how a school is run’ (C.30) and ‘my spending money is important because it gives me a sense of independence’ (C.31) are somewhat removed from the concept of self-efficacy, but a decision was made to acknowledge the factor loadings for the EFFIC-construct in line with the findings of Chell and Athayde (2009). Item C.32 did not load onto EFFIC at all, but onto a

second factor with a below-par factor loading of -0.298. The analysis could not provide any solution for this item.

The sixth factor, included by Chell and Athayde (2009) as the propensity towards taking risks ('risk-propensity'), comprises items C.33 to C.36, but was excluded earlier on in the analysis due to its eigenvalue (0.813) not conforming to Kaiser's criterion of being greater than one (Field, 2009: 640).

The results of the principal factors analysis, combined with the interpretability of the factors presented above, provides some evidence of construct validity. **Proposition P³⁰** ('the Youth Innovation Skills Measurement Tool [YISQ] in the PMY-3 survey has acceptable levels of construct validity') is **accepted**.

9.5.3 Reliability of the PMY-3 measuring instruments (P³¹ to P³³)

The discussion in section 8.5.3 of chapter eight applies *verbatim* for the reliability testing of the PMY-3 survey measuring instruments. Accordingly the discussion will not be repeated, save for reminding the reader that Cronbach's alphas equal to or greater than 0.70 ($\alpha \geq 0.70$) are still the benchmark throughout the analyses to follow, but lower alphas of 0.50 minimum ($\alpha \geq 0.50$) are treated as an indication of reliability due to the psychological nature of the constructs being examined.

The method of presenting Cronbach's alphas for each subscale (factor) in each of the instruments will again be applied in line with the recommendation that the formula should be applied separately to items relating to different factors (Cronbach 1951, cited in Field, 2009: 675).

9.5.3.1 Reliability of the Personal Wellbeing Index (PWI-SC) (P³¹)

All 910 responses were used to calculate the reliability of the extracted factor presented in table 9.3, subject to software generated exclusions by list-wise deletion based on all variables in the procedure. The Cronbach's alpha for the PWI-SC is presented in table 9.8 on the following page.

Table 9.8 Cronbach's alpha score for the PWI-SC (P³¹)

Cronbach's alpha score for the PWI-SC				
Items	Construct (independent variables)	N (Valid)*	Nº of items	Cronbach's alpha
A.2 – A.8	Personal Wellbeing Index domains	867	7	.567

*Exclusions from list-wise deletion based on all variables in the procedure.

Table 9.8 indicates that the PWI-SC is reliable measured against the level of $\alpha \geq 0.50$ recognised for the purpose of this study. **Proposition P³¹** ('the PWI-SC in the PMY-3 survey has acceptable levels of reliability') is **accepted**.

9.5.3.2 Reliability of the Measure of Adaptive Cognition (MAC) (P³²)

All 910 responses were used to calculate the reliability of the extracted factors presented in table 9.6, subject to software generated exclusions by list-wise deletion based on all variables in the procedure. The Cronbach's alpha for each of the subscales (factors) of the MAC are shown below in table 9.9.

Table 9.9 Cronbach's alpha scores for the MAC (P³²)

Cronbach's alpha scores for the MAC				
Items	Construct (independent variables)	N (Valid)*	Nº of items	Cronbach's alpha
B.1 – B.5	Goal orientation (GOAL)	895	5	.652
B.6 – B.16	Metacognitive knowledge (META-K)	820	11	.714
B.17 – B.24	Metacognitive experience (META-E)	890	8	.702
B.25 – B.29	Metacognitive choice (META-C)	900	5	.596
B.30 – B.36	Monitoring (MONIT)	893	7	.665

*Exclusions from list-wise deletion based on all variables in the procedure.

Table 9.9 confirms that the MAC has high levels of reliability for the constructs META-K ('metacognitive knowledge') with $\alpha = 0.714$ and META-E ('metacognitive experience') with $\alpha = 0.702$. GOAL ('goal orientation') and MONIT ('monitoring') are slightly less reliable with respective alphas of $\alpha = 0.652$ and $\alpha = 0.665$, but still well above the limit of $\alpha \geq 0.50$ acknowledged for this study. Finally, the Cronbach's alpha of 0.596 for the construct META-C ('metacognitive choice') is below $\alpha \geq 0.60$, but still well within the limit of $\alpha \geq 0.50$ acknowledged for reliability within the framework of this study. **Proposition P³²** ('the MAC in the PMY-3 survey has acceptable levels of reliability') is **accepted**.

9.5.3.3 Reliability of the Youth Innovation Skills Measurement Tool (YISQ) (P³³)

All 910 responses were again used to calculate the reliability of the extracted factors presented in table 9.7, subject to software generated exclusions by list-wise deletion based on all variables in the procedure. The Cronbach's alpha for each of the subscales (factors) of the YISQ are shown below in table 9.10.

Table 9.10 Cronbach's alpha scores for the YISQ (P³³)

Cronbach's alpha scores for the YISQ				
Items	Construct (independent variables)	N (Valid)*	N _o of items	Cronbach's alpha
C.1 – C.5	Types of innovators (dependent variables)	885	5	.614
C.6 – C.11	Creativity (CREATE)	903	6	.591
C.12 – C.17	Leadership (LEAD)	897	6	.768
C.18 – C.24	Energy (ENER)	866	7	.664
C.25 – C.32	Self-efficacy (EFFIC)	893	8	.577
C.33 – C.36	Risk-propensity (RISK)	885	4	.235
C.6 – C.36	YISQ (overall)	831	31	.836

*Exclusions from list-wise deletion based on all variables in the procedure.

Table 9.10 reveals that the YISQ has high levels of reliability for the construct LEAD ('leadership') with $\alpha = 0.768$ (above the benchmark of $\alpha \geq 0.70$). The dependent variables (C.1 to C.5) produced an alpha of 0.614, whereas the remaining constructs (independent variables) produced Cronbach's alphas of $\alpha = 0.591$ for CREATE ('creativity'), $\alpha = 0.664$ for ENER ('energy') and $\alpha = 0.577$ for EFFIC ('self-efficacy'). The alphas for these constructs provide sufficient indication of reliability measured against the threshold of $\alpha \geq 0.50$ set for this study.

The Cronbach's alpha for RISK ('risk-propensity') of $\alpha = 0.235$ is significantly below the benchmark of $\alpha \geq 0.70$ and the threshold of $\alpha \geq 0.50$ set for this study. This finding corresponds with the poor interpretability of the factor loadings in table 9.7 and the discussion in section 9.5.2.3 explaining that the RISK-factor could not be retained due to the eigenvalue of 0.813 being below one as stipulated by Kaiser's criterion (Field, 2009: 640).

Overall, the YISQ appears to have high levels of reliability as indicated by the Cronbach's alpha of 0.836 across the 31 items (independent variables) included in the instrument.

Proposition P³³ ('the YISQ in the PMY-3 survey has acceptable levels of reliability') is

accepted, subject to the exclusion of the construct RISK from further analysis. As a consequence, further discussion of the YISQ results will be limited to the analysis of data for the constructs CREATE, LEAD, ENER and EFFIC.

9.5.4 Differences at the time of pre-testing: Test versus control groups (P³⁴ to P³⁶)

The preceding sections concluded that the Personal Wellbeing Index for School Children (PWI-SC), the Measure of Adaptive Cognition (MAC) and the Youth Innovation Skills Measurement Tool (YISQ) in the PMY-3 survey have acceptable levels of construct validity and reliability. As a result, and similar to the procedures carried out in chapter eight, data obtained from these instruments could be subjected to further analyses to examine the differences between the test and control groups, as well as between different demographic and socio-economic groups represented in the sample.

The starting point was again to determine whether the test and control groups were ‘equal’ at the time of pre-testing, i.e., that there were no significant differences between respondents in the test and control groups prior to the test group being exposed to the training intervention of Junior Achievement South Africa (JASA). This proposition was examined by analysing the differences (if any) between the mean scores of respondents in the test and control groups for the constructs underlying personal wellbeing in the PWI-SC, adaptive cognition in the MAC and innovative skills in the YISQ.

The approach was identical to the methodology explained in chapter eight and need not be duplicated in this chapter (see section 8.5.4 of chapter eight for discussion). However, it is important to remind the reader that the PMY-3 dataset was also considered as representative of a small population (sub-population of the original population of secondary school learners in South Africa); hence, effect sizes (Cohen’s *d*) are used as the deciding statistic to conclude whether or not any real (i.e., practically significant) differences existed between respondents in the test and control groups at the time of pre-testing.

9.5.4.1 Differences between the test and control groups: PWI-SC (P³⁴)

The group statistics in table 9.11 on the following page suggest that respondents in the test group experienced higher levels of overall happiness with life, personal relationships and personal wellbeing compared to respondents in the control group as indicated by the consistent higher mean scores of the test group.

Table 9.11 Group statistics for the PWI-SC: Test versus control groups (P³⁴)

Group statistics					
Construct	Group	N	Mean	Std. deviation	Std. error mean
Overall happiness	Test group	482	8.15	1.964	.089
	Control group	420	7.71	2.174	.106
Personal relationships: Family	Test group	485	8.90	1.964	.089
	Control group	420	8.80	1.951	.095
Personal relationships: Friends	Test group	485	8.33	1.963	.089
	Control group	420	8.10	2.145	.105
Personal relationships: Teachers	Test group	485	8.35	1.918	.087
	Control group	420	8.14	2.123	.104
Personal Wellbeing Index (PWI)	Test group	486	76.67	12.278	.557
	Control group	422	74.04	12.869	.626

It is of interest to note that the overall measure of subjective wellbeing (Personal Wellbeing Index [PWI] row in table 9.11) for both the test group (76.67) and the control group (74.04) was within the gold standard of 75 ± 2.5 %SM (72.50 to 77.50 %SM) and the gold standard of 70 to 80 %SM for Western populations, but above the gold standard of 60 to 70 %SM for non-Western populations (Cummins & Lau, 2005: 12).

Levene's test (shown below in table 9.12) was carried out to examine the differences in the mean scores presented in table 9.11 above.

Table 9.12 Levene's test for the PWI-SC: Test vs. control groups (P³⁴)

Levene's test			
Construct	F	Sig.*	Result
Overall happiness	4.939	.027	$p \leq .05$; assumption of equal variances violated
Personal relationships: Family	1.100	.295	$p > .05$; assumption of equal variances confirmed
Personal relationships: Friends	3.009	.083	$p > .05$; assumption of equal variances confirmed
Personal relationships: Teachers	6.738	.010	$p \leq .05$; assumption of equal variances violated
Personal Wellbeing Index	0.269	.604	$p > .05$; assumption of equal variances confirmed

*Equal variances assumed

The results in table 9.12 confirm that there were differences in variances in the test and control groups for the non-PWI domains 'overall happiness' and 'personal relationships with teachers' as indicated by $p \leq 0.05$. Levene's test was non-significant ($p > 0.05$) for the non-

PWI domains ‘personal relationships with family’ and ‘personal relationships with friends’, as well as for the ‘personal wellbeing index’ (PWI-domain), indicating that variances in the test and control groups were roughly equal at the time of pre-testing.

The outcome of Levene’s test was used to select the appropriate results for interpretation of the independent *t*-test presented in table 9.13 below, i.e., to determine whether equal variances may be assumed ($p > 0.05$; not significant) or not ($p \leq 0.05$; significant).

Table 9.13 Differences in the PWI-SC mean scores: Test vs. control groups (P³⁴)

Independent samples test						
Construct	<i>t</i> -test for equality of means					Effect size
	<i>t</i>	<i>df</i>	Sig.*	Mean diff.	Std. error diff.	<i>d</i>
Overall happiness	-3.121	851.63	.002	-0.433	.139	0.20
Pers. relationships: Family**	-0.779	903	.436	-0.102	.130	0.05
Pers. relationships: Friends**	-1.716	903	.087	-0.234	.137	0.11
Pers. relationships: Teachers	-1.602	852.05	.109	-0.217	.135	0.10
Personal Wellbeing Index**	-3.149	906	.002	-2.631	.835	0.20

*Significance two-tailed; **assumption of equal variances confirmed in table 9.12

Table 9.13 shows $p > 0.05$ for the non-PWI domains ‘personal relationships with family, friends and teachers’, indicating that there were no significant differences between the mean scores of the test and control groups at the time of pre-testing. There were statistically significant differences between the means ($p \leq 0.05$) for the non-PWI domain ‘overall happiness’ and the personal wellbeing index as indicated by $p = 0.002$ in both cases. These differences were neither visible ($0.5 \leq d < 0.8$) nor practically significant ($d \geq 0.8$) as indicated by small effect sizes ($d = 0.2$) for ‘overall happiness’ ($d = 0.20$) and the personal wellbeing index ($d = 0.20$).

It is concluded that there were no visible or practically significant differences between respondents in the PMY-3 test and control groups insofar their own personal perceptions of personal wellbeing as measured by the PWI-SC were concerned at the time of pre-testing.

Proposition P³⁴ (‘there were no differences between the personal wellbeing of the test group and the control group as measured by the constructs of the PWI-SC at the time of pre-testing’) is **accepted**.

9.5.4.2 Differences between the test and control groups: MAC (P³⁵)

A similar analysis was carried out for the MAC results. The group statistics in table 9.14 suggest that respondents in the test group had higher levels of adaptive cognition relating to the concepts of goal orientation, metacognitive knowledge, metacognitive experience, metacognitive choice and monitoring compared to the adaptive cognition of respondents in the control group as indicated by the higher mean scores of the test group for all five constructs.

Table 9.14 Group statistics for the MAC: Test versus control groups (P³⁵)

Group statistics					
Construct	Group	N	Mean	Std. deviation	Std. error mean
Goal orientation	Test group	486	5.86	.955	.043
	Control group	421	5.69	1.003	.049
Metacognitive knowledge	Test group	486	5.79	.773	.035
	Control group	422	5.67	.833	.041
Metacognitive experience	Test group	486	5.76	.811	.037
	Control group	422	5.63	.929	.045
Metacognitive choice	Test group	486	5.80	.886	.040
	Control group	420	5.56	1.087	.053
Monitoring	Test group	486	5.94	.770	.035
	Control group	418	5.73	.984	.048

The results for Levene's test for equality of variances are shown in table 9.15 below.

Table 9.15 Levene's test for the MAC: Test vs. control groups (P³⁵)

Levene's test			
Construct	F	Sig.*	Result
Goal orientation	0.664	.415	$p > .05$; assumption of equal variances confirmed
Metacognitive knowledge	2.901	.089	$p > .05$; assumption of equal variances confirmed
Metacognitive experience	3.629	.057	$p > .05$; assumption of equal variances confirmed
Metacognitive choice	12.125	.001	$p \leq .05$; assumption of equal variances violated
Monitoring	22.597	.000	$p \leq .05$; assumption of equal variances violated

*Equal variances assumed

Levene's test confirmed the assumption of equal variances in the means of the test and control groups for the constructs 'goal orientation', 'metacognitive knowledge' and 'metacognitive experience' as indicated by p -values greater than 0.05. The small p -values for the constructs 'metacognitive choice' and 'monitoring' ($p = 0.001$ and $p = 0.000$ respectively) indicated that equal variances could not be assumed for interpretation of the subsequent independent samples test (t -test).

The t -test produced p -values smaller than 0.05 for all five constructs as shown in table 9.16, indicating that statistically significant differences existed between the means of the test and control groups at the time of pre-testing.

Table 9.16 Differences in the MAC mean scores: Test vs. control groups (P³⁵)

Independent samples test						
Construct	t -test for equality of means					Effect size
	t	df	Sig.*	Mean diff.	Std. error diff.	d
Goal orientation**	-2.628	905	.009	-0.171	.065	0.17
Metacognitive knowledge**	-2.288	906	.022	-0.122	.053	0.15
Metacognitive experience**	-2.285	906	.023	-0.132	.058	0.14
Metacognitive choice	-3.496	807.83	.000	-0.233	.067	0.21
Monitoring	-3.667	784.81	.000	-0.218	.059	0.22

*Significance two-tailed; **assumption of equal variances confirmed in table 9.15

These differences were not visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$) as indicated by the small effect sizes ($d = 0.2$) for 'goal orientation' ($d = 0.17$), 'metacognitive knowledge' ($d = 0.15$), 'metacognitive experience' ($d = 0.14$), 'metacognitive choice' ($d = 0.21$) and 'monitoring' ($d = 0.22$) in table 9.16.

It is concluded that there were no visible or practically significant differences between respondents in the PMY-3 test and control groups insofar their personal perceptions of adaptive cognition as measured by the MAC were concerned at the time of pre-testing.

Consequently, **proposition P³⁵** ('there were no differences between the adaptive cognition of the test group and the control group as measured by the constructs of the MAC at the time of pre-testing') is **accepted**.

9.5.4.3 Differences between the test and control groups: YISQ (P³⁶)

The YISQ data was also analysed for statistically and practically significant differences between the mean scores of respondents in the test and control groups. The group statistics in table 9.17 below suggest that the innovative skills-level of the test group was higher than that of the control group as indicated by the higher mean scores of the test group for all four constructs.

Table 9.17 Group statistics for the YISQ: Test versus control groups (P³⁶)

Group statistics					
Construct	Group	N	Mean	Std. deviation	Std. error mean
Creativity	Test group	486	6.36	.663	.030
	Control group	420	6.13	.829	.040
Leadership	Test group	486	5.81	.882	.040
	Control group	421	5.69	.925	.045
Energy	Test group	486	5.69	.860	.039
	Control group	422	5.55	.975	.047
Self-efficacy	Test group	486	5.83	.768	.035
	Control group	420	5.62	.974	.048

Levene's test was subsequently applied to test the results for equality of variances. Table 9.18 below confirms that there were differences in variances in the test and control groups ($p \leq 0.05$) for three of the constructs, including 'creativity' ($p = 0.000$), 'energy' ($p = 0.038$) and 'self-efficacy' ($p = 0.000$).

Table 9.18 Levene's test for the YISQ: Test versus control groups (P³⁶)

Levene's test			
Construct	F	Sig.*	Result
Creativity	25.934	.000	$p \leq .05$; assumption of equal variances violated
Leadership	1.526	.217	$p > .05$; assumption of equal variances confirmed
Energy	4.299	.038	$p \leq .05$; assumption of equal variances violated
Self-efficacy	14.395	.000	$p \leq .05$; assumption of equal variances violated

*Equal variances assumed

The p -values in table 9.18 were used for further analysis to select the appropriate results for interpretation of the independent t -test presented in table 9.19, again to determine whether

equal variances may be assumed (where $p > 0.05$; not significant) or not (where $p \leq 0.05$; significant).

Table 9.19 Differences in the YISQ mean scores: Test vs. control groups (P³⁶)

Independent samples test						
Construct	<i>t</i> -test for equality of means					Effect size
	<i>t</i>	<i>df</i>	Sig.*	Mean diff.	Std. error diff.	<i>d</i>
Creativity	-4.563	799.32	.000	-0.230	.050	0.28
Leadership**	-2.034	905	.042	-0.122	.060	0.13
Energy	-2.239	846.42	.025	-0.138	.061	0.14
Self-efficacy	-3.576	792.30	.000	-0.211	.059	0.22

*Significance two-tailed; **assumption of equal variances confirmed in table 9.18

Table 9.19 shows $p \leq 0.05$ for all four constructs underlying youth innovation skills as measured by the YISQ, indicating that statistically significant differences existed between the mean scores of the test and control groups at the time of pre-testing. These differences were neither visible ($0.5 \leq d < 0.8$) nor practically significant ($d \geq 0.8$) as indicated by small effect sizes ($d = 0.2$) for ‘creativity’ ($d = 0.28$), ‘leadership’ ($d = 0.13$), ‘energy’ ($d = 0.14$) and ‘self-efficacy’ ($d = 0.22$).

It is concluded that there were no visible or practically significant differences between respondents in the PMY-3 test and control groups insofar their personal perceptions of innovation skills as measured by the YISQ were concerned at the time of pre-testing.

Proposition P³⁶ (‘there were no differences between the innovative skills of the test group and the control group as measured by the constructs of the YISQ at the time of pre-testing’) is **accepted**.

Further analysis was deemed necessary for the YISQ, and with particular reference to the dependent variables included in the instrument (items C.1 to C.5). According to Chell and Athayde, 2009: 31, 35, 39), these dependent variables tie up with five types of innovators and are operationalized by categorising respondents scoring seven (‘strongly agree’) on any of them as group one (‘stronger innovation pathway’), and respondents not scoring seven (i.e., a score of one to six) on any of the statements as group two (‘weaker innovation pathway’).

The developers (Chell & Athayde, 2009) propose that differences between the two groups can then be explored by performing a *t*-test based on the average scores achieved on the independent variables of the YISQ by each group. The results of this analysis are presented in table 9.20 showing the number of respondents in each group (*N*), the group's mean score for each construct ($\bar{x}$), the standard deviation (*s*) and the comparison between the means based on the *t*-test (*p*-value) and effect sizes (*d*-value).

Table 9.20 Differences in means between the YISQ constructs: Dependent variables

Innovation pathway:	Group one: Stronger			Group two: Weaker			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Creativity	842	6.31	0.718	64	5.51	0.821	.000	0.97
Leadership	841	5.79	0.891	66	5.27	0.932	.000	0.55
Energy	842	5.67	0.908	66	5.11	0.890	.000	0.62
Self-efficacy	841	5.78	0.864	65	5.20	0.848	.000	0.67

*Equal variances assumed

Table 9.20 indicates that respondents in group one ('stronger innovation pathway') scored higher than respondents in group two ('weaker innovation pathway') on all of the constructs, including 'creativity', 'leadership', 'energy' and 'self-efficacy'. The *p*-values (*p* = 0.000 for all four constructs) confirm that there were statistically significant differences between the means of the two groups at the time of pre-testing.

More important, though, are the *d*-values (effect sizes) presented in the last column of table 9.20. There were practically significant differences ($d \geq 0.8$) between respondents in the two groups for the construct 'creativity' as indicated by an effect size of $d = 0.97$. This finding suggests that respondents in the 'stronger innovation pathway' group were, at the time of pre-testing, practically more creative insofar their innovation skills underlying entrepreneurial activity were concerned.

There were visible effects ($0.5 \leq d < 0.8$), or in other words, visible differences between respondents in the two groups for 'leadership' ($d = 0.55$), 'energy' ($d = 0.62$) and 'self-efficacy' ($d = 0.67$) as constructs underlying their innovation skills. It follows that respondents' pursuance of becoming an inventor/innovator (C.1), innovative entrepreneur (C.2), corporate innovator (C.3), cultural innovator (C.4) or a social innovator (C.5) differentiated them from respondents not pursuing such a pathway either practically (in the case of 'creativity') or visibly (for 'leadership', 'energy' and 'self-efficacy').

This finding does not detract from the acceptance of proposition P³⁶ ('there were no differences between the innovative skills of the test group and the control group as measured by the constructs of the YISQ at the time of pre-testing') as the analysis was, in this instance, carried out for the entire sample of 910 respondents and not between respondents in the test and control groups.

9.5.5 Differences at the time of pre-testing: Demographic sub-groups (P³⁷ to P⁴⁵)

The preceding section (section 9.5.4) concluded that there were no (practically) significant differences between the personal wellbeing (PWI-SC), adaptive cognition (MAC) and innovative skills (YISQ) of the test and control groups at the time of pre-testing. As with the AEG-3 dataset discussed in section 8.5.5 of chapter eight, the PMY-3 pre-test dataset was examined for differences in the means to investigate the influence of gender, type of school being attended (public/private) and having self-employed parents, but in this instance, on the personal wellbeing, adaptive cognition and innovation skills of young learners in the sample.

The reader is reminded that the discussion to follow is not based on comparative analysis between the test and control groups, but on the entire PMY-3 sample and for differences in the means between respondents from different demographic sub-groups.

9.5.5.1 Differences in means for the demographic variable 'gender' (P³⁷ to P³⁹)

The proposition that there are differences between the entrepreneurial proneness of males and females was examined by conducting *t*-tests and calculating effect sizes (Cohen's *d*) for differences in the means in each of the PWI-SC, MAC and YISQ pre-test datasets for the demographic variable 'gender'. The results of these tests are presented in tables 9.21 to 9.23 below.

Table 9.21 Differences in the PWI-SC mean scores: Gender (P³⁷)

Gender:	Female			Male			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Personal Wellbeing Index	693	75.26	12.867	214	76.04	11.813	.431	0.06

*Equal variances assumed

Table 9.21 indicates that there were no statistically significant differences ($p > 0.05$) in the mean scores of female and male learners for the Personal Wellbeing Index (PWI),

notwithstanding the finding that male learners scored a higher mean ($\bar{x} = 76.04$) than female participants ($\bar{x} = 75.26$).

Proposition P³⁷ ('there were differences between the personal wellbeing of female and male respondents [total sample] as measured by the constructs of the PWI-SC at the time of pre-testing') is **rejected**.

The analysis for the MAC, presented in table 9.22 below, revealed statistically significant differences ($p \leq 0.05$) for the constructs 'metacognitive knowledge' ($p = 0.000$), 'metacognitive experience' ($p = 0.003$), 'metacognitive choice' ($p = 0.008$) and 'monitoring' ($p = 0.002$). Female respondents scored consistently higher mean scores than males for these constructs, suggesting that young female learners had higher levels of adaptive cognition as measured by the MAC compared to males at the time of pre-testing.

Table 9.22 Differences in the MAC mean scores: Gender (P³⁸)

Gender:	Female			Male			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Goal orientation	693	5.80	0.997	213	5.72	0.923	.250	0.09
Metacognitive knowledge	693	5.81	0.775	214	5.49	0.844	.000	0.38
Metacognitive experience	693	5.74	0.855	214	5.54	0.903	.003	0.23
Metacognitive choice	691	5.74	0.985	214	5.53	0.998	.008	0.20
Monitoring	690	5.90	0.851	213	5.68	0.955	.002	0.22

*Equal variances assumed

These differences were not visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$) as indicated by small effect sizes ($d = 0.2$) for 'metacognitive experience' ($d = 0.23$), 'metacognitive choice' ($d = 0.20$) and 'monitoring' ($d = 0.22$). The effect size for the construct 'metacognitive knowledge' ($d = 0.38$) was approaching the level of visibility (i.e., where $0.5 \leq d < 0.8$), suggesting that young female learners had (slightly) higher levels of metacognitive knowledge to draw from in exercising choice than their male counterparts.

Still, none of the effect sizes reached the level of visibility or practicality, and as a consequence, **proposition P³⁸** ('there were differences between the adaptive cognition of female and male respondents [total sample] as measured by the constructs of the MAC at the time of pre-testing') is **rejected**.

The YISQ dataset revealed statistically significant differences ($p \leq 0.05$) in the means of female and male respondents for all four of the constructs underlying innovation skills, including ‘creativity’ ($p = 0.001$), ‘leadership’ ($p = 0.000$), ‘energy’ ($p = 0.009$) and ‘self-efficacy’ ($p = 0.003$) as shown in table 9.23 below.

Table 9.23 Differences in the YISQ mean scores: Gender (P³⁹)

Gender:	Female			Male			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Creativity	692	6.29	0.707	213	6.10	0.873	.001	0.22
Leadership	692	5.84	0.872	214	5.47	0.950	.000	0.38
Energy	693	5.67	0.906	214	5.48	0.944	.009	0.20
Self-efficacy	691	5.78	0.860	214	5.58	0.910	.003	0.23

*Equal variances assumed

The differences between female and male learners in table 9.23 did not reach the level of visibility or practical significance with effect sizes (*d*-values) of 0.22, 0.20 and 0.23 respectively for the constructs ‘creativity’, ‘energy’ and ‘self-efficacy’. Similar to the finding for the MAC results presented in table 9.22, one of the YISQ constructs (‘leadership’) produced an effect size ($d = 0.38$) approaching the level of being a visible effect ($0.5 \leq d < 0.8$).

Proposition P³⁹ (‘there were differences between the innovative skills of female and male respondents [total sample] as measured by the constructs of the YISQ at the time of pre-testing’) is **rejected**.

It is concluded that there were no visible or practically significant differences between female and male respondents in the PMY-3 sample in terms of subjective personal wellbeing (PWI-SC), levels of adaptive cognition (MAC) and innovation skills (YISQ) at the time of pre-testing.

9.5.5.2 Differences in means for the demographic variable ‘type of school’ (P⁴⁰ to P⁴²)

The proposition that pupils attending private schools are more positive about future self-employment than pupils attending public (state) schools (Curran & Blackburn, 1990) was examined using identical methodology, but for the demographic variable ‘type of school’.

Tables 9.24 to 9.26 below confirm that there were no statistically significant differences in the means of learners from public or private schools at the time of pre-testing as indicated by $p > 0.05$ for all constructs underlying the PWI-SC, the MAC and the YISQ instruments included in the PMY-3 survey.

Table 9.24 Differences in the PWI-SC mean scores: Type of school (P⁴⁰)

Type of school:	Public			Private			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Personal Wellbeing Index	818	75.50	12.853	78	75.21	10.076	.848	0.02

*Equal variances assumed

Proposition P⁴⁰ ('there were differences between the personal wellbeing of respondents [total sample] attending public or private schools as measured by the constructs of the PWI-SC at the time of pre-testing') is **rejected**.

Table 9.25 Differences in the MAC mean scores: Type of school (P⁴¹)

Type of school:	Public			Private			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Goal orientation	817	5.79	0.982	78	5.67	0.993	.280	0.13
Metacognitive knowledge	818	5.73	0.810	78	5.82	0.754	.334	0.11
Metacognitive experience	818	5.70	0.872	78	5.64	0.866	.554	0.07
Metacognitive choice	816	5.68	1.004	78	5.70	0.876	.903	0.01
Monitoring	814	5.83	0.902	78	5.95	0.682	.258	0.13

*Equal variances assumed

Proposition P⁴¹ ('there were differences between the adaptive cognition of respondents [total sample] attending public or private schools as measured by the constructs of the MAC at the time of pre-testing') is **rejected**.

Table 9.26 Differences in the YISQ mean scores: Type of school (P⁴²)

Type of school:	Public			Private			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Creativity	816	6.26	0.752	78	6.17	0.670	.353	0.11
Leadership	817	5.75	0.905	78	5.76	0.901	.879	0.02
Energy	818	5.63	0.923	78	5.57	0.888	.585	0.06
Self-efficacy	816	5.72	0.892	78	5.81	0.717	.375	0.10

*Equal variances assumed

Proposition P⁴² ('there were differences between the innovative skills of respondents [total sample] attending public or private schools as measured by the constructs of the YISQ at the time of pre-testing') is **rejected**.

It is concluded that there were no visible or practically significant differences between respondents in the PMY-3 sample attending public or private schools in terms of subjective personal wellbeing (PWI-SC), levels of adaptive cognition (MAC) and innovation skills (YISQ) at the time of pre-testing.

9.5.5.3 Differences in means for the demographic variable 'parents' employment' (P⁴³ to P⁴⁵)

The analysis was repeated to re-examine the proposition that a family background of self-employment has a positive influence on young people's decision to become self-employed (Athayde, 2009a; Gird & Bagraim, 2008: 711; Lewis, 2005: 481; Moen *et al.*, 2004; Davies, 2002; Curran & Blackburn, 1990).

The differences in the mean scores of the total PMY-3 sample for the demographic variable 'parents' employment' were examined for each of the instruments (PWI-SC, MAC and the YISQ) in the survey. Tables 9.27 to 9.29 below and on the following page confirm that there were no statistically significant differences between the means of learners with or without self-employed parents at the time of pre-testing as indicated by $p > 0.05$ for all constructs underlying the PWI-SC, the MAC and the YISQ instruments included in the PMY-3 survey.

Table 9.27 Differences in the PWI-SC mean scores: Parents' employment (P⁴³)

Parents' employment:	Self-employed			Not self-employed			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Personal Wellbeing Index	297	75.74	12.366	600	75.30	12.762	.620	0.03

*Equal variances assumed

Proposition P⁴³ ('there were differences between the personal wellbeing of respondents [total sample] with or without self-employed parents as measured by the constructs of the PWI-SC at the time of pre-testing') is **rejected**.

Table 9.28 Differences in the MAC mean scores: Parents' employment (P⁴⁴)

Parents' employment:	Self-employed			Not self-employed			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Goal orientation	296	5.85	0.949	600	5.75	0.996	.181	0.09
Metacognitive knowledge	297	5.76	0.776	600	5.73	0.812	.613	0.04
Metacognitive experience	297	5.77	0.825	600	5.66	0.890	.071	0.13
Metacognitive choice	296	5.76	0.969	599	5.65	1.000	.109	0.11
Monitoring	296	5.92	0.849	597	5.81	0.888	.092	0.12

*Equal variances assumed

Proposition P⁴⁴ ('there were differences between the adaptive cognition of respondents [total sample] with or without self-employed parents as measured by the constructs of the MAC at the time of pre-testing') is **rejected**.

Table 9.29 Differences in the YISQ mean scores: Parents' employment (P⁴⁵)

Parents' employment:	Self-employed			Not self-employed			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Creativity	297	6.25	0.752	598	6.24	0.757	.873	0.01
Leadership	297	5.80	0.881	599	5.73	0.908	.335	0.07
Energy	297	5.71	0.871	600	5.58	0.939	.058	0.13
Self-efficacy	296	5.81	0.853	599	5.70	0.881	.059	0.13

*Equal variances assumed

Proposition P⁴⁵ ('there were differences between the innovative skills of respondents [total sample] with or without self-employed parents as measured by the constructs of the YISQ at the time of pre-testing') is **rejected**.

It is concluded that there were no visible or practically significant differences between respondents in the PMY-3 sample with or without self-employed parents in terms of subjective personal wellbeing (PWI-SC), levels of adaptive cognition (MAC) and innovation skills (YISQ) at the time of pre-testing.

9.5.6 Differences at the time of pre-testing: Socio-economic sub-groups (P⁴⁶ to P⁴⁸)

Chapter eight suggested that young people from higher socio-economic backgrounds may be expected to outperform those from lower socio-economic backgrounds due to the former having greater access to resources (see section 8.5.6). This proposition was examined for the

PMY-3 dataset using data collected with part E (socio-economic information) of the survey and methodology similar to that applied for the examination of the demographic sub-groups in section 9.5.5 above.

A comparative analysis was conducted to examine the PMY-3 pre-test dataset for differences in the means of the LSM[®] groups of the South African Advertising Research Foundation (SAARF, 2010), but in accordance with the four lifestyle levels of Consumer Scope (2009) presented earlier in table 9.2. Only one respondent reported being from a poor household, and consequently, the analysis was performed for level A ('rich') and level C ('middle class') representing comparative proportions of the PMY-3 sample (respectively 27.4% and 23.9%).

The results of the independent samples tests (*t*-tests) with the corresponding effect sizes (Cohen's *d*) for the PWI-SC, the MAC and the YISQ instruments are presented below in tables 9.30 to 9.32.

Table 9.30 shows that there were no statistically significant differences in the means of learners from middle class or rich backgrounds as indicated by the *p*-value of 0.271 being greater than 0.05.

Table 9.30 Differences in the PWI-SC mean scores: LSM[®] groups (P⁴⁶)

LSM [®] group:	Middle class			Rich			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Personal Wellbeing Index	216	74.65	13.163	249	75.94	12.156	.271	0.10

*Equal variances assumed

Proposition P⁴⁶ ('there were differences between the personal wellbeing of respondents [total sample] from different socio-economic backgrounds as measured by the constructs of the PWI-SC at the time of pre-testing') is **rejected**.

The analysis of the MAC pre-test results revealed statistically significant differences ($p \leq 0.05$) in the means of middle class and rich learners for the constructs 'goal orientation' ($p = 0.000$) and 'metacognitive choice' ($p = 0.028$) as shown in table 9.31 on the following page.

Table 9.31 Differences in the MAC mean scores: LSM[®] groups (P⁴⁷)

LSM [®] group:	Middle class			Rich			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Goal orientation	216	6.04	0.878	248	5.66	1.007	.000	0.37
Metacognitive knowledge	216	5.79	0.861	249	5.73	0.751	.437	0.07
Metacognitive experience	216	5.76	0.901	249	5.70	0.826	.475	0.06
Metacognitive choice	215	5.80	1.042	248	5.60	0.980	.028	0.20
Monitoring	214	5.77	0.985	248	5.87	0.850	.239	0.10

*Equal variances assumed

The effect size for ‘metacognitive choice’ ($d = 0.20$) was neither visible nor practically significant. The effect size for the construct ‘goal orientation’ ($d = 0.37$) was approaching the level of visibility ($0.5 \leq d < 0.8$), but still below the acceptable threshold. Nonetheless, it was still of interest to note that learners from middle class origins seemed to have slightly higher levels of goal orientation than their peers from a rich background.

Proposition P⁴⁷ (‘there were differences between the adaptive cognition of respondents [total sample] from different socio-economic backgrounds as measured by the constructs of the MAC at the time of pre-testing’) is **rejected**.

The YISQ results in table 9.32 below show statistically significant differences ($p \leq 0.05$) in the means of learners from middle class and rich homes for the construct ‘creativity’ ($p = 0.000$), but the effect size of $d = 0.34$ confirms that these differences were neither visible nor practically significant.

Table 9.32 Differences in the YISQ mean scores: LSM[®] groups (P⁴⁸)

LSM [®] group:	Middle class			Rich			Comparison	
Construct	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i> [*]
Creativity	215	6.36	0.746	249	6.11	0.741	.000	0.34
Leadership	215	5.83	0.918	249	5.78	0.811	.477	0.06
Energy	216	5.67	0.967	249	5.64	0.878	.731	0.03
Self-efficacy	215	5.79	0.975	248	5.70	0.861	.252	0.10

*Equal variances assumed

Proposition P⁴⁸ (‘there were differences between the innovative skills of respondents [total sample] from different socio-economic backgrounds as measured by the constructs of the YISQ at the time of pre-testing’) is **rejected**.

It is concluded that there were no visible or practically significant differences between respondents from different socio-economic backgrounds in the PMY-3 sample insofar their own perceptions of personal wellbeing (PWI-SC), levels of adaptive cognition (MAC) and innovation skills (YISQ) were concerned at the time of pre-testing.

9.5.7 Differences at the time of post testing: Test versus control groups (P⁴⁹ to P⁵¹)

The preceding sections confirmed that there were no differences between the test and control groups at the time of pre-testing (section 9.5.4), as well as between learners from different demographic (section 9.5.5) and socio-economic sub-groups (section 9.5.6). Although statistically significant differences existed in some instances, these differences were not large enough to be recognised as visible or practically significant. As a consequence, it was concluded that the test and control groups were ‘equal’ at the time of pre-testing insofar their own personal perceptions of personal wellbeing, adaptive cognition and innovation skills were concerned.

After the test group had completed the Mini-Enterprise Programme (MEP) of Junior Achievement South Africa (JASA) around August 2012, respondents in both the test and control groups were subjected to post testing using the PMY-3 survey. The earlier conclusion that there were no differences between the test and control groups at the time of pre-testing indicated that the post test data obtained from the Personal Wellbeing Index for School Children (PWI-SC), the Measure of Adaptive Cognition (MAC) and the Youth Innovation Skills Measurement Tool (YISQ) in the PMY-3 survey could subsequently be used to examine the dataset for any differences as a result of JASA’s training intervention.

The starting point for the statistical analysis of the post test dataset was identical to that employed for the PMY-3 pre-test data presented in section 9.5.4, i.e., to examine for differences in the mean scores of respondents in the test and control groups for the constructs underlying personal wellbeing (PWI-SC), adaptive cognition (MAC) and innovation skills (YISQ). Resultantly, the first analysis of the post test data included group statistics (mean scores), Levene’s test for equality of variances and *t*-tests for equality of means to examine the dataset for mean differences with statistical significance. Effect sizes (Cohen’s *d*) were again used as the deciding factor to determine whether or not any real (i.e., practically significant) differences existed between respondents in the test and control groups at the time of post testing.

9.5.7.1 Differences between the test and control groups: PWI-SC (P⁴⁹)

The group statistics shown in table 9.33 below indicate that respondents in the test group had higher levels of ‘happiness’ for the constructs ‘overall happiness’ and ‘personal relationships’ with friends and teachers than their peers in the control group at the time of post testing as indicated by the higher mean scores of the test group for these constructs.

The Personal Wellbeing Index (PWI) was higher for the test group at 77.45 %SM against the 74.44 %SM of the control group. It follows that the subjective wellbeing of test group respondents was at the upper level of the ‘gold-standard’ of 75 ± 2.5 %SM (Cummins, 1996), as opposed to the just below mid-range score of control group respondents (74.44 %SM). Both groups were within the normative range of 70 to 80 %SM for Western populations and above the general range of 60 to 70 %SM for non-Western populations (Lau *et al.*, 2004).

Table 9.33 Group statistics for the PWI-SC: Test versus control groups (P⁴⁹)

Group statistics					
Construct	Group	N	Mean	Std. deviation	Std. error mean
Overall happiness	Test group	374	82.03	19.869	1.027
	Control group	367	79.43	22.771	1.189
Personal relationships: Family	Test group	374	87.46	19.654	1.016
	Control group	372	87.96	19.512	1.012
Personal relationships: Friends	Test group	375	81.31	20.111	1.039
	Control group	371	79.33	20.881	1.084
Personal relationships: Teachers	Test group	375	82.59	20.119	1.039
	Control group	370	79.95	21.815	1.134
Personal Wellbeing Index (PWI)	Test group	375	77.45	12.113	0.626
	Control group	372	74.44	13.089	0.679

An interesting finding is that learners in the test group experienced slightly lower levels of ‘happiness’ in terms of their personal relationships with family members than the control group as indicated by the lower mean of the test group (as opposed to the pre-test analysis; see table 9.11).

Levene’s test for equality of variances was subsequently applied, and the results in table 9.34 on the following page indicate that the assumption of equal variances had been violated for the construct ‘overall happiness’ ($p = 0.005$). The p -value for the remaining constructs was

greater than 0.05, indicating that further analysis could be carried out based on the assumption that variances in the test and control groups were roughly equal in these instances.

Table 9.34 Levene's test for the PWI-SC: Test vs. control groups (P⁴⁹)

Levene's test			
Construct	<i>F</i>	Sig.*	Result
Overall happiness	7.976	.005	$p \leq .05$; assumption of equal variances violated
Personal relationships: Family	0.006	.938	$p > .05$; assumption of equal variances confirmed
Personal relationships: Friends	0.001	.981	$p > .05$; assumption of equal variances confirmed
Personal relationships: Teachers	1.650	.199	$p > .05$; assumption of equal variances confirmed
Personal Wellbeing Index	2.996	.084	$p > .05$; assumption of equal variances confirmed

*Equal variances assumed

An independent samples test (*t*-test) was conducted to examine the PWI-SC post test dataset for differences in the mean scores of the test and control groups after the test group had been exposed to the training intervention of JASA. The results are presented in table 9.35 below.

Table 9.35 Differences in the PWI-SC mean scores: Test vs. control groups (P⁴⁹)

Independent samples test						
Construct	<i>t</i> -test for equality of means					Effect size
	<i>t</i>	<i>df</i>	Sig.*	Mean diff.	Std. error diff.	<i>d</i>
Overall happiness	-1.658	721.83	.098	-2.604	1.571	0.11
Pers. relationships: Family**	0.347	744	.729	0.497	1.434	0.03
Pers. relationships: Friends**	-1.320	744	.187	-1.981	1.501	0.09
Pers. relationships: Teachers**	-1.718	743	.086	-2.641	1.537	0.12
Personal Wellbeing Index**	-3.269	745	.001	-3.016	0.923	0.23

*Significance two-tailed; **assumption of equal variances confirmed in table 9.34

Table 9.35 indicates that there were statistically significant differences ($p \leq 0.05$) in the means of the test and control groups for the Personal Wellbeing Index ($p = 0.001$). These differences were neither visible ($0.5 \leq d < 0.8$) nor practically significant ($d \geq 0.8$) as indicated by the small effect size of $d = 0.23$.

From the results in table 9.35 it may be concluded that there were no visible or practically significant differences in the subjective wellbeing of respondents in the test and control

groups at the time of post testing, even though the test group had been exposed to the training intervention of JASA.

However, the results presented in tables 9.33 to 9.35 above are based upon a comparative analysis of the test and control groups, or in other words, an examination for differences in the mean scores of the test and control groups at the time of post testing (similar to the tests performed on the pre-test dataset discussed in section 9.5.4). As a result, and similar to the procedures followed for the analysis of the AEG-3 post test dataset in chapter eight, further analysis was deemed appropriate to examine the dataset separately for the test and control groups to determine whether differences in the mean scores existed between the pre- and post test results for each of the two groups.

For this purpose, an independent samples test (*t*-test) was carried out separately for the test and the control group and effect sizes (*d*-values) calculated as shown in table 9.36 below.

Table 9.36 Differences in the PWI-SC mean scores: Test and control groups (P⁴⁹)

Stage of testing:	Pre-test			Post test			Comparison	
Construct/group	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Personal Wellbeing Index								
Test group	486	76.67	12.28	375	77.45	12.113	.351	0.06
Control group	422	74.04	12.869	372	74.44	13.089	.666	0.03

*Equal variances assumed

Table 9.36 shows that the measure of subjective wellbeing (mean score $\bar{x}$) was higher for the test group than for the control group both at the pre- and post testing stages of the study. In addition, the means for both groups had increased during the study, albeit only marginally. These differences, although being an indication of improvement, were not statistically significant as indicated by $p > 0.05$ in both instances.

Based on these findings, it is concluded that there were no visible or practically significant differences between respondents in the test and control groups after exposure of the test group to the training intervention of JASA. **Proposition P⁴⁹** ('there were differences between the personal wellbeing of the test group and the control group after exposure of the test group to entrepreneurship education and training as measured by the constructs of the PWI-SC at the time of post testing') is **rejected**.

9.5.7.2 Differences between the test and control groups: MAC (P⁵⁰)

The statistical procedures described in the preceding section were repeated for the MAC. Table 9.37 below presents the group statistics for the MAC post test dataset.

Table 9.37 Group statistics for the MAC: Test versus control groups (P⁵⁰)

Group statistics					
Construct	Group	N	Mean	Std. deviation	Std. error mean
Goal orientation	Test group	376	5.88	0.929	0.048
	Control group	373	5.77	0.951	0.049
Metacognitive knowledge	Test group	376	5.89	0.758	0.039
	Control group	373	5.79	0.821	0.042
Metacognitive experience	Test group	376	5.79	0.840	0.043
	Control group	372	5.69	0.897	0.046
Metacognitive choice	Test group	374	5.81	0.933	0.048
	Control group	370	5.73	0.989	0.051
Monitoring	Test group	374	5.91	0.802	0.041
	Control group	369	5.76	0.944	0.049

The results in table 9.37 above suggest that respondents in the test group had higher levels of adaptive cognition from the perspectives of goal orientation, metacognitive knowledge, metacognitive experience, metacognitive choice and monitoring capabilities as indicated by their higher mean score for all five constructs. Levene's test for equality of variances produced a *p*-value of 0.005 for the construct 'monitoring', indicating that the assumption of equal variances had been violated for this construct as shown in table 9.38 below.

Table 9.38 Levene's test for the MAC: Test versus control groups (P⁵⁰)

Levene's test			
Construct	<i>F</i>	Sig.*	Result
Goal orientation	0.135	.714	<i>p</i> > .05; assumption of equal variances confirmed
Metacognitive knowledge	2.501	.114	<i>p</i> > .05; assumption of equal variances confirmed
Metacognitive experience	0.334	.563	<i>p</i> > .05; assumption of equal variances confirmed
Metacognitive choice	0.881	.348	<i>p</i> > .05; assumption of equal variances confirmed
Monitoring	7.856	.005	<i>p</i> ≤ .05; assumption of equal variances violated

*Equal variances assumed

An independent samples test (*t*-test), presented in table 9.39 below, produced a *p*-value of 0.019 for the construct ‘monitoring’, indicating that statistically significant differences existed in the post test mean scores of the test and control groups for this particular construct.

Table 9.39 Differences in the MAC mean scores: Test vs. control groups (P⁵⁰)

Independent samples test						
Construct	<i>t</i> -test for equality of means					Effect size
	<i>t</i>	<i>df</i>	Sig.*	Mean diff.	Std. error diff.	<i>d</i>
Goal orientation**	-1.547	747	.122	-0.106	0.069	0.11
Metacognitive knowledge**	-1.816	747	.070	-0.105	0.058	0.13
Metacognitive experience**	-1.646	746	.100	-0.105	0.064	0.12
Metacognitive choice**	-1.114	742	.265	-0.079	0.070	0.08
Monitoring	-2.348	719.20	.019	-0.151	0.064	0.16

*Significance two-tailed; **assumption of equal variances confirmed in table 9.38

These differences were not visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$) as indicated by a small effect size of $d = 0.16$. From this perspective it may be concluded that there were no visible or practically significant differences in the adaptive cognition of learners in the test and control groups at the time of post testing.

As with the PWI-SC, further analysis was carried out separately for the test and control groups to examine the dataset for differences in the mean scores between the pre- and post test results for each of the two groups. The results are shown in table 9.40 below.

Table 9.40 Differences in the MAC mean scores: Test and control groups (P⁵⁰)

Stage of testing:	Pre-test			Post test			Comparison	
Construct/group	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Goal orientation								
Test group	486	5.86	0.955	376	5.88	0.929	.862	0.01
Control group	421	5.69	1.004	373	5.77	0.951	.275	0.08
Metacognitive knowledge								
Test group	486	5.79	0.773	376	5.89	0.758	.062	0.13
Control group	422	5.67	0.833	373	5.79	0.821	.050	0.14
Metacognitive experience								
Test group	486	5.76	0.811	376	5.79	0.840	.573	0.04
Control group	422	5.63	0.929	372	5.69	0.897	.362	0.06

Table 9.40 cont. Differences in the MAC mean scores: Test and control groups (P⁵⁰)

Stage of testing:	Pre-test			Post test			Comparison	
Construct/group	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Metacognitive choice								
Test group	486	5.80	0.886	374	5.81	0.933	.849	0.01
Control group	420	5.56	1.087	370	5.73	0.989	.026	0.15
Monitoring								
Test group	486	5.94	0.770	374	5.91	0.802	.568	0.04
Control group	418	5.73	0.984	369	5.76	0.944	.599	0.04

*Equal variances assumed

The comparative results in table 9.40 show that the mean scores for the test group were consistently higher than for the control group at both the pre- and post testing stages. The mean scores of both groups (test and control) were marginally higher at post testing, except for the ‘monitoring’ construct in the case of the test group.

Statistically significant differences ($p \leq 0.05$) were recorded for the constructs ‘metacognitive knowledge’ (control group; $p = 0.050$) and ‘metacognitive choice’ (control group; $p = 0.026$), but these differences were neither visible ($0.5 \leq d < 0.8$) nor practically significant ($d \geq 0.8$) as indicated by small effect sizes of 0.14 and 0.15 respectively. It follows that there were no visible or practically significant differences between the pre- and post test means of either the test or the control group at the time of post testing.

As a result, **proposition P⁵⁰** (‘there were differences between the adaptive cognition of the test group and the control group after exposure of the test group to entrepreneurship education and training as measured by the constructs of the MAC at the time of post testing’) is **rejected**.

9.5.7.3 Differences between the test and control groups: YISQ (P⁵¹)

Similar statistical procedures were conducted for the YISQ post test dataset. An examination of the group statistics for this dataset (see table 9.41 on the following page) indicated that learners in the test group were more positive about ‘creativity’, ‘energy’ and ‘self-efficacy’ as constructs underlying their innovation skills than learners in the control group as evident from the higher mean scores of test group respondents.

To the contrary, respondents in the control group were more positive about the construct ‘leadership’ as indicated by the higher mean score of the control group in this instance.

Table 9.41 Group statistics for the YISQ: Test versus control groups (P⁵¹)

Group statistics					
Construct	Group	N	Mean	Std. deviation	Std. error mean
Creativity	Test group	376	6.16	0.781	0.040
	Control group	373	6.06	0.887	0.046
Leadership	Test group	376	5.43	1.351	0.070
	Control group	373	5.52	1.223	0.063
Energy	Test group	376	6.33	0.699	0.036
	Control group	373	6.22	0.761	0.039
Self-efficacy	Test group	376	6.16	0.693	0.036
	Control group	373	6.09	0.782	0.040

Levene’s test for equality of variances was not significant ($p > 0.05$ for all four constructs), indicating that variances in the means scores of the test and control groups were roughly equal as shown in table 9.42 below.

Table 9.42 Levene’s test for the YISQ: Test versus control groups (P⁵¹)

Levene’s test			
Construct	F	Sig.*	Result
Creativity	1.782	.182	$p > .05$; assumption of equal variances confirmed
Leadership	2.856	.091	$p > .05$; assumption of equal variances confirmed
Energy	3.066	.080	$p > .05$; assumption of equal variances confirmed
Self-efficacy	2.851	.092	$p > .05$; assumption of equal variances confirmed

*Equal variances assumed

The results of the independent samples test are presented in table 9.43 on the following page. The t -test produced a p -value smaller than 0.05 for the construct ‘energy’ ($p = 0.045$) indicating that statistically significant differences existed between the mean scores of the test and control groups at the time of post testing. However, the small effect size of $d = 0.14$ confirmed that these differences were neither visible ($0.5 \leq d < 0.8$) nor practically significant ($d \geq 0.8$).

Table 9.43 Differences in the YISQ mean scores: Test vs. control groups (P⁵¹)

Independent samples test						
Construct	<i>t</i> -test for equality of means					Effect size
	<i>t</i>	<i>df</i>	Sig.*	Mean diff.	Std. error diff.	<i>d</i>
Creativity**	-1.758	747	.079	-0.107	0.061	0.12
Leadership**	0.908	747	.364	0.086	0.094	0.06
Energy**	-2.006	747	.045	-0.107	0.053	0.14
Self-efficacy**	-1.379	747	.168	-0.074	0.054	0.10

*Significance two-tailed; **assumption of equal variances confirmed in table 9.42

Further analysis was carried out separately for the test and control groups to examine the dataset for differences in the mean scores between the pre- and post test results for each of the two groups. The results are shown in table 9.44 below.

Table 9.44 Differences in the YISQ mean scores: Test and control groups (P⁵¹)

Stage of testing:	Pre-test			Post test			Comparison	
Construct/group	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i> *
Creativity								
Test group	486	6.36	0.663	376	6.16	0.781	.000	0.24
Control group	420	6.13	0.829	373	6.06	0.887	.265	0.08
Leadership								
Test group	486	5.81	0.882	376	5.43	1.351	.000	0.28
Control group	421	5.69	0.925	373	5.52	1.223	.026	0.14
Energy								
Test group	486	5.69	0.860	376	6.33	0.699	.000	0.75
Control group	422	5.55	0.975	373	6.22	0.761	.000	0.69
Self-efficacy								
Test group	486	5.83	0.768	376	6.16	0.693	.000	0.43
Control group	420	5.62	0.974	373	6.09	0.782	.000	0.48

*Equal variances assumed

Table 9.44 shows that the mean scores of the test group were higher than that of the control group during pre- and post testing, except for the construct 'leadership' where the control group scored higher during the post test exercise.

Statistically significant differences ($p \leq 0.05$) existed between the pre- and post test results for each of the test and control groups, such as for ‘creativity’ (test group, $p = 0.000$), ‘leadership’ (test group, $p = 0.000$; control group, $p = 0.026$), ‘energy’ (test and control group, $p = 0.000$) and ‘self-efficacy’ (test and control group, $p = 0.000$).

These differences were not visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$) insofar the constructs ‘creativity’ (test group, $d = 0.24$) and ‘leadership’ (test group, $d = 0.28$; control group, $d = 0.14$) were concerned. Notable is that the effect sizes for the construct ‘self-efficacy’ were approaching the level of visibility ($0.5 \leq d < 0.8$) with $d = 0.43$ for the test group and $d = 0.48$ for the control group.

Visible effects ($0.5 \leq d < 0.8$) were recorded for the construct ‘energy’ with d -values of 0.75 and 0.69 respectively for the test and the control group. At this level, it may be concluded that there were visible differences between the pre- and post test mean scores of both the test group and the control group. The problem is that these differences were present in both the test group and the control group and almost to the same extent ($d = 0.75$ and 0.69 respectively), thus indicating that it cannot be attributed to the training intervention of Junior Achievement South Africa (JASA).

In attempting to offer a valid explanation for this phenomenon, it should be borne in mind that the post testing exercise was conducted from late September to early November 2012. Some schools participated in the exercise just prior to the September school holidays, while the balance completed the exercise soon after schools had reopened for the fourth and final term of the academic school year. From this perspective, it is entirely conceivable that excitement prior to the holiday and renewed vivacity after the break had caused the energy levels of learners in both the test and control groups to rise to such an extent that these differences were visible.

As a result, it is concluded that there were no visible or practically significant differences between the test and control groups which could be attributed to the impact of JASA’s training intervention. **Proposition P⁵¹** (‘there were differences between the innovative skills of the test group and the control group after exposure of the test group to entrepreneurship education and training as measured by the constructs of the YISQ at the time of post testing’) is **rejected**.

In summary of this section on the analyses of the differences between the test and control groups at the time of post testing, it is concluded that there were no differences between these groups from the perspectives of personal wellbeing, adaptive cognition and innovation skills as respectively measured by the constructs of the PWI-SC, the MAC and the YISQ.

9.5.8 Differences at the time of post testing: Individual respondents (P⁵² to P⁵⁴)

As with the AEG-3 dataset discussed in chapter eight, the final stage in the statistical analysis of the PMY-3 dataset was to examine the differences in the mean scores of respondents in the test and control group at the individual level, i.e., in cases where the pre- and post test questionnaires of individual respondents could be linked using the longitudinal questionnaire ID (see discussion in section 8.5.8 of chapter eight and part F of the PMY-3 survey in appendix two).

Differences in the mean scores from the matched pre- and post test questionnaires of individual respondents were examined separately for the test and control groups using paired samples tests (*t*-tests) and effect sizes (Cohen's *d*), followed by ANCOVA (analysis of covariance) to reduce within-group variance and eliminate confounds (Field, 2009: 396-397) in the exploration of the PMY-3 dataset.

9.5.8.1 Differences between individuals' pre- and post tests: PWI-SC (P⁵²)

The PWI-SC data was firstly examined for differences in the mean scores calculated from the pre- and post test questionnaires of individual respondents that had been linked with the longitudinal questionnaire ID. The results of the paired samples tests (*t*-tests) carried out for this purpose are shown in table 9.45 on the following page with the effect size presented separately for the test and control groups and for each construct.

Table 9.45 shows that the pre-test mean scores of the matched test group were higher than the mean scores of the matched control group for the constructs 'overall happiness', 'personal relationships' with family and friends, and for the Personal Wellbeing Index (PWI). The matched control group mean was marginally higher for the construct 'personal relationships with teachers'. During post testing the matched test group scored higher mean scores for the constructs 'personal relationships' (with family, friends and teachers) and the PWI, but the matched control group scored marginally higher for the construct 'overall happiness'.

Table 9.45 Differences in the PWI-SC mean scores: Matched respondents (P⁵²)

Stage of testing:	Pre-test			Post test			Comparison	
Construct/group	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i>
Overall happiness								
Test (matched surveys)	164	77.80	20.725	164	79.45	20.878	.401	0.08
Control (matched surveys)	95	77.16	21.520	95	79.89	19.866	.283	0.13
Personal relationships: Family								
Test (matched surveys)	165	87.88	19.216	165	86.36	19.634	.368	0.08
Control (matched surveys)	95	86.21	18.916	95	85.58	18.260	.772	0.03
Personal relationships: Friends								
Test (matched surveys)	165	84.30	18.187	165	81.70	19.242	.127	0.14
Control (matched surveys)	95	83.05	19.300	95	80.53	19.039	.216	0.13
Personal relationships: Teachers								
Test (matched surveys)	165	81.21	20.476	165	81.39	20.862	.910	0.01
Control (matched surveys)	95	81.47	20.730	95	80.00	20.421	.523	0.07
Personal Wellbeing Index								
Test (matched surveys)	165	75.89	11.787	165	77.39	11.610	.112	0.13
Control (matched surveys)	95	72.47	13.306	95	73.28	13.619	.563	0.06

*Significance 2-tailed

Table 9.45 also highlights higher mean scores at the post test stage for the constructs ‘overall happiness’ (test and control groups), ‘personal relationships with teachers’ (test group only) and the PWI (test and control groups). For the remaining constructs (and for the control group in the case of ‘personal relationships with teachers’) the post test mean scores were below the mean scores recorded at the pre-test stage. No statistically significant differences ($p \leq 0.05$) were evident between these mean scores as $p > 0.05$ for all five constructs and for both matched groups.

The results for the analysis of covariance (ANCOVA) where the post test dataset had been corrected for the pre-test results are presented in table 9.46 below.

Table 9.46 ANCOVA for the PWI-SC mean scores: Matched respondents (P⁵²)

Group:	Test group			Control group			Comparison	
Construct	<i>N</i>	$\bar{x}$	Std. error	<i>N</i>	$\bar{x}$	Std. error	<i>p</i>	<i>d</i>
Personal Wellbeing Index	165	76.79	0.852	95	74.31	1.126	.082	0.23

Note: Abridged results; full results presented in appendix nine.

The results in table 9.46 reveal a higher PWI mean score for the matched test group than for the matched control group (test group $\bar{x} = 76.79$; control group $\bar{x} = 74.31$), but the difference in the means was not statistically significant as indicated by $p > 0.05$.

Proposition P⁵² ('there were differences between the personal wellbeing of individual respondents from the test and control groups after exposure of the test group to entrepreneurship education and training as measured by the constructs of the PWI-SC at the time of post testing') is **rejected**.

9.5.8.2 Differences between individuals' pre- and post tests: MAC (P⁵³)

A similar two-step analysis was carried out for the MAC dataset. The results in table 9.47 below exhibit marginal differences in the mean scores of the matched test and control groups during both pre- and post testing, as well as between the pre- and post test results separately for each of the two groups. These differences were not statistically significant as indicated by $p > 0.05$ in all instances.

Table 9.47 Differences in the MAC mean scores: Matched respondents (P⁵³)

Stage of testing:	Pre-test			Post test			Comparison	
Construct/group	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> [*]	<i>d</i>
Goal orientation								
Test (matched surveys)	165	5.74	1.026	165	5.77	1.004	.627	0.03
Control (matched surveys)	95	5.75	0.937	95	5.75	1.015	.972	0.00
Metacognitive knowledge								
Test (matched surveys)	165	5.78	0.796	165	5.88	0.770	.103	0.12
Control (matched surveys)	95	5.77	0.853	95	5.77	0.845	.986	0.00
Metacognitive experience								
Test (matched surveys)	165	5.77	0.805	165	5.73	0.915	.572	0.05
Control (matched surveys)	95	5.61	0.986	95	5.73	0.891	.140	0.11
Metacognitive choice								
Test (matched surveys)	165	5.83	0.974	165	5.80	0.988	.694	0.03
Control (matched surveys)	94	5.70	0.970	94	5.78	0.979	.373	0.07
Monitoring								
Test (matched surveys)	165	5.95	0.699	165	6.00	0.837	.416	0.07
Control (matched surveys)	94	5.83	0.871	94	5.87	0.887	.645	0.04

*Significance 2-tailed

The results for the analysis of covariance (ANCOVA) where the MAC dataset had been corrected for the pre-test results are presented in table 9.48 below.

Table 9.48 ANCOVA for the MAC mean scores: Matched respondents (P⁵³)

Group:	Test group			Control group			Comparison	
Construct	<i>N</i>	$\bar{x}$	Std. error	<i>N</i>	$\bar{x}$	Std. error	<i>p</i>	<i>d</i>
Goal orientation	165	5.77	0.060	95	5.75	0.079	.820	0.03
Metacognitive knowledge	165	5.88	0.051	95	5.77	0.067	.219	0.16
Metacognitive experience	165	5.70	0.058	95	5.79	0.076	.358	0.12
Metacognitive choice	165	5.78	0.064	94	5.82	0.084	.661	0.06
Monitoring	165	5.97	0.056	94	5.91	0.074	.497	0.09

Note: Abridged results; full results presented in appendix nine.

From table 9.48 the post test mean scores of the matched test group were slightly higher than that of the matched control group for the constructs ‘goal orientation’, ‘metacognitive knowledge’ and ‘monitoring’, but the control group scored marginally higher for the constructs ‘metacognitive experience’ and ‘metacognitive choice’. None of these differences were statistically significant seeing that $p > 0.05$ for all five constructs.

Proposition P⁵³ (‘there were differences between the adaptive cognition of individual respondents from the test and control groups after exposure of the test group to entrepreneurship education and training as measured by the constructs of the MAC at the time of post testing’) is **rejected**.

9.5.8.3 Differences between individuals’ pre- and post tests: YISQ (P⁵⁴)

The statistical analyses performed for the PWI-SC and MAC data in the previous sections were repeated for the YISQ dataset. The mean scores of the matched test group were higher than the mean scores of the matched control group for the constructs ‘creativity’ (pre- and post test), ‘energy’ (pre- and post test) and ‘self-efficacy’ (pre-test only).

Conversely, the matched control group had a higher mean score for the construct ‘self-efficacy’ at post testing, as well as for the construct ‘leadership’ both at the time of pre- and post testing. These results are presented in table 9.49 on the following page.

Table 9.49 Differences in the YISQ mean scores: Matched respondents (P⁵⁴)

Stage of testing:	Pre-test			Post test			Comparison	
Construct/group	<i>N</i>	$\bar{x}$	<i>s</i>	<i>N</i>	$\bar{x}$	<i>s</i>	<i>p</i> *	<i>d</i>
Creativity								
Test (matched surveys)	165	6.33	0.670	165	6.14	0.798	.000	0.29
Control (matched surveys)	95	6.06	0.886	95	5.97	1.002	.265	0.10
Leadership								
Test (matched surveys)	165	5.74	0.979	165	5.43	1.321	.001	0.32
Control (matched surveys)	95	5.75	0.984	95	5.52	1.145	.101	0.23
Energy								
Test (matched surveys)	165	5.71	0.847	165	6.31	0.711	.000	0.70
Control (matched surveys)	95	5.55	1.015	95	6.25	0.794	.000	0.70
Self-efficacy								
Test (matched surveys)	165	5.87	0.777	165	6.19	0.668	.000	0.41
Control (matched surveys)	94	5.74	0.911	94	6.26	0.665	.000	0.57

*Significance 2-tailed

Statistically significant differences ($p \leq 0.05$) existed between the pre- and post test results for each of the matched test and control groups, such as for ‘creativity’ (test group, $p = 0.000$), ‘leadership’ (test group, $p = 0.001$), ‘energy’ (test and control group, $p = 0.000$) and ‘self-efficacy’ (test and control group, $p = 0.000$).

These differences were neither visible ($0.5 \leq d < 0.8$) nor practically significant ($d \geq 0.8$) for the constructs ‘creativity’ (test group, $d = 0.29$) and ‘leadership’ (test group, $d = 0.32$). Visible effects ($0.5 \leq d < 0.8$) were evident between the pre- and post test means of both the matched test and control groups for the construct ‘energy’ as indicated by $d = 0.70$ in both instances. This finding corresponds with the earlier comparative analysis between the test and control groups where respective d -values of 0.75 and 0.69 were recorded (see section 9.5.7.3 and table 9.44).

It may be concluded that there were visible differences between the pre- and post test mean scores separately for the matched test and control groups for the construct ‘energy’, but these differences were identical ($d = 0.70$) in both groups, and consequently, not indicative of any differences between the two groups. Considering that only the test group had been exposed to the training intervention of Junior Achievement South Africa (JASA), the visible effect size between the pre- and post test results cannot be ascribed to the training intervention seeing

that the control group (with no exposure to the training intervention) experienced identical levels of increased energy.

Table 9.44 (section 9.5.7.3) earlier indicated that the effect sizes for ‘self-efficacy’ were approaching the level of visibility ($0.5 \leq d < 0.8$) with $d = 0.43$ for the test group and $d = 0.48$ for the control group. The results of the analysis using only the matched pre- and post test surveys of individual respondents (table 9.49) produced a comparable effect size for the matched test group ($d = 0.41$), but a larger, visible effect size of $d = 0.57$ for the matched control group.

As a result, it can be concluded that respondents in the matched control group had gained a visible increase in their levels of self-efficacy as a construct underlying their innovation skills as measured by the YISQ, as opposed to the matched test group where the increase in self-efficacy was below the level of visibility (i.e., where $0.5 \leq d < 0.8$).

The analysis of covariance (ANCOVA), presented in table 9.50 below, produced no statistically significant differences in the mean scores of the matched test and control groups as indicated by $p > 0.05$ for all four constructs.

Table 9.50 ANCOVA for the YISQ mean scores: Matched respondents (P⁵⁴)

Group:	Test group			Control group			Comparison	
Construct	<i>N</i>	$\bar{x}$	Std. error	<i>N</i>	$\bar{x}$	Std. error	<i>p</i>	<i>d</i>
Creativity	165	6.07	0.054	95	6.09	0.071	.759	0.04
Leadership	165	5.43	0.090	95	5.52	0.119	.533	0.08
Energy	165	6.28	0.052	95	6.29	0.068	.916	0.01
Self-efficacy	165	6.18	0.049	94	6.28	0.065	.220	0.16

Note: Abridged results; full results presented in appendix nine.

The finding from the results presented in table 9.49 that respondents in the matched control group had gained a visible increase in their levels of self-efficacy as opposed to the matched test group where the increase was below the level of visibility, supports the conclusion that there were differences between the matched test and control groups at the time of post testing.

Proposition P⁵⁴ (‘there were differences between the innovative skills of individual respondents from the test and control groups after exposure of the test group to

entrepreneurship education and training as measured by the constructs of the YISQ test at the time of post testing') is **accepted**.

In summary of this section on the statistical analyses of the differences between the matched test and control groups at the time of post testing, it is concluded that there were no differences between these groups from the perspectives of personal wellbeing and adaptive cognition as measured by the PWI-SC and the MAC, but that there were differences in their levels of self-efficacy as a construct underlying innovation skills as measured by the YISQ.

9.6 CHAPTER SUMMARY

Chapter nine was the second of two chapters describing the main empirical study on secondary school learners in South Africa. It presented the design, results and discussion of the PMY-3 empirical study. The design of the study was explained, including discussion of structural improvements to the original version of the PMY-3 survey and the incorporation of a pre- and post test control-group design.

The sampling method was described as convenience sampling and the method used for the gathering of data was explained in detail. The PMY-3 study sample was defined as comprising 910 respondents in the pre-test phase, followed by 749 respondents in the post testing phase. An introduction to the statistical analysis of the dataset followed, including a list of 27 propositions identified for examination to address the primary objective and some of the secondary objectives of the study.

Similar to chapter eight, the chapter progressed to the analysis and presentation of the demographic and socio-economic profiles of the sample both at the time of pre-testing and subsequent post testing for comparison with the South African population as reported in Census 2011 (Stats SA, 2012) and by Consumer Scope (2009).

Following these introductory sections, the construct validity of the PMY-3 measuring instruments was examined using principal factors analysis and SPSS (2011) software. All three instruments in the PMY-3 survey – the Personal Wellbeing Index for School Children (PWI-SC), the Measure of Adaptive Cognition (MAC) and the Youth Innovation Skills Measurement Tool (YISQ) - loaded to a sufficient extent with acceptable levels of factor interpretability and were subsequently accepted for further analysis. The risk-factor ('risk-

propensity') in the YISQ was excluded from further analysis due to its eigenvalue of 0.813 not conforming to Kaiser's criterion.

The construct validity of the PWI-SC was further examined using multiple regression as recommended by the developers, Cummins and Lau (2005). Although the R -square (R^2) statistic was below the recommended $R^2 > 0.50$, the PWI-SC domains (predictors) produced unique variance (table 9.5) and in combination with the interpretability of the factor loadings during principal factors analysis, led to acceptance of the instrument for further analysis.

The next section of the chapter presented the results of reliability testing for each of the PMY-3 measuring instruments using Cronbach's alpha (α). The reliability levels of all three instruments (PWI-SC, MAC, YISQ) met the predetermined threshold of $\alpha \geq 0.50$, save for the construct 'risk-propensity' in the YISQ ($\alpha = 0.235$) which was subsequently excluded from any further analysis. As a result of these findings, all three instruments were accepted for further analysis (subject to the specified exclusions).

Once the validity and reliability of the PMY-3 survey instruments had been confirmed, the analysis of the data progressed to the examination of differences in the mean scores of the test and control groups at the time of pre-testing. These tests were carried out to determine whether the test and control groups were 'equal' at the start of the research project. Independent samples tests (t -tests) were carried out to examine the respective datasets for statistically significant differences, but effect sizes (Cohen's d) were used to determine whether any visible or practically significant differences existed between the two groups.

The results indicated that there were statistically significant differences in the mean scores of the test and control groups for all three tests, but none of these differences were visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$). As a result, it was concluded that there were no differences between the test and control groups in terms of their subjective personal wellbeing (PWI-SC), levels of adaptive cognition (MAC) and innovation skills (YISQ) at the time of pre-testing. This finding suggested that any differences between the test and control groups at the time of post testing and after the test group had been exposed to the training intervention of Junior Achievement South Africa (JASA), could be ascribed to the impact of the intervention on the test group.

There were visible ($0.5 \leq d < 0.8$) and practically significant ($d \geq 0.8$) differences in the mean scores of the total sample calculated for the dependent variables in the YISQ (five types

of innovators) and for learners wishing to pursue a ‘stronger innovation pathway’ as opposed to those focused on a ‘weaker innovation pathway’ (table 9.20). This finding had no bearing on the comparative tests between the test and control groups at the time of pre-testing as it was carried out for the entire sample of 910 respondents.

Similar tests were carried out to examine the datasets for differences in the mean scores of respondents from different demographic sub-groups, including the variables ‘gender’, ‘type of school’ and ‘parents’ employment’. Statistically significant differences existed in some instances (‘gender’ for the MAC and the YISQ), but none of these differences were large enough to produce effect sizes indicating visible or practical significance. Consequently, it was concluded that there were no differences between respondents originating from different demographic groups in South Africa.

These tests were repeated for the socio-economic sub-groups included in the sample using the LSM[®] groups of the South African Advertising Research Foundation (SAARF, 2010), but narrowed down to the four lifestyle levels of Consumer Scope (2009). Again, statistically significant differences were recorded in some instances (MAC and YISQ), but none of these differences were visible or practically significant. As a result, it was concluded that there were no differences between respondents originating from different socio-economic groups in South Africa.

Having determined that there were no visible or practically significant differences between the test and control groups or between respondents (total sample) from different demographic and socio-economic groups at the time of pre-testing, the statistical analysis turned to the post test datasets to examine for differences in the mean scores after the test group had been exposed to JASA’s Mini-Enterprise Programme (MEP).

The analysis followed the same approach as for the pre-test data (i.e., independent samples tests and the calculation of effect sizes), but included tests for both the test versus the control groups using the post test dataset and separately for the test and control groups using the pre- and post test results for each group. The results for two of the instruments (the PWI-SC and the MAC) indicated statistically significant differences in several instances and for both approaches, but again none of these differences were large enough to be recognised as being visible ($0.5 \leq d < 0.8$) or practically significant ($d \geq 0.8$). This finding led to the conclusion that there were no differences in the subjective personal wellbeing and levels of adaptive

cognition of the test and control groups after exposure of the test group to entrepreneurship education and training.

Analysis of the YISQ post test data produced similar results (i.e., no visible or practically significant differences) for the test versus the control groups, but revealed visible differences ($0.5 \leq d < 0.8$) for the construct ‘energy’ (test group $d = 0.75$; control group $d = 0.69$) between the pre- and post test results separately for each group. This indicated that there were visible differences between the pre- and post test mean scores of both the test group and the control group, but the subsequent discussion pointed out that these differences were present in both groups and almost to the same extent ($d = 0.75$ and 0.69). As a consequence, it was concluded that the recorded differences could not be attributed to the training intervention of Junior Achievement South Africa (JASA), but rather to some other occurrence such as the September school holiday around the time of the post testing exercise.

The final analysis focused on individual respondents of whom the pre- and post test PMY-3 surveys could be matched using the longitudinal questionnaire ID included in the survey. This approach, similar to the findings reported in chapter eight, resulted in a much smaller sample and focused, firstly, on differences in the mean scores between the pre- and post test surveys of individual respondents calculated separately for the test and control groups using paired samples tests (t -tests), and secondly, using analysis of covariance (ANCOVA) to reduce within-group variance and eliminate confounds in a comparative analysis between matched respondents respectively in the test and control groups.

The results for both approaches produced no statistically significant differences ($p \leq 0.05$) for the PWI-SC and the MAC datasets as the p -value was greater than 0.05 in all instances. This finding led to the conclusion that there were no differences between the subjective personal wellbeing and levels of adaptive cognition of individual respondents in the test and control groups after exposure of the test group to entrepreneurship education and training.

The YISQ dataset produced different results: Statistically significant differences ($p \leq 0.05$) existed in the means of the matched test and control groups (separately for each group) for the constructs ‘creativity’ (test group), ‘leadership’ (test group), ‘energy’ (test and control groups) and ‘self-efficacy’ (test and control group). Visible differences ($0.5 \leq d < 0.8$) were evident in the pre- and post test means of both the matched test and the matched control group for the construct ‘energy’ ($d = 0.70$ in both cases), but again the similarity in the effect

sizes of the two groups led to the conclusion that the recorded differences could not be ascribed to the training intervention of JASA.

The effect size for the YISQ construct 'self-efficacy' had reached the level of visibility (where $0.5 \leq d < 0.8$) for the matched control group ($d = 0.57$), compared with the statistically significant ($p = 0.000$) but not visible ($d = 0.41$) difference for the matched test group. This finding represented the only visible difference between learners in the test group and learners in the control group recorded in this study, leading to the conclusion that respondents in the matched control group had gained a visible increase in their levels of self-efficacy as a construct underlying their innovation skills, as opposed to learners in the matched test group with no visible increase.

In summary chapter nine concludes that the Mini-Enterprise Programme (MEP) of Junior Achievement South Africa (JASA) did not have a large enough impact on the subjective personal wellbeing (PWI-SC) and levels of adaptive cognition (MAC) of learners in the test group to be visible or to have any real effect in practice (i.e., be practically significant), but also that it may have had a potentially limiting effect on the development of self-efficacy as a construct underlying the fortification of innovation skills (YISQ) in young people.

CHAPTER TEN

CONCLUSIONS AND RECOMMENDATIONS

10.1 INTRODUCTION

The foregoing chapters rendered the meaning of entrepreneurship (chapter two) and presented an overview of contemporary challenges facing South Africa as a developing country (chapter three), an examination of whether entrepreneurship can be taught successfully (chapter four), an investigation into current entrepreneurship teaching approaches and the identification of good practice, further supported by the presentation of the ‘eureka’-factor in effective entrepreneurship education and training (chapter five).

Chapter six presented the empirical research approach, the measuring instruments and methodology employed for data coding, followed by the exposition of the pilot study (chapter seven) and the main study on secondary school learners in South Africa using two surveys to examine the impact of *ad hoc* entrepreneurship education and training on the entrepreneurial attitudes, intentions, enterprising tendencies, subjective personal wellbeing, adaptive cognition and innovation skills of young learners (chapters eight and nine).

From the onset, the primary objective of this study was to determine whether *ad hoc* youth entrepreneurship education and training in South Africa in its current form has any quantifiable, positive impact on young learners in the secondary school curriculum. This objective called for a thorough literature review on the concept of entrepreneurship and the associated training methodologies, supported by scientific empirical research to examine the impact (if any) of a reputable entrepreneurship training programme on young learners.

These objectives were addressed in the preceding chapters, and consequently, this chapter is focused, firstly, on drawing valid conclusions from both the literature review and the empirical research conducted in this study, and secondly, on the formulation of practical recommendations conducive for the development of (more) capable, young entrepreneurs in South Africa.

10.2 CONCLUSIONS

The span of this study supports denary multiples of conclusions surrounding the concept of entrepreneurship and the content and impact of entrepreneurship education and training in

South Africa. As a result, the literal repetition of all conclusions in this study may extend the length of this chapter far beyond the point of practicality. Accordingly, the conclusions presented in subsequent sections are aimed at providing a bolstered digest of the essentials of the study.

10.2.1 Conclusions from the literature review

This study, similar to the finding of Steenekamp (2009), confirms that entrepreneurship, and in particular the intricate working of the entrepreneurial mind, remains one of the least understood topics in academic research. This finding relates to many uncertainties surrounding the ability of certain individuals to discover and exploit entrepreneurial opportunities (Mitchell *et al.*, 2002: 93-94), exploration of the nature of entrepreneurship (Anderson & Jack, 2008: 260), the understanding of entrepreneurship (Krueger, 2007: 123; Baumol, 1968: 67) and the lack of a universally accepted, well-developed theory (Van Wyk *et al.*, 2003: 22; Ripsas, 1998: 103; Hébert & Link, 1989: 47) and definition of entrepreneurship and the entrepreneur (Kobia & Sikalieh, 2010: 110; Nafukho & Muyia, 2010: 99; Thompson, 2009; Anderson & Jack, 2008: 263; Deo, 2005; Howorth *et al.*, 2005: 30; Kirby, 2004: 511; Gibb, 2002b: 235; Cromie, 2000: 7; Ripsas, 1998: 113; Gartner, 1989: 48; Long, 1983: 47).

Notwithstanding the contents of this study and its contribution to entrepreneurship research, the findings above reiterate the need for renewed and continuous research and efforts to bring entrepreneurship theory and practice to convergence and create better understanding of the concept and conditions conducive to its development.

10.2.1.1 Entrepreneurship in economic theory

It is clear that entrepreneurship has a vital role to play in economic growth as evident from both fundamental and functional themes emanating from entrepreneurship theory as envisaged by both historic and contemporary scholars in the field. From a fundamental perspective, it is concluded that entrepreneurs are the root cause of innovation and economic development, but also that entrepreneurial activity is dependent on the potential for profit in its various forms. Entrepreneurship, contrary to popular belief, is not dependent on having anything, but rather on ‘wanting’ something at a level of desire strong enough to face adversity and subject oneself to immense risk and the potential for failure.

From the functional perspective, it is concluded that entrepreneurship is more a function than a personality trait, making way for each and every individual to exercise ‘peculiar’ choices in pursuing an entrepreneurial lifestyle. The almost inconceivable capacity of serial (perhaps born) entrepreneurs to consistently excel in the identification and realisation of opportunity must be acknowledged, but the existence of such ‘supernatural’ individuals does not imply noble ancestry and does not detract from the potential of ‘ordinary’ individuals to look outside the comfort of routine and actively seek and pursue opportunity.

Entrepreneurship is evidently so much more than management, and much can be said about the importance of distinguishing between these related, yet different functions, both in economic activity and in education. Recognition for the importance of education for all aspects of successful adulthood – and also for entrepreneurial activity – dates back to the classical economists (e.g., Mill, Marshall and Friedman), and consequently, holds important lessons even for the contemporary environment in which entrepreneurship remains a journey of lifelong learning.

It is concluded that the lessons learnt from economics’ founding fathers still have relevance for the modern classroom due to striking relationships between the classical entrepreneurship theories and the development of an entrepreneurial mindset. This conclusion is strengthened by the transferability of entrepreneurship theory as seen through the eyes of the classical economists into the current learning environment, subject to Weber’s cautionary statement that education can only be a source of economic growth if traditional teaching methodologies are changed to a more liberating, stimulating, informative and action-oriented approach (Miller, 1967).

10.2.1.2 Defining entrepreneurship and the entrepreneur

The literature review revealed much academic debate about the notion of entrepreneurship, but simultaneously highlighted the lack of agreement as to what the concept truly means (Gibb, 2007a: 2) and how it should be defined (Kobia & Sikalieh, 2010: 110; Nafukho & Muyia, 2010: 99; Thompson, 2009; Anderson & Jack, 2008: 263; Deo, 2005; Howorth *et al.*, 2005: 30; Kirby, 2004: 511; Gibb, 2002b: 235; Cromie, 2000: 7; Ripsas, 1998: 113).

This led to the supposition that the true meaning of entrepreneurship remains unclear, and to some extent, partially concealed in the overlaps between entrepreneurship and other sub-fields of economics and social interplay. The contribution of existing definitions to some

understanding of specific aspects of entrepreneurial behaviour and the role of the entrepreneur was recognised, providing sufficient cause for the formulation of ‘new’ definitions for both entrepreneurship and the entrepreneur based on the nine themes extracted from the concomitant discussion (see section 2.3.2, chapter two).

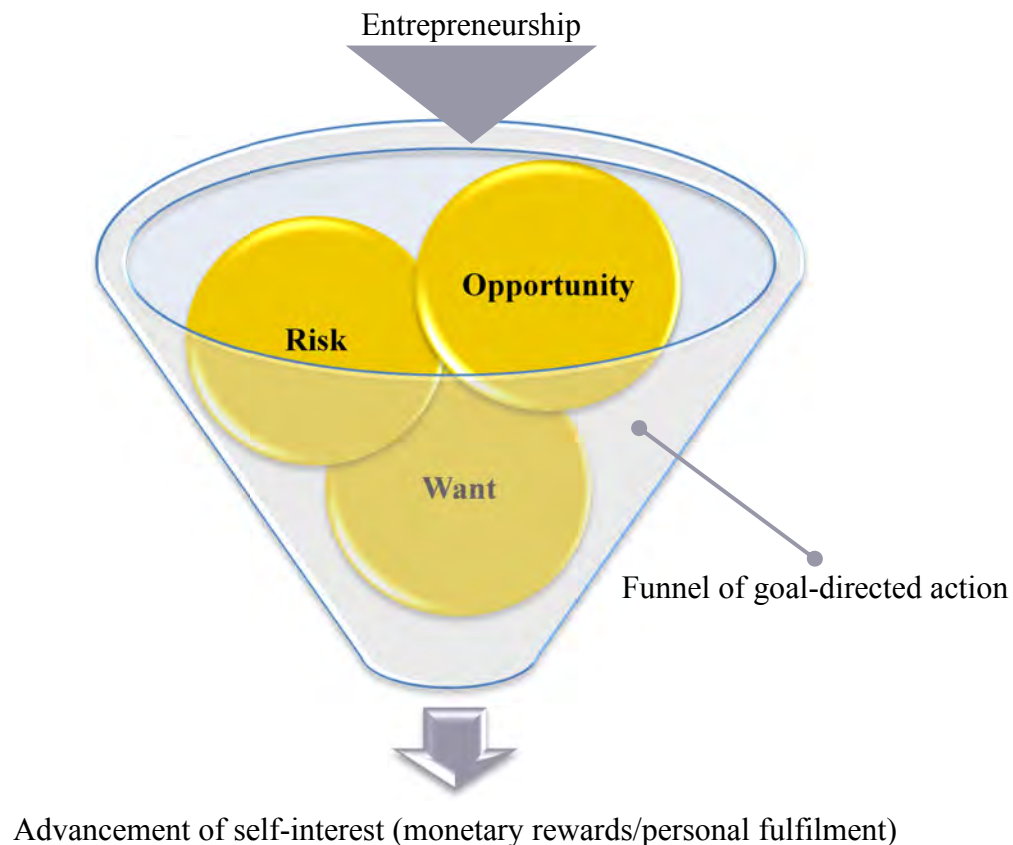
No conclusions are drawn from these ‘new’ definitions as both are open to subjectivity on the part of the author, as well as comment and criticism by other scholars. It will probably be read and forgotten instantly by many; perhaps cause momentary thought for others; and with a bit of luck, receive consideration and even comment for improvement from the informed few also in search of meaning and better understanding of entrepreneurship.

10.2.1.3 The essence of entrepreneurship

The examination of various existing definitions reaffirmed the ubiquity of opportunity and risk in entrepreneurial behaviour. The relationship between these two elements was described as being strong, but negative, and functioning in complex or uncertain conditions (Keh *et al.*, 2002: 136-137). As a result, it is concluded that opportunity and risk are two core elements of entrepreneurial activity, but that higher levels of perceived risk will, in general, lead to a less positive evaluation of a given opportunity.

Of similar importance is the third and final element of entrepreneurial activity identified earlier as ‘want’, or in other words, a desire strong enough to overcome the associated risks in pursuit of a perceived opportunity. This element was put forward as the overarching element in both entrepreneurial activity and entrepreneurial learning based on the argument that the absence of ‘want’ (desire) effectively removes any motivation to act from the entrepreneurial equation, even in the presence of both opportunity and risk.

Without action there can be no entrepreneurial activity, simply because entrepreneurship is not about talking – it is about taking action and pushing oneself, often relentlessly, to achieve some goal(s) underlying the promotion of self-interest as the main motivational factor driving entrepreneurial behaviour (Schumpeterian theory). It is concluded that the core elements of entrepreneurship are opportunity, risk and want, but also that these elements require high levels of dedicated action to have any chance at converging to the point where individual self-interest is promoted or satisfied as shown in figure 10.1 on the following page.

Figure 10.1 The essence and purpose of entrepreneurship

From figure 10.1, labelled the essence and purpose of entrepreneurship, it is concluded that the essence of entrepreneurship is finding an opportunity worth pursuing, recognising the inherent risks, and wanting the envisaged outcome bad enough to tolerate those risks while pursuing the particular opportunity ('taking action') at almost any cost, whereas its true purpose is firmly rooted in the advancement of individual self-interest through the accumulation of monetary rewards, the attainment of personal fulfilment of any kind, or both.

10.2.1.4 Contemporary challenges and the 'genie in a bottle'

The literature review confirmed that South Africa faces many challenges, including poverty, inequality, HIV/AIDS, skills shortages, poor quality of basic education, unemployment, and in particular, youth unemployment. No conclusions need to be drawn from the discussion of these challenges presented in chapter three, apart from recognising that it is structural and deeply embedded in South African soil. The main challenge insofar this study is concerned, is that of alarming proportions of youth unemployment in South Africa which present serious threats to political, economic and social stability in the country.

In response to these challenges and from the subsequent discussion in chapter three, it is concluded that an enterprising spirit (i.e., the ‘genie in a bottle’) is of crucial importance for the development of economic activity in any country, and even more so for a developing country such as South Africa. Save for the dangers associated with ‘letting the genie out of the bottle’ in an uncontrollable manner (unethical, exploitative and illicit business practices; the practice of ‘tenderpreneurship’; creating a culture of expectation based merely on ‘want’), it is concluded that entrepreneurship is indeed the ‘magical genie’ capable of redressing many of the country’s ills.

It is further concluded that the ‘genie’ (i.e., the entrepreneurial spirit) resides mainly in the small and medium-sized enterprise (SME) sector on a global scale, providing further impetus for renewed efforts to create a SME environment in which the ‘genie’ can work its magic. For young people, and therefore also of paramount importance for this study, it is concluded that the spirit of entrepreneurship is key to economic growth and job creation, improving the national welfare of South Africans and contributing towards social and economic empowerment (see Ndedi, 2009: 463-464).

It is evident that the padlock on the genie’s bottle is kept firmly secured by way of numerous barriers obstructing the free flow of an enterprising spirit, and it is concluded that efforts to ‘let the genie out of the bottle’ will be severely impaired until such time as a favourable and empowering environment for the release of an entrepreneurial spirit is created in South Africa.

10.2.1.5 Can entrepreneurship be taught?

This question is debated extensively in the academic literature (e.g., Chen *et al.*, 2010; Roffe, 2010; Athayde, 2009a; Anderson & Jack, 2008; Dickson *et al.*, 2008; Müller, 2008; Gibb, 2007a; Klinger & Schündeln, 2007; Gibb, 2006a; Hegarty, 2006; Frank *et al.*, 2005; Henry *et al.*, 2005a; 2005b; Kuratko, 2005; De Faoite *et al.*, 2003; Peterman & Kennedy, 2003; Dana, 2001; Gorman *et al.*, 1997), but the answer lies trapped somewhere between two opposing schools of thought. On the one hand, it is argued that entrepreneurs are born, but on the other, that entrepreneurship is a learnt phenomenon. However, more often than not, the discussion supporting these opposing arguments in chapter four indicate more support for the ‘and’ approach rather than the ‘or’ approach.

It is conceded that some people are innately more entrepreneurial than others (i.e., born entrepreneurs), but also that all individuals have, to a lesser or greater extent, some entrepreneurial characteristics. From this perspective, it is concluded that each and every individual has the capacity to execute some level of entrepreneurial behaviour, but that the level of such behaviour is determined by the individual experiences of entrepreneurs as they grow and learn from their environment (see Hegarty, 2006: 325), as well as the design of organisations and environments that either stimulate or suppress entrepreneurial behaviour (see Gibb, 2006a: 5).

Important for this study, and particularly for the development of youth entrepreneurship in South Africa, is evidence presented in the literature review indicating that some aspects of entrepreneurship can be taught successfully in general education (Athayde, 2009a; Dickson *et al.*, 2008; Bjerke, 2007; Frank *et al.*, 2005; Henry *et al.*, 2005a; 2005b; Kuratko, 2005); that entrepreneurship can be encouraged through entrepreneurship education (Gorman *et al.*, 1997: 63); that entrepreneurship education has a positive influence on the decision to pursue an entrepreneurial lifestyle (Müller, 2008: 2); and finally, that it has the capacity for the development of entrepreneurial attributes (Anderson & Jack, 2008: 265; Gibb, 2007a: 2).

These findings lead to the firm conclusion that entrepreneurship can indeed be taught, but the implications of this conclusion and the accompanying demands brought forward for policy makers, educators, parents and entrepreneurship learners to create an environment conducive for effective teaching (and learning) should not be underestimated.

10.2.1.6 Entrepreneurship or enterprise, education or training?

The words ‘entrepreneurship’ and ‘enterprise’, as well as ‘education’ and ‘training’, are used interchangeably throughout this study. The literature review in chapter four highlighted some dangers associated with this practice, including the polarisation of emerging theory (Matlay, 2008: 383) and lesser understanding of the objectives of entrepreneurship as a field of study (Mwasalwiba, 2010: 21).

It was put forward that entrepreneurship education in South Africa cannot function in isolation from the objectives of enterprise education as a broader concept due to the vast array of challenges facing the country. It is concluded that entrepreneurship education must be practised as ‘enterprise-entrepreneurship education’ to have any chance at successfully releasing the spirit of enterprise in South Africa.

What is important, though, is that this type of education ('enterprise-entrepreneurship education') must be approached with utmost care and with recognition for contextual differences between South Africa and developed countries from which the conceptual similarities between entrepreneurship and enterprise originate.

A similar conclusion is drawn for the terms 'education' and 'training': Although the literature review distinguished between the two concepts as respectively being focused on the development of an entrepreneurial 'product' (education) and refining the entrepreneurial process (training) (see Feinstein *et al.*, 2002: 739), the importance of recognising this difference is downplayed based on the argument that both knowledge (from education) and experience (from practical training) are required to achieve entrepreneurial results.

Entrepreneurship education and entrepreneurship training cannot function in isolation from one another. This proposition is supported by Steenekamp *et al.* (2011a: 51) in stating that *"...a more holistic approach is required for the construction of a developmental pipeline to connect knowledge transfer (education) to skills development (training), and enable the free flow of an enterprising spirit among young people in South Africa."* The earlier conclusion that content is more important than labelling (see section 4.3.3, chapter four) is reiterated, but the importance of using these words in context is emphasized.

10.2.1.7 Defining entrepreneurship education

The construction of a universally agreeable definition for entrepreneurship education suffers from similar conceptual problems as for the definitions of entrepreneurship and the entrepreneur presented in section 10.2.1.2. There are also additional challenges such as the differences between education and training (Feinstein *et al.*, 2002: 739), but the necessity for both concepts in a holistic approach to effective entrepreneurship development (Steenekamp *et al.*, 2011a: 51); the differences between entrepreneurship and management, but the need for managerial knowledge in entrepreneurial activity (Anderson & Jack, 2008: 263); the association of entrepreneurship with economic activity, but its relevance to several other domains such as social life, education, religion and an array of organisations in which financial profit is not the primary goal (Gibb, 2007a: 2); and finally, knowledge of the desired outcome of entrepreneurship education (i.e., developing more successful entrepreneurs), but insufficient evidence of exactly what and how much of it should be taught to achieve this outcome in an effective and sustainable manner.

Notwithstanding these paradoxes and challenges, a ‘new’ definition was proposed for entrepreneurship education (section 4.4.2, chapter four) in which the product-process focused relationship was brought to the fore in support of the development of attributes, knowledge and skills enabling individuals to participate meaningfully in all aspects of life, but still in search of the advancement of self-interest through personal gain or self-fulfilment. It is concluded that this definition sheds some light on the path to be followed toward effective entrepreneurship education (i.e., product followed by process) and the overarching purpose of such education, but that it still lacks a precise description of the appropriate content to achieve its purpose.

10.2.1.8 The importance of education

The importance of general education, entrepreneurship education and youth entrepreneurship education, as well as the underlying, interlinking relationships with entrepreneurial activity were expounded in section 4.5 of chapter four. The resulting conclusion is simply that education (both general and entrepreneurship oriented) is not only important, but in fact a crucial pre-requisite for entrepreneurial activity among ‘ordinary people’ (i.e., ‘ordinary’ in the sense that they are not born serial entrepreneurs).

The proposition by Gibb (2007a: 6) that the importance of entrepreneurship education is vested in increasing demand for entrepreneurial behaviour imposed by modern societies, and the proposition by Jones and Iredale (2010: 9) that the emergence of entrepreneurship education is a response to complex changes in both economies and societies, are adopted as apropos conclusions surrounding the importance of entrepreneurship education.

These conclusions predict several challenges for effective youth entrepreneurship education in South Africa and highlight the stern warning by Saboe *et al.* (2002: 1) that at-risk youth may ignore the learning process if they experience the content and methodology as irrelevant to their lives. It is common knowledge that the South African youth is among the worst at-risk individuals in the world, and the common use of education/training content and methodology borrowed from other countries or cultures based on the premise that it can be ‘tweaked’ for optimum results on South African soil is questioned: This country demands far-reaching interventions tailored to its specific needs and challenges for the development of young lions capable of hunting for and making a kill on entrepreneurial opportunities.

10.2.1.9 The importance of entrepreneurial learning

If not for the requirements of technical presentation, this section would have been presented in bold, italic, double spaced and enlarged text to emphasize the importance of its content...

From the discussion in section 4.6 of chapter four it is concluded that entrepreneurial learning far outweighs the potential impact of *ad hoc* entrepreneurship education and training. This conclusion may seem somewhat illogical seeing that entrepreneurial learning should be both part and the result of entrepreneurship education and training. There are, however, two important factors distinguishing between entrepreneurship education and training and entrepreneurial learning: Firstly, the role of the learner, and secondly, the driver of the process.

On the first factor, entrepreneurship education and training both comprise content (what is being taught) and methodology (how the content is prepared and taught). Although the literature review indicated that training has a more practical approach than theory-based education, the role of the learner in either of these approaches may still be – at least to some extent – of a passive nature: The educator or trainer presents the content to the learner in some predetermined manner and the learner receives the information for processing. In this process the educator or trainer has no control over whether the learner makes the knowledge or skills his/her own, and as a result, the focus is on delivering the content to the learner in an approved or acceptable manner.

It is acknowledged that the practical strain in entrepreneurship training contributes to the accumulation of some entrepreneurial experience, but the accumulative process is fast-tracked significantly in entrepreneurial learning. In entrepreneurial learning the learner (whether a student, an emerging entrepreneur or a hardcore serial entrepreneur) learns from everything, including experiencing, doing, reviewing, applying, swallowing chunks of theory, succeeding, failing, sharing and from functioning within social and personal networks. The focus in this instance is on ‘doing’ and ‘experiencing’ while in a state of continuous discontinuity and change, earmarked by critical learning events reinforcing the individual’s capacity for entrepreneurship. During this ongoing process the learner learns how to deal with problems as they emerge, as well as dealing with the reciprocation between success and failure (see Fayolle & Gailly, 2008: 583).

The second distinguishing factor is the driver of entrepreneurial learning. This factor, labelled ‘want’ (a desire strong enough to overcome risk in pursuit of an opportunity), was described earlier in section 10.2.1.3 as the overarching element of both entrepreneurial activity and entrepreneurial learning. ‘Learning’ implies an active process of ‘wanting’ knowledge, skills and experience, making that which is learnt one’s own for further use or improvement and developing a certain level of expertise, as opposed to education and training where the absence of ‘want’ on the part of learners has never been construed as meaning that educators or trainers had failed to deliver some prescribed content.

The transformation of entrepreneurship education and entrepreneurship training into entrepreneurial learning is illustrated in figure 10.2 below.

Figure 10.2 Transformation of entrepreneurship education and training into learning

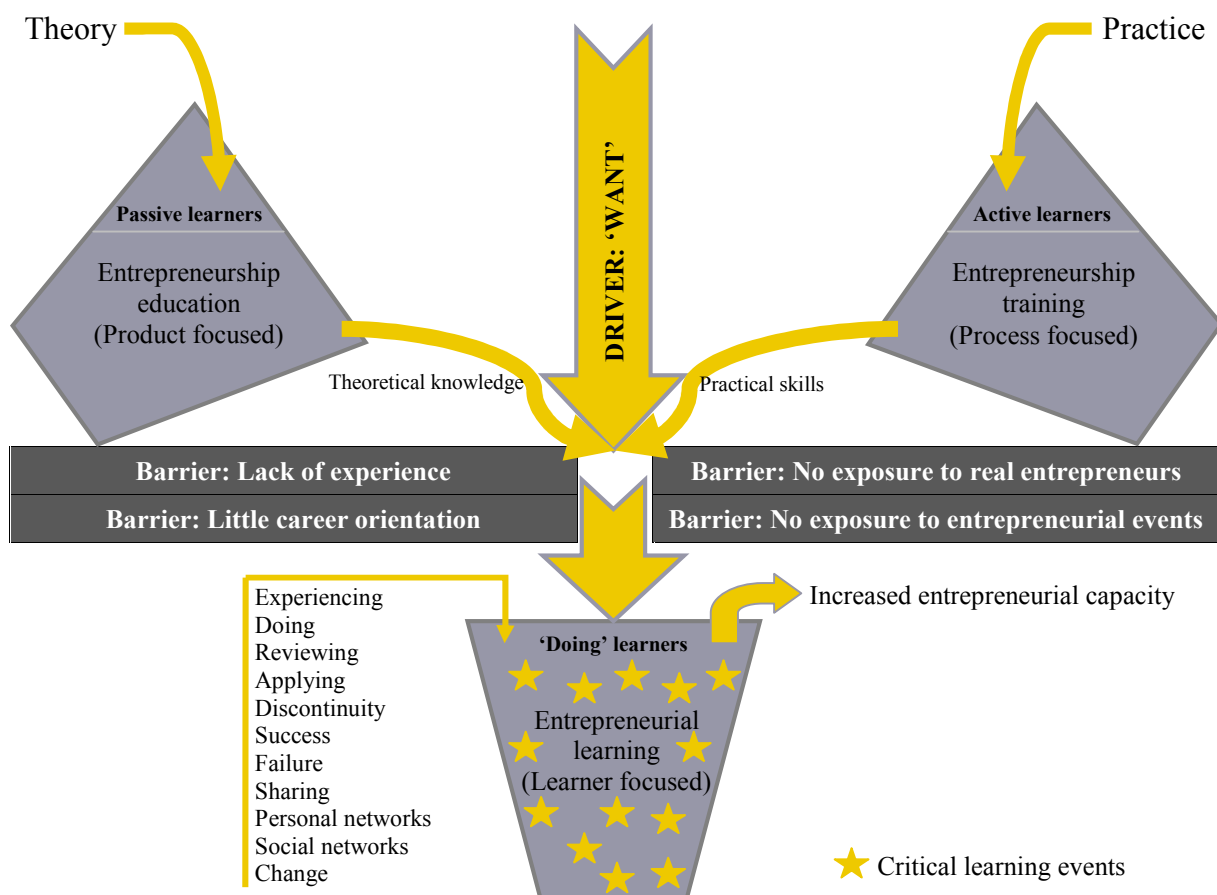


Figure 10.2 shows that theoretical knowledge and practical skills gained respectively from entrepreneurship education and entrepreneurship training can only be transformed into entrepreneurial learning if the learner has sufficient ‘want’ to channel such knowledge and skills through a small orifice in the underlying barriers.

From this perspective, and in agreement with Sullivan (2000: 162), it is concluded that the theory in entrepreneurship education and the practice in entrepreneurship training need to be combined with ‘want’ (a desire to learn) on the part of learners to promote entrepreneurial learning based on both adaptive and generative learning to bring forward entrepreneurial experience. This conclusion leads to the further conclusion that the barriers obstructing entrepreneurial learning will continue to have a negative effect on the impact of entrepreneurship education and training programmes until such time as learners with sufficient levels of ‘want’ to pursue an entrepreneurial lifestyle are selected for such interventions.

The important role of entrepreneurship education in basic education is acknowledged, but this conclusion spells deep trouble for current education and training practices set on mass-producing young entrepreneurs. Firstly, do all the learners included in these programmes really want to be entrepreneurs? Secondly, do they have the aptitude to transform entrepreneurial knowledge and skills into entrepreneurial learning, and eventually, into entrepreneurial success? Thirdly, are the levels of individual attention needed for true entrepreneurial learning attainable in a class of 30 individuals or more?

In a natural progression from these questions, it is concluded that *ad hoc* entrepreneurship educators and trainers should focus on less [learners] for more [attention]. It is proposed that the time has come to move away from efforts aimed at educating/training young entrepreneurs in batches of 10 000 to end up with 1 000 people living a life of subsistence. The focus should rather be on educating/training 1 000 true entrepreneurs at a time with the capacity to employ 100 000 people.

10.2.1.10 The essentials of entrepreneurship education

It is concluded that entrepreneurship education is indeed a reality, but also that *effective* entrepreneurship education is dependent on a number of essential components, including its drivers, certain underlying conditions, clear objectives and defined outcomes.

The literature review (chapter four) isolated energy and excitement as the central drivers of entrepreneurship education (see Jones, 2006: 336-337), and further proposed that elevated levels of these drivers need to be present in all stakeholders, including educators and trainers, parents and guardians, organised business, governments, and in particular, learners, to have any chance of being truly effective.

The conditions for effective entrepreneurship education are vast and not easily attainable. A focal shift from a business start-up approach to an attitude-changing perspective of entrepreneurship is observed, but a radical shift involving Schumpeter's 'creative destruction' and the reorganisation of knowledge and pedagogy is required (Gibb, 2002b: 259). In addition, it is concluded that various other conditions need to be met to bring about effective entrepreneurship education, including:

- ✦ the recognition of entrepreneurship education (knowledge) and training (skills) as longer-term strategies (Brijlal, 2008: 32; EU, 2004: 10) and a systematic shift away from short courses, electives and once-off training interventions as the preferred methods of entrepreneurship development;
- ✦ the selection of youth with real potential (attitude/aptitude) to become entrepreneurs for training, supported by appropriate forms of support to increase their chances of success (Herrington *et al.*, 2009: 110; Dhliwayo, 2008: 334), as opposed to mass-production lines for 'wannabe' entrepreneurs;
- ✦ the incorporation of effective entrepreneurial training into all levels (primary, secondary and tertiary) of the education and training system (Herrington *et al.*, 2010: 28) in such a way that entrepreneurial aptitudes and capabilities can flourish alongside business training (Kirby, 2004: 517);
- ✦ a radical shift from the old-fashioned 'talk-and-chalk' classroom approach to one where the educator becomes a 'dynamic facilitator of learning' (SAIE, n.d., b);
- ✦ the design and delivery of appropriate education and training programmes to stimulate entrepreneurial learning (see Gibb, 2008: 15; Yu & Man, 2007: 149); and
- ✦ the incorporation of entrepreneurship education and training content and methodology which are both sensitive to different cultural and ideological contexts and suitable for different stages of economic and social development (Gibb, 2006a: 21; De Faoite *et al.*, 2003: 430; Dana, 2001: 412).

It is concluded that the main objectives of entrepreneurship education are to unlock the spirit of enterprise and open up the world of entrepreneurship; to instil high levels of 'want' and create energy and excitement for entrepreneurial activity; and to provide a learner-centred

environment in which entrepreneurial learning can flourish and compensate for the lack of real-life entrepreneurial experience on the part of young learners and emerging entrepreneurs.

The desired outcomes of entrepreneurship education are expansive (Anderson & Jack, 2008: 262) and aimed at addressing diverse perspectives such as socio-economic improvement; awareness, understanding and enrichment on the part of learners; theoretical requirements focused on opportunity recognition and coping with 'newness' (Politis, 2005: 402-403); practical outcomes for work placement (Smith *et al.*, 2004: 268; Smith *et al.*, 2002: 281); and the development of creative individuals (Hegarty, 2006: 327; Dana, 1993: 86).

It is concluded, in agreement with the outcomes matrix of entrepreneurship education as envisaged by Hartshorn and Hannon (2005: 620), that effective entrepreneurship education should have two distinct outcomes: Firstly, the development of enterprising people as the means for entrepreneurial activity, and secondly, new venture creation in all its forms (profit; not-for-profit; economic; social; cultural; etc.) and with all its associated spin-offs as the true essence of what entrepreneurs do (see figure 4.7, chapter four).

In concluding this section on the essentials of entrepreneurship education, it is proposed that entrepreneurship education is *anything* and *everything* that will support entrepreneurial learning, as well as transform such learning outcomes into entrepreneurial activity and reality within a given context and environment.

10.2.1.11 Impact assessment, challenges and barriers

The literature review exposed several shortfalls in assessing the impact of entrepreneurship education, including the lack of evidence that these programmes are indeed effective (Steenekamp *et al.*, 2011b: 316; Levie *et al.*, 2009: 2; Pittaway *et al.*, 2009: 72; Botha *et al.*, 2007: 164; Hartshorn & Hannon, 2005: 617; EU, 2004: 35; Lewis & Massey, 2003a: 199; Cox *et al.*, 2002: 230) and problems associated with the evaluation of outcomes (Smith *et al.*, 2006: 560).

The lack of codes for recognition and a satisfactory measurement system (Jones & Iredale, 2010: 15; Gibb, 2008: 10) contribute towards general uncertainty about both the effectiveness and impact of entrepreneurship education as a whole (Matlay, 2006: 706). As a consequence, it can be concluded that effective impact assessment of entrepreneurship education is still in its infancy. It follows that any attempt to improve the effectiveness of entrepreneurship

education programmes based on flawed conceptuality and inaccurate measurement will continue to have a questionable effect on the development of appropriate interventions.

The challenges and barriers impeding effective entrepreneurship education and training are multitudinous and deeply entrenched in the South African environment (see Devonish *et al.*, 2010: 152; Hamidi *et al.*, 2008; Birdthistle *et al.*, 2007; Bawuah *et al.*, 2006; Robertson *et al.*, 2003: 313-314; Morris, 2002: 4; 2001: 40). A number of challenges and barriers emanated from the literature review and cannot be repeated in this section to prevent duplication (see entire discussion in section 4.8.2, chapter four).

It can be concluded with certainty that South Africa is labouring under severe strain, not only in terms of effective entrepreneurship development, but also under various other aspects deeply concerning the rainbow nation. Add to this the encroaching future (present even) challenges for entrepreneurship education highlighted in section 4.8.2.9 of chapter four, and it becomes evident that the country suffers from deep-rooted challenges impeding effective entrepreneurship education.

This finding reiterates the urgent call by Gibb (2006a: 4) for the development of an entrepreneurship/enterprise education model that has wide appeal in all levels of education; that fits with broad educational goals; that allows for embedding in the curricula; that is conducive to ownership by teachers; and allows for steady progression.

10.2.1.12 Shifting the paradigm in entrepreneurship education

The literature review examined a number of existing *ad hoc* entrepreneurship education/training programmes globally in an attempt to determine what is being taught in the current paradigm. Three central approaches were identified as [1] different methodologies used in formal entrepreneurship education, [2] coaching, mentoring and networking supported by the provision of resources to stimulate new venture creation, and [3] the concept of action-learning.

With the exception of some radical and longer-term approaches that may indeed contribute to the development of true entrepreneurs, it is concluded that the majority of these programmes are a mix of delivering life skills, practical business skills and financial literacy, as well as case studies, dynamic action-learning and work-based learning. Business simulation and the establishment of mini-companies remain a popular method of transforming theory into

practice, but in most cases these programmes are of a short duration (less than a year in almost every instance).

This study has indicated on numerous instances that entrepreneurial learning is a lifelong journey, and with due consideration for the associated constraints in time and resources, the impact of shotgun (for the loss of a better word) approaches leaves much to be desired. This proposition calls for a paradigm shift in entrepreneurship education as expounded in chapter five.

It is concluded that a new paradigm in youth entrepreneurship education starts with the inculcation of a positive attitude towards entrepreneurship at a very young age for subsequent transformation into entrepreneurial intentions (in line with the Theory of Planned Behaviour; Ajzen, 1991). These gestation periods then provide fertile soil for the instilment of formal theory and practical theories of action to reach a point where practice-based theory with its foundation in experience (see Rae, 2004) can be introduced.

In essence, the sequential gestation of attitudes and intentions, followed by learning from formal and practice-based theory and participation in entrepreneurial activities to transform theoretical experience into real-life experience, all combine to ignite entrepreneurial action as the desired outcome of entrepreneurship education and training (see figure 5.2, chapter five).

The process to reach the point of entrepreneurial action is far more complicated and challenging than the sequence of development described above may suggest. Underlying this process are several critical issues relating to the design and structure of entrepreneurship education and training programmes (objectives, implications, integration, selection, quantity *versus* quality, timing, context), programme content and curriculum development ('inspiration-to-perspiration', the 'GENIE'-model), teaching methodology ('about' or 'for' entrepreneurship, listening or learning, simulation of real-life events, mixed teaching methods, conventional or radical), teacher and trainer development (improving the quantity and quality of entrepreneurship educators, aligning personal preferences, motivation and drive, experience in entrepreneurship) and the role and influence of various important stakeholders (parents and family businesses, society and communities, role models and mentors, organised business and partnerships, government).

Other important issues such as entrepreneurial funding (i.e., expectations as opposed to bootstrapping and sweat capital – the 'fff'-principle), reflection as an integral part of

developing entrepreneurial capacity, feedback and assessment, further contribute to the complexities surrounding effective entrepreneurship education and the development of successful entrepreneurs.

It is concluded that entrepreneurship development, and in particular youth entrepreneurship development, remains an extremely challenging undertaking, and even more so for South Africa under the current dispensation. These challenges are set to continue (deepen even) until such time as radical, real-world solutions are developed to redress real-world problems in the country.

10.2.1.13 The 'Eureka'-factor in entrepreneurship education

This is another section that would have been presented in bold, italic, double spaced and enlarged text if not for the technical presentation of this study. The concept of deliberate practise was put forward in chapter five as the all-embracing activity with the capacity to transform *anything* and *everything* that should be taught in entrepreneurship education and training into true entrepreneurial learning.

Deliberate practise was characterised as highly structured activity with the primary goal of improving current performance in a particular task. It must be performed daily in a work-like manner; it requires effort and attention; it does not lead to immediate reward; and is often not enjoyable to perform (see Baker *et al.*, 2003: 13). Any person proudly carrying the battle scars of an entrepreneurial lifestyle will confirm that a day in the life of a successful entrepreneur is similar. As a result, it is concluded that there is no reason not to believe that aspirant entrepreneurs must engage in deliberate practise to have any chance of eventually becoming expert entrepreneurs in their own right.

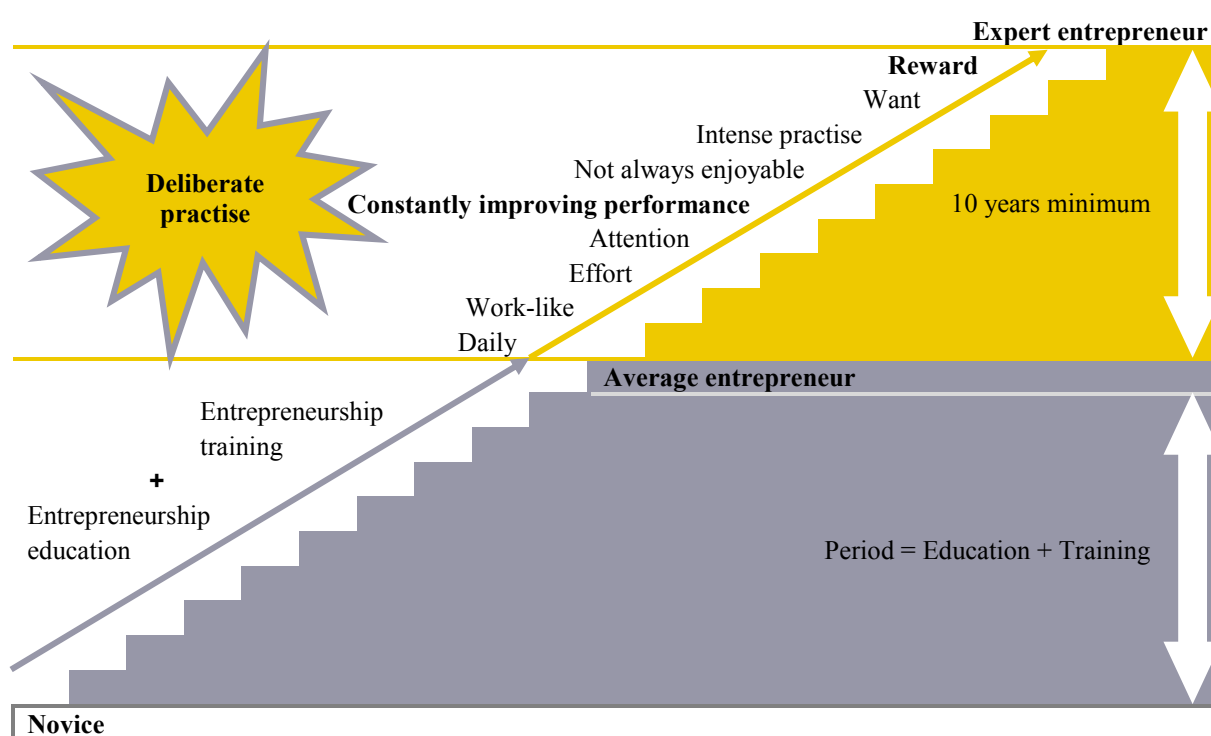
This conclusion is supported by evidence presented in the literature review indicating that perceived talent is in fact the result of intense practise for no less than 10 years (Ericsson *et al.*, 2007: 16; 1993: 363); that this ten-year rule is a prerequisite for the attainment of high levels of performance (Ericsson, 2004: S72); and that even gifted individuals require extensive deliberate practise to reach the level of expert performance (Ericsson *et al.*, 2007: 41; Ericsson, 2004: S72).

It is concluded that the differentiating factor between average entrepreneurs and expert entrepreneurs is prolonged and continued deliberate practise in entrepreneurship. It is also the

distinguishing factor between entrepreneurship education and training and *effective* entrepreneurship education and training. The secret is the extent to which the knowledge, skills, abilities and experiences accumulated during the learning process is practised – deliberately, continuously and relentlessly, driven by motivation for achievement, determination and the ever-present concept of ‘want’ on the part of the learner.

Figure 10.3 below illustrates the important role of deliberate practise in the development of expert entrepreneurs.

Figure 10.3 The ‘Eureka’-factor in entrepreneurship education



The only way for deliberate practise to find its way into entrepreneurship education and training meaningfully is, firstly, to embed the concept into programmes from a design perspective and as the central theme, and secondly, to provide neither education nor training, but rather facilitate entrepreneurial learning in an environment where learners can develop sufficient levels of ‘want’ to engage in the mentally demanding process of deliberate practise.

10.2.2 Conclusions from the transition to the empirical research

Chapter six described the transition from the literature review to the research approach, the measuring instruments and data coding for the empirical part of the study. The concomitant discussion presented the research approach for the study (see figure 6.1), bolstered by

evidence from the literature review to support the adoption of the attitudinal and behavioural approaches as most appropriate for a study of this nature.

Throughout the discussion in section 6.2 of chapter six, the separate, yet interrelated components of the research approach were linked to one another supported by evidence from the academic literature to highlight important relationships, causes and effects between these components: Firstly, between early entrepreneurship education and entrepreneurship training; secondly, between attitudes, future career choices, intentions and entrepreneurial activity; thirdly, between intentions, planned behaviour and entrepreneurial activity; and fourthly, between entrepreneurial self-efficacy, intentions and entrepreneurial activity. Finally, all these components were shown to function within the domain of subjective personal wellbeing – a domain where virtually everything that happens in life has some influence on individuals, communities and societies.

As a result, it is concluded that the research approach adopted for this study, and in particular, the examination of an entrepreneurship education and training programme to determine its influences on the potential for entrepreneurial activity from the perspectives of attitudes, intentions, entrepreneurial self-efficacy, future career choices, planned behaviour and personal wellbeing, was of a sound and interpretable design.

It is further concluded that the research design employed in this study adhered to several important considerations for scientific research, including validity and reliability, thorough definition of the study population and selection of representative samples, a pre- and post test control-group design, the incorporation of existing measuring instruments validated in prior research and the co-optation of reputable research partners.

The selection of not one, but six previously validated measuring instruments with different areas of focus on the entrepreneurial domain (attitudes, intentions, general enterprising tendency, adaptive cognition, subjective personal wellbeing and innovation skills) provided a creditable base for the execution of the empirical research described in this study (see discussion in section 6.4, chapter six).

Cognisance was also afforded to the potential for ‘questionnaire fatigue’ and acquiescence response bias during completion of the surveys by young learners, and as a result, two separate surveys (AEG-3 and PMY-3) and mutually exclusive samples were employed to ensure scientific research.

The data coding procedures were applied consistently throughout the study (see section 6.6, chapter six), both for the coding of the actual test results and the supplementary sections including the demographical and socio-economic information of respondents, as well as for the longitudinal questionnaire ID.

It is concluded that the data coding procedures conformed to acceptable standards of scientific research, also when considering the important role played by Statistical Consultation Services of the North-West University (Potchefstroom campus) as both a reputable statistical processing facility and an independent, objective commentator.

10.2.3 Conclusions from the empirical research

Chapters seven, eight and nine presented the empirical research component of this study. The design, sampling methodology, data gathering, results and discussion of the pilot study were expounded in chapter seven, resulting in the introduction of improved versions of the AEG-3 and PMY-3 surveys for subsequent use in the main study discussed in chapters eight and nine.

It is concluded that the procedures employed for the design, sampling, data gathering and statistical analyses of both the AEG-3 (chapter eight) and PMY-3 (chapter nine) studies conformed to acceptable standards of scientific research. The conclusions to follow are based on the outcomes of statistical analysis conducted by Statistical Consultation Services of the North-West University (Potchefstroom campus) and the interpretation of the results to address 54 propositions targeted for examination (see section 8.4.3, chapter eight and section 9.4.3, chapter nine).

The empirical research was conducted in seven of the nine provinces of South Africa, providing sufficient coverage to be labelled a national study. The samples provided a mix of mainly grades 10 and 11 learners aged 15 to 17 years attending public and private secondary schools. The majority of respondents were female black Africans originating from middle class to rich homes measured against the Living Standard Measure (LSM[®]) of the South African Advertising Research Foundation (SAARF, 2010) and the four 'Lifestyle Levels' developed by Consumer Scope (2009).

10.2.3.1 Validity and reliability of the measuring instruments

Tests for construct validity (principal factors analysis) and reliability (Cronbach's alpha) produced satisfactory results for two of the three measuring instruments in the AEG-3 survey, including the Attitude toward Enterprise (ATE) test (subject to the exclusion of the 'intuition'-factor) and the Entrepreneurial Intention Questionnaire (EIQ). It is concluded that the construct validity and reliability of these instruments, subject to the exclusion of the 'intuition'-factor for the ATE test, were acceptable for the interpretation of the results discussed in chapter eight.

The General Enterprising Tendency (GET) test revealed problems in terms of both the validity and interpretability of its factors, as well as the reliability of the sub-scales. As a consequence, data gathered using the GET test was excluded from any further analysis.

The three measuring instruments in the PMY-3 survey – the Personal Wellbeing Index for School Children (PWI-SC), the Measure of Adaptive Cognition (MAC) and the Youth Innovation Skills Measurement Tool (YISQ) – produced sufficient levels of construct validity (principal factors analysis) and reliability (Cronbach's alpha), subject to the exclusion of the 'risk'-factor for the YISQ due to an eigenvalue smaller than one during factor analysis and a below-scale Cronbach's alpha of 0.235 during reliability testing.

It is concluded that the construct validity and reliability of the PMY-3 survey instruments, subject to the exclusion of the 'risk'-factor for the YISQ, were acceptable for the interpretation of the results discussed in chapter nine.

10.2.3.2 Comparability of the test and control groups at the time of pre-testing

Independent *t*-tests and effect sizes were used to examine for differences between the test and control groups at the time of pre-testing (i.e., prior to the test groups being exposed to the training intervention of Junior Achievement South Africa) for both the AEG-3 and PMY-3 studies.

The results for both the ATE test and the EIQ (AEG-3 study) revealed statistically significant differences for all the underlying constructs, but none of these differences were large enough to be visible or practically significant. As a result, it was concluded that the test and control groups were similar in terms of respondents' entrepreneurial attitudes and entrepreneurial

intentions at the time of pre-testing. This finding indicated that differences between the test and control groups at the time of post testing (i.e., after the test group had been exposed to JASA's training) could be ascribed to the impact of the training intervention.

The results for the overall Personal Wellbeing Index (PWI) of the PWI-SC and all of the constructs underlying the MAC and the YISQ indicated statistically significant differences between the test and control groups, but none of these differences were large enough to qualify as visible or practically significant differences. As a result, it was concluded that the PMY-3 test and control groups were similar in terms of respondents' subjective personal wellbeing, levels of adaptive cognition and innovation skills at the time of pre-testing. This finding again indicated that differences between the test and control groups at the time of post testing (i.e., after the test group had been exposed to JASA's training) could be ascribed to the impact of the training intervention.

Statistical analysis of the dependent variables in the YISQ (types of innovators) succeeded in differentiating between learners set on pursuing either stronger or weaker innovation pathways in life (see discussion in section 9.5.4.3, chapter nine). Not only did the analysis produce *p*-values of 0.000 for all four constructs indicating statistical significance, but it also produced effect sizes (Cohen's *d*) indicating visible differences ($0.5 \leq d < 0.8$) for the constructs 'leadership', 'energy' and 'self-efficacy' and practically significant differences ($d \geq 0.8$) for the construct 'creativity'.

The analysis in this instance was not carried out for comparison of the test group with the control group, but for the entire PMY-3 sample. Accordingly, this finding does not detract from the conclusion that there were no visible or practically significant differences between the test and control groups at the time of pre-testing, but it does support another critical conclusion for this study: Distinguishing between young learners with the potential for development into competent entrepreneurs based on ingrained levels of creativity, leadership, energy and self-efficacy, as opposed to young learners who may never develop into competent entrepreneurs, may be even more related to the 'want'-aspect (desire) of entrepreneurship than previously considered.

It follows, as a conclusion emanating from this study, that the identification of latent types of innovators using the differential between the pursuance of a stronger or a weaker innovation

pathway may be a starting point for the identification and selection of young learners best suited for effective entrepreneurship development.

10.2.3.3 Differences between demographic sub-groups at the time of pre-testing

The academic literature suggests that men are more likely to be self-employed than women (e.g., Harding & Bosma, 2006) and that female entrepreneurs face more barriers to successful business venturing than their male counterparts (e.g., Coleman, 2007; Abor & Biekpe, 2006; Winn, 2005; Bosma *et al.*, 2004).

These propositions were examined using the pre-test data and independent samples tests (*t*-tests) and effect sizes for the variable 'gender' in the AEG-3 sample (test and control groups combined). The results revealed statistically significant differences between female and male respondents in some instances (ATE test and the EIQ), but these results were neither visible nor practically significant as indicated by small effect sizes.

A similar analysis for the PMY-3 study produced no statistically significant differences between female and male learners for the PWI-SC, but some for the MAC and for all of the constructs underlying the YISQ. None of the statistically significant differences for both the MAC and the YISQ reached the level of visibility or practical significance.

It follows that this study could not produce any statistical evidence indicating that there are visible or practically significant differences between the entrepreneurial attitudes (ATE test), entrepreneurial intentions (EIQ), subjective personal wellbeing (PWI-SC), levels of adaptive cognition (MAC) and innovation skills (YISQ) of young female and male learners in secondary schools in South Africa. This finding is supported by an earlier study conducted by Steenekamp *et al.* (2011b: 325) where data collected using the ATE test (Athayde, 2009a) failed to produce evidence of any practically significant differences in the entrepreneurial attitudes of young learners in secondary schools in the Sedibeng district of South Africa from the perspective of gender.

Curran and Blackburn (1990) propose that pupils attending private schools are more positive about future self-employment than pupils attending public (state) schools. This proposition was also examined for both the AEG-3 and the PMY-3 studies, but the results failed to produce any evidence of statistically significant differences between learners in public and private schools from the perspectives of entrepreneurial attitudes (ATE test), entrepreneurial

intentions (EIQ), subjective personal wellbeing (PWI-SC), levels of adaptive cognition (MAC) and innovation skills (YISQ).

There is also support for the proposition that a family background of self-employment has a positive influence on young people's decisions to become self-employed in the academic literature (e.g., Athayde, 2009a; Gird & Bagraim, 2008: 711; Lewis, 2005: 481; Moen *et al.*, 2004; Davies, 2002; Curran & Blackburn, 1990). In this study, independent samples tests and effect sizes failed to produce any visible or practically significant differences between learners with or without self-employed parents in terms of entrepreneurial attitudes (ATE test), entrepreneurial intentions (EIQ), subjective personal wellbeing (PWI-SC), levels of adaptive cognition (MAC) and innovation skills (YISQ).

It is concluded that demographic factors such as gender, type of school being attended and the influence of self-employed parents as variables designated by academic research as factors influencing the promotion of entrepreneurial activity, did not reveal itself as having any notable influence on respondents in this study.

10.2.3.4 Differences between socio-economic sub-groups at the time of pre-testing

The expectation that young people from higher socio-economic backgrounds will outperform those from lower socio-economic backgrounds was examined using similar methodology. The independent samples tests and calculation of effect sizes were again based on the pre-test dataset to ensure that the potential impact of JASA's training programme on the test group could be isolated. The comparative analysis was carried out between 'rich' and 'middle class' respondents in accordance with the four lifestyle levels of Consumer Scope (2009) drawn from the LSM[®] groups of the South African Advertising Research Foundation (SAARF, 2010).

The results of the AEG-3 study indicated that there were no statistically significant differences between 'rich' and 'middle class' learners from the perspective of entrepreneurial attitude (ATE test). The EIQ results revealed statistically significant differences between the entrepreneurial intentions of the two groups for three of the four factors underlying the instrument, but none of these differences were either visible or practically significant as indicated by small effect sizes.

Analysis of the PMY-3 pre-test data produced similar results. There were statistically significant differences in some instances (MAC and YISQ), but none of these differences reached the level of visibility or practical significance.

It is concluded that this study produced no evidence to support the proposition that young people from higher socio-economic backgrounds will outperform those from lower socio-economic backgrounds. The importance of this finding lies in the proverbial ‘levelling of the playing field’: It serves as confirmation of theme six of entrepreneurship theory (see section 2.2.2.2, chapter two) that the capacity for entrepreneurial activity is not dependent on pedigree, at least to the extent in which the samples included in this study are concerned.

10.2.3.5 The impact of JASA’s Mini-Enterprise Programme (MEP)

The absence of any visible or practically significant differences in the entrepreneurial attitudes, intentions, subjective personal wellbeing, adaptive cognition and innovation skills of the test and control groups and different demographic and socio-economic groups represented in the samples at the time of pre-testing, led to the conclusion that any differences at the time of post testing (after the test groups had been exposed to JASA’s MEP) could be ascribed to the impact of the training intervention.

After exposure of the test groups to JASA’s programme, respondents in both the AEG-3 and PMY-3 test and control groups were re-tested to determine whether the training intervention had caused any differences to materialise between the groups. The approach to the data analysis had three tiers: The post test datasets were firstly analysed to examine for differences in the mean scores between the test and control groups for each of the surveys. The second analysis focused on differences in the mean scores between the pre- and post test results separately for the test and control groups. Third and finally, the pre- and post test results of respondents that could be matched using the longitudinal questionnaire ID were analysed for differences in their pre- and post test mean scores, further supported by ANCOVA to exert stricter experimental control by taking account of confounding variables.

A combination of statistical procedures, including independent samples tests and paired samples tests (*t*-tests), as well as the calculation of effect sizes (Cohen’s *d*) and analysis of covariance (ANCOVA), produced statistically significant differences for the ATE test and EIQ results (AEG-3 study) in some instances, but no differences large enough to have any effect in practice for any of the three analytic approaches.

These tests were repeated for the PMY-3 study. The results for the PWI-SC and the MAC produced statistically significant differences in some instances, but no visible or practically significant differences between the test and control groups at the time of post testing, or between the pre- and post test results separately for the test and control groups, or between the pre- and post test results matched for individual learners in the test and control groups using the longitudinal questionnaire ID.

To the contrary, some interesting findings emanated from the analysis of the YISQ dataset. A comparative analysis between the post test results of the test and control group produced statistical significance for the construct 'energy', but these differences were not visible or practically significant as indicated by a small effect size of $d = 0.14$. However, when the pre- and post test results were compared separately for the test and control groups, the differences for the construct 'energy' became a visible effect ($0.5 \leq d < 0.8$) for both groups as indicated by $d = 0.75$ (test group) and $d = 0.69$ (control group). In addition, the effect sizes for both the test and control groups for the construct 'self-efficacy' were approaching the level of visibility as indicated by $d = 0.43$ and $d = 0.48$ respectively.

The subsequent comparative analysis between the matched pre- and post test results of individual respondents confirmed visible differences (effects) between the pre- and post test mean scores separately for the matched test and control groups with $d = 0.70$ in both cases. Although these visible differences had been statistically proven, it was concluded that it could not be attributed to the training intervention seeing that only the test group had been exposed to JASA's Mini-Enterprise Programme (MEP).

Section 9.5.7.3 of chapter nine attempted to provide an amenable explanation for these identical differences (effect sizes). It was put forward that the post testing exercise was carried out just before or soon after the September school holidays in 2012, supporting the deduction that excitement prior to the holiday or renewed vivacity after the break may have caused the energy levels of learners in both the matched test and control groups to rise to such a level that these differences became visible and to the same extent.

If this deduction carries any weight, it is of grave concern that the determined efforts of a group of dedicated trainers at Junior Achievement South Africa had failed to instil any visible or practically significant improvements in the energy levels of young learners, whilst

something as frequent and ordinary as a school holiday had succeeded in bringing about such a positive effect.

Also important is the finding that the effect size for the construct ‘self-efficacy’ had become a visible effect ($d = 0.57$) for the matched control group, while the effect size for the matched test group remained below the level of visibility ($d = 0.41$). This finding represents the only visible difference between the test and control groups following a full year of preparing for and delivering an entrepreneurial training programme to secondary school learners (on the part of JASA) and conducting an empirical study to determine the impact of such training on these learners (on the part of both JASA and the researcher).

The problem is that the visible improvement (effect size) in self-efficacy occurred in the control group which had had no exposure to the training intervention, while those that had been subjected to training (test group) gained improved self-efficacy only to the extent of being statistically significant, but without any visible or practical effects. Although chapter nine concluded that there were differences between the self-efficacy levels of the matched test and control groups at the time of post testing, this conclusion must be approached with caution seeing that the subsequent analysis failed to produce any statistically significant differences for any of the constructs (including energy and self-efficacy) when stricter experimental control was applied using analysis of covariance (ANCOVA).

As a consequence, this study concludes that the Mini-Enterprise Programme (MEP) of Junior Achievement South Africa (JASA) did not have any practical [positive] effect or impact on the entrepreneurial attitudes (ATE test), entrepreneurial intentions (EIQ), subjective personal wellbeing (PWI-SC), levels of adaptive cognition (MAC) and innovation skills (YISQ) of test group respondents in either the AEG-3 or the PMY-3 samples.

In retrospect, and merely as a suggestion, the outcome of this study could have been different if the Junior Achievement SA Entrepreneurship Academy Programme (see section 5.2.2.4, chapter five) had been selected as the training intervention instead of the Mini-Enterprise Programme (MEP). The former is a far more intensive and longer term intervention comprising a number of JASA’s programmes, and most importantly, admission to the programme is subject to selection. This programme seems more conducive to *effective* entrepreneurship education and training measured against the requirements for such education and training promulgated throughout this study.

10.2.4 A compendium of critical conclusions

Section 10.2 set out to provide a bolstered digest of the essential conclusions of this study, but the magnitude of the study justified a rather voluminous rendering of conclusions from the literature review, the transition to the research approach and the empirical research carried out in bringing it to completion.

It is crucial that the conclusions resulting from this study be presented in a concise and easily digestible manner, and as a result, the section below provides a bullet-style presentation of critical outcomes and conclusions:

- ✦ Entrepreneurship and the working of the entrepreneurial mind remain topics that are not fully understood, thus emphasising the need for continued research on and development of this important function of economic activity and social development.
- ✦ This study concludes that entrepreneurship equals opportunity plus risk plus ‘want’ (desire), combined with high levels of action and determination for the single purpose of promoting self-interest in its various forms – nothing more; nothing less.
- ✦ Unlocking entrepreneurial activity is indeed the ‘magical genie’ capable of fixing many of South Africa’s ills. The spirit of enterprise resides mainly in small and medium-sized enterprises (SMEs), thus re-emphasising the urgent need for the development of this sector in economic activity and for the removal of barriers impeding development.
- ✦ The key to developing sustainable economies and societies is education, but education in its various forms and disciplines must be provided within the context of a given environment.
- ✦ Entrepreneurship can be taught successfully, but it demands entrepreneurial learning supported by an extended period of deliberate practise flowing from ‘want’ on the part of the learner to have any chance of being really effective.
- ✦ Effective entrepreneurship education is dependent on long-term strategies for the development of competent entrepreneurs, the selection of learners with the attitude and aptitude to make the content and application of such content their own (over and above the importance of exposing all young people to entrepreneurship in basic education), the

provision of support during the learning process and appropriate methods of impact assessment for continuous improvement.

- ✦ Energy and excitement on the part of all stakeholders are the drivers of entrepreneurship education.
- ✦ The main outcomes of entrepreneurship education should be [1] the development of enterprising people and [2] new venture creation with all its associated spin-offs – every other perceived outcome, whether fundamental or not, is secondary.
- ✦ The research approach adopted for this study (see figure 6.1 in chapter six) remains empirically unproven insofar the research presented herein is concerned. The relationships between entrepreneurship education and training on the one hand and attitudes, intentions, self-efficacy, future career choices, planned behaviour and, ultimately, entrepreneurial action on the other, were carefully expounded and supported by evidence in the literature review, but the empirical study failed to produce statistical evidence of such relationships.

Consideration should be given for the potential absence of true entrepreneurial learning in the empirical part of this study as the missing link in tying the research approach with all its relationships, causes and effects together.

- ✦ This study did not produce statistical evidence to support a conclusion that demographic (gender; type of school being attended; self-employed parents) and socio-economic (lifestyle levels) variables have an influence on the entrepreneurial propensity of young learners. For the time being, and insofar the AEG-3 and PMY-3 samples are concerned, it is concluded that effective entrepreneurship education and training should have a similar effect on young learners from different demographic and socio-economic backgrounds.
- ✦ Chapter three left a crucial question unanswered: Can the enterprising spirit be released successfully by educators and other stakeholders in South Africa? From the results of this study, and based on sound statistical evidence, it is concluded that the answer to this question is a firm ‘no’ given the current conditions and approaches.

It must, however, be stressed that the interpretation of this conclusion is limited to the AEG-3 and PMY-3 samples and only for the Mini-Enterprise Programme (MEP) of

Junior Achievement South Africa (JASA) as the training intervention. This finding can only be generalised if similar results are obtained during testing with different samples and with other interventions available in JASA's product range or from different service providers.

- ✦ The above conclusion presents another question: Should the outcome of this study be construed as meaning that the exposure of learners to JASA's MEP had no value at all? The answer is a firm 'no' since the programme's impact may in time show in the germination of an enterprising spirit among some respondents, eventually leading to the birth of a small group of competent and even elite entrepreneurs. That being said, the potential for such an occurrence must be questioned unless the experience of exposure to entrepreneurship training is repeated several [hundreds of] times and continuously reinforced.
- ✦ The earlier conclusion in section 10.2.1.8 questioning the common use of education/training content borrowed from other countries or cultures and slightly 'modified' for the South African environment, reveals a serious potential flaw in the empirical research conducted for this study: If 'borrowed and modified' content and methodology are not suitable for the development of young South African entrepreneurs, it stands to reason that 'borrowed' entrepreneurship research instruments (six different instruments in this study) are also not the optimal solution for assessing the impact of entrepreneurship education and training on young South African learners.

This conclusion exclaims the need for purposive South African entrepreneurship education and training programmes assessed with purposive South African entrepreneurship measuring scales.

- ✦ The development of such a purposive South African measuring scale is not without challenges. Perhaps as a starting point, it can be concluded that the Youth Innovation Skills Measurement Tool (YISQ) of Chell and Athayde (2009) may be best suited as the platform for the development of such a scale.

The YISQ was the only instrument from a total of six incorporated into the research design that succeeded in highlighting some visible differences between respondents in the study, and even a practically significant difference ($d > 0.8$) in the analysis of the dependent variables for the construct 'creativity' (see table 9.20 in chapter nine).

A final concluding thought that has bearing on the outcome of this study: Now approaching the end of more than three years' intensive research, this researcher has found contentment with the level of understanding of entrepreneurship gained during this journey. Still, this journey will not end on the final page of this study – it is set to continue into the future for as long as the mind is clear and the body capable enough to endure the strain of deliberate practise. The question is: Can the same be said for those that had the privilege of brief exposure to entrepreneurship during the course of this study, or have they long forgotten?

10.3 RECOMMENDATIONS

Building castles in the sky...

Is this the approach to follow when formulating recommendations for entrepreneurship development after having exposed severe shortfalls in youth entrepreneurship education and training in South Africa? Or has it become the standard in academic research to present far reaching recommendations to address some pressing challenge knowing that it has very little chance of becoming reality?

If the foregoing approach had been adopted for this study, the recommendations flowing from it would have been far-flung and instructive, 'telling' all parents to become more involved with their children; 'instructing' policy makers, educators and trainers to first become competent entrepreneurs themselves to develop effective entrepreneurship education and training programmes in context and present such programmes using methodology conducive for entrepreneurial learning and deliberate practise; 'prescribing' energy and excitement to all role players; 'telling' the South African government to develop the SME sector, remove all barriers impeding business start-up and spend far more resources on both general and entrepreneurship education in the country.

Organised business would have been 'told' that they 'must' become more involved in the development of young, competent entrepreneurs and provide far more resources in terms of time and funding, notwithstanding the fact that entrepreneurial development is more prone to occur in small and medium enterprises (SMEs) that are, in many instances, already labouring under the current economic conditions and restrictive labour regulations.

Learners would have been told that they 'must' have 'want'; they 'must' have energy and excitement; they 'must' learn entrepreneurially and they 'must' practise continuously in a

deliberate manner; they ‘must’ pursue an entrepreneurial lifestyle and they should not expect anything from anyone in doing so.

Much can be said for these recommendations as indeed being the foundation of an integrated entrepreneurship strategy supporting lifelong development. Such an integrated strategy demands the involvement of all stakeholders, including the government (the policy makers), organised business (entrepreneurs as mentors), education (teachers), parents (as role models), the media (for support) and community-based organisations and partners (see Ashmore, 1990: 211-229).

The problem is that the attainability of these recommendations remains questionable given the perceived stagnation in basic education, the increasing levels of State dependency among the general population, dysfunctional family and community structures, and the challenges facing especially small businesses in South Africa under the current dispensation.

Still, a study at this level cannot be concluded without formulating practical and attainable recommendations to achieve its objectives and make a contribution to the existing body of academic knowledge on entrepreneurship and entrepreneurship education and training. As a consequence, the recommendations to follow are presented within the context of a much larger and lifelong integrated entrepreneurship development strategy in the hope that it may encourage educators, other scholars and active entrepreneurs to take a giant leap towards the promotion of effective [youth] entrepreneurship development in South Africa.

10.3.1 Recommendation one: Get rid of high expectations

The first recommendation for effective [youth] entrepreneurship education and training is for educators, trainers and learners to retire the culture of high expectation among themselves. True entrepreneurs expect nothing – instead, they make things happen and, in so doing, take responsibility for their own actions, successes and failures.

Educators and trainers should, in the same way, either hold themselves, or failing that, be held responsible for their actions in delivering entrepreneurship education and training programmes. From the educational perspective it can be argued that assessment practices (i.e., tests, projects and examinations) in fact do this, but why do educators still have such high expectations for reward when the results they are delivering are mediocre at best with very little chance of preparing learners for their adult lives.

In many cases the situation with *ad hoc* entrepreneurship training is even worse: There are no formal, reliable and standardised assessment practices in place, and the mere delivery of a given programme is assumed to be sufficient based on the expectation that it will have the desired impact on learners. Should one expect that a highly successful programme adopted from another country will be successful in South Africa with all its challenges? Should one expect that learners participating in a brief entrepreneurship training programme will become successful entrepreneurs?

Entrepreneurship education and training must result in the development of enterprising people and new venture creation with all its associated spin-offs (see section 10.2.4 of the conclusions to this study). Merely expecting this as the natural outcome of entrepreneurship education and training is a farce – it is an outcome that has to be orchestrated with extreme care, monitoring, assessment and continuous improvement.

The attainability of the recommendation in this instance lies with academic researchers and scholars that are like-minded to the researcher in this instance: To select particular entrepreneurship education and training programmes, subject it to rigorous assessment and then report on the capacity of such programmes in its existing form to promote entrepreneurship development in South Africa.

This recommendation is supported by the EU's (2004: 35) suggestion that assessment of well identified entrepreneurship education and training programmes may be the solution for the interim, and also the starting point for continuous assessment and improvement. In any event, the results of such assessment procedures cannot be isolated to the library of an academic institution, but must be made known to the involved education or training service providers to enable them to work with researchers and improve their product offering.

Retiring the culture of high expectations among entrepreneurship learners is an equally challenging undertaking, but the recommendation in 10.3.3 below will go a long way in ensuring that those expecting that mere participation in entrepreneurship education and training will make them competent or even expert entrepreneurs, are not afforded the opportunity to waste the time and resources of those wanting to learn without expecting anything at all outside the scope of the current levels of exposure to entrepreneurship education in basic education.

10.3.2 Recommendation two: Never give up

A picture paints a thousand words, and the recommendation to everyone with the desire to develop competent entrepreneurs or to become a competent entrepreneur is enclosed in figure 10.4 below.

Figure 10.4 The journey to entrepreneurial success



Source: <http://www.pictures.bigfunnysite.com> (Date of access: 29 Mar. 2013)

From this simple, yet powerful recommendation, one has to say ‘never give up’ to those who have successfully developed one or more competent entrepreneurs; ‘never give up’ to those who keep on trying; and ‘never give up’ to those trying to develop themselves into competent and even expert entrepreneurs.

Although it was concluded in section 10.2.3.5 that the Mini-Enterprise Programme (MEP) of Junior Achievement South Africa (JASA) did not have any practical [positive] effect on learners in the two samples examined in this study, the recommendation to JASA (and all other entrepreneurship education and training providers in South Africa) is simply to never give up.

Having worked with JASA for almost a year, it is evident that the organisation is doing great work through its determined efforts to make a difference and promote entrepreneurial activity in the country. Every journey starts with a single step (Confucius), and although not evident

in the AEG-3 and PMY-3 test samples at the time of this study, a seed has been planted that may in time reveal itself in one or two (perhaps even more) competent young entrepreneurs or perhaps even an expert entrepreneur rising to entrepreneurial stardom.

Never give up...

10.3.3 Recommendation three: The selection of learners

Entrepreneurship education providers can be identified as primary and secondary schools (basic education), as well as tertiary education institutions including universities, universities of technology, colleges and business schools. Primary and secondary education is accessible to all and include some level of entrepreneurship education, but the impact of the basic education curriculum on youth entrepreneurship development is not the focus of this study.

Tertiary education is reserved for those who can afford it, or those who receive grants from the Government or bursaries from organised business in the country. On the one hand, those who can afford it do not necessarily possess the ‘want’ or aptitude to become successful entrepreneurs.

As an example, Pete¹⁸ is a 28-year old male with a master’s degree in entrepreneurship (new business formation) from a reputable university in South Africa. He has had temporary jobs with two companies over a period of three years, but is currently unemployed. He lives with his parents and constantly sends out his *curriculum vitae* to prospective employers, but without any success. Pete says he wants to secure employment with a large company that will offer him a remuneration package on par with his qualifications. Does Pete have the ‘want’ or aptitude to become a successful entrepreneur?

On the other hand, entrepreneurship is not recognised in South Africa as a scarce or critical skill, and consequently, the potential for a Government grant to enrol for entrepreneurship at a university or college in South Africa is limited, if at all possible. From a similar point of view, the potential for organised business to provide bursaries to young people to study entrepreneurship is equally limited (who would want to develop a competent entrepreneur with knowledge of the company’s products, processes and inner-workings?).

¹⁸ ‘Pete’ is an acquaintance of the author; name changed to protect his identity.

The situation with *ad hoc* entrepreneurship training providers in South Africa, especially insofar the youth is concerned, is a different story: Most of these service providers rely on sponsors from the Government or from organised business as part of their Broad Based Black Economic Empowerment (BBBEE) initiatives or purely out of goodwill. In return, these training providers are obliged to spend the greater part of these income streams on the previously disadvantaged youth of the country (i.e., black Africans) and in large numbers.

The result is that as many learners as is permitted by their budgets are put through short, supposedly powerful entrepreneurship training programmes under the premise of developing young entrepreneurs capable of making a worthy contribution to economic and social development in the country.

This approach creates a ‘vicious circle of compliance’: Funding is obtained from sponsors; the maximum number of learners permitted by such funding is enrolled for the programme; the programme is squeezed into one semester or, in some cases, an academic year; the number of learners exposed to the programme is subsequently used as marketing material to secure more funding; more learners are enrolled for the next programme; and so it continues.

The problem with this approach, not unlike formal entrepreneurship education, is that the reported ‘successes’ are more focused on the number of learners that have been trained historically, rather than the number of successful entrepreneurs that have been ‘created’ through such training. Reading conducted for this study on the various entrepreneurship education and training providers included in the discussion (see section 5.2.2, chapter five), revealed a very limited number of successful young entrepreneurs identified on their websites, as opposed to impressive bullet-lists boasting numbers of young people whom had been trained over the years. In essence, entrepreneurship training has become a ‘numbers game’ with quantity perceivably gaining preference over quality.

The recommendation in this instance was foreseen as early as in the dedication of this study. The dedication put forward that the effort that has gone into bringing this study to print will have been worthwhile if it brought only youth to seize an opportunity and prosper, inspired yet another to share an opportunity with others and caused a third to have more than enough.

Such is the recommendation of this study: There is just too much at stake to expect that theory-based entrepreneurship education and short entrepreneurship training programmes will, by virtue of deliverance, develop competent entrepreneurs by the masses. The existence

of a few (by comparison with the South African population) select elite entrepreneurs is testament to this, and it should be clear that the development of competent entrepreneurs capable of taking the rainbow nation forward is more a one-on-one approach than anything else.

Consequently, it is recommended that the selection processes governing the enrolment of young learners for entrepreneurship education and training are improved significantly. Only those with sufficient levels of desire ('want') and both the attitude and the aptitude to become competent entrepreneurs should be enrolled for these programmes based on the 'less for more' approach (see section 10.2.1.9).

It is put forward that focused, extended development of a small number of competent, young entrepreneurs will soon outweigh the perceived benefits of trying to mass-produce large numbers of 'maybe' entrepreneurs, both in terms of value for money and its eventual [positive] impact on employment, economic activity and social upliftment in South Africa. This study supports the release of a small group of well-groomed young entrepreneurial lions at a time: Arm them with the spirit of enterprise and they will do the rest – that is what entrepreneurs do!

Obviously, reliable tools will be required to support such selection processes, and this study has acknowledged that the measuring instruments employed during the empirical research described herein may be flawed from a contextual point of view. However, the reader is referred to section 10.2.4 where the Youth Innovation Skills Measurement Tool (YISQ) was singled out as a tool that had performed well for the South African environment by identifying visible differences in and between the test and the control group, as well as a practically significant difference in the overall PMY-3 sample using the dependent variables.

This is not to say that the YISQ should be implemented as the deciding benchmark to allow or refuse the enrolment of young learners for entrepreneurship education and training in South Africa – no, it is proposed as a starting point in the absence of any other reliable measuring instruments for the South African context. Further research is crucial (see section 10.3.4 below) to develop a truly South African instrument capable of identifying those individuals with the potential to become competent (but hopefully, expert) entrepreneurs with the capacity to employ large portions of the forgotten masses in this country.

A final word on the practicality and attainability of this particular recommendation: The practicality of ‘less for more’ speaks for itself, but the attainability thereof implies the potential (probability even) for a sudden loss of revenue streams (sponsors, donors) and associated financial hardships for training service providers. This is a tough decision to be taken by those leading entrepreneurship training institutions, but the only extenuating comment in this instance is to say:

“Welcome to the real world of the entrepreneur!”

It is suggested that entrepreneurship training institutions run by entrepreneurially-minded leaders will find the ways and means to do more with less and make a much improved contribution to the development of competent entrepreneurs in South Africa.

10.3.4 Recommendation four: Continuous research

Research (read academics and scholars) will always play an integral role in influencing policymakers and the development/improvement of educational content and methodology. The important thing about true researchers is that they do research as a matter of who they are (researchers, of course).

As a case in point and while working with the supervisor of this study (Professor Stèphan van der Merwe) for a period spanning more than five academic years (including a previous study), it became clear that true researchers are always researching: They are always on the look-out for some new topic related to their field of expertise so they can set out on a purposive (often obsessive) journey in search of answers, whether it being notes scribbled on loose pages strewn about an office or a study, supervising yet another master’s dissertation or a doctoral thesis, publishing an academic article or preparing a contribution to some journal or magazine.

Herein lies the recommendation from this study: Researchers at academic institutions all over the world are perfectly positioned to make substantial and continuous contributions to the body of knowledge on entrepreneurship and its causes and effects. Recommendation three (see section 10.3.3) called for further research to develop a truly South African measuring instrument capable of improving selection processes for youth entrepreneurship education and training, and this recommendation (four) reiterates the need for such an assessment tool

and calls upon those researchers who want to know more and make a difference to rise to the challenge and set off towards making such a valid, reliable and contextual tool a reality.

At the core of recommendation four, is that the outcome(s) of such developmental and assessment research cannot be confined to the library of a university/college or the covers (or electronic password) of an academic journal. The results of assessment exercises, the development of new measurement tools and additions to the body of knowledge underlying entrepreneurship *must* be shared with entrepreneurship education and training practitioners to have any value in practice.

As an example, research on say ‘the mating habits of the endangered green tree frog’ may be extremely enriching for a researcher specialising in and passionate about frogs, but green tree frogs do not read and for as long as the added knowledge is not shared with the guardians of the green tree frog, the research has no value at all. Why should research on such a critical function as entrepreneurship be any different?

The practicality of this recommendation lies in the *status quo* seeing that research on entrepreneurship, although to some extent still in its infancy, has been conducted for many years with volumes of research material as testament to this. Its attainability simply lies in researchers ‘getting out there’ to enjoy the South African sunshine and to work closely with practitioners to research academic solutions (theory and empirical outcomes) for practical outcomes in bringing forward a new paradigm in entrepreneurship development.

10.3.5 Recommendation five: Embrace the power of one

The ‘power of one’, meaning that entrepreneurship programmes are often started and driven by a single, determined educator, was listed in table 4.3 (chapter four) as one of ten future challenges for entrepreneurship education (Kuratko, 2005). It was said that critics argue these programmes are weak as they hinge on one person’s drive and determination.

Kuratko (2005) identifies the ‘power of one’ as a potential strength as the influence of such committed, determined educators is more apparent in the field of entrepreneurship than in any other academic discipline. This strength constitutes the fifth recommendation flowing from this study: The time has come to stop criticising these ‘lone rangers’ and support them with all the resources they need to make the difference only they are capable of.

Rather than trying to extract all of their knowledge and effective methods in an attempt to get it neatly ‘chapterised’ into some manual, these power-educators and master-trainers should be given freedom to work their magic and release the spirit of enterprise among their ‘followers’. True entrepreneurs (and true entrepreneurial educators/trainers) are restless animals, and any rigid effort to contain them within set boundaries of prescribed methodology and programme delivery carries the risk of re-capturing their spirit of enterprise (the ‘magical genie’) in the dreaded bottle and sending it off to the open sea.

In time, the freedom and support afforded to these ‘power of one’ educators and trainers will manifest in many more with cunning resemblance to their ‘master’, and in so doing, give this new generation of ‘lone rangers’ the capacity to develop even more expert entrepreneurs for South Africa as a developing country.

10.3.6 Recommendation six: Adopt an entrepreneurial solution

This study has suggested all along that entrepreneurship is the magical genie capable of redressing many of South Africa’s ills. It also indicated that entrepreneurial solutions are needed if entrepreneurial activity is designated to become the antidote to large-scale unemployment, poverty and suffering.

The recommendation in this instance borders on saying that entrepreneurship education and training should be delivered by none other than experienced entrepreneurs (i.e., salted entrepreneurs proudly displaying deep battle scars from a life of entrepreneurial business venturing). Such a recommendation will be totally disrespectful to those (non-entrepreneurs) in academic institutions and training organisations that have devoted their lives to developing entrepreneurs, and highly impractical due to the shortage of highly experienced entrepreneurs in the country. Also, highly experienced entrepreneurs will not become involved in education and training on a full-time basis whilst they are at peak performance – they are too busy mitigating the strains of entrepreneurial business venturing and loving every minute of it.

A practical and attainable recommendation lies somewhere in between the devotion of suitably qualified entrepreneurship educators and trainers and the practical know-how of experienced entrepreneurs – a type of symbiotic relationship¹⁹ where different ‘species’ (educators, trainers and practitioners) use each other in a positive way to stimulate co-

¹⁹ See <http://symbioticrelationship.org/the-meaning-of-a-symbiotic-relationship/> Date of access: 30 Mar. 2013.

evolution with the development of competent young entrepreneurs as the only outcome of such interaction.

The essence of this recommendation is supported by Gibb (2002a: 143) in commenting that “[P]erhaps, therefore, the time has come to design new institutions under the university umbrella that will help to lead it, without losing its purity, to respond more effectively to the demands of the enterprise society.”

Imagine the impact of a new institution under the auspices of a university where [1] suitably qualified educators provide theory-based entrepreneurship education (transferring knowledge), [2] alongside qualified trainers providing practice-based entrepreneurship training (transferring skills), [3] in the (part-time) presence of highly experienced entrepreneurs sharing practical, real-life entrepreneurial ‘war stories’ to incite excitement, energy and sufficient levels of ‘want’ to embark on the strenuous path of deliberate practise.

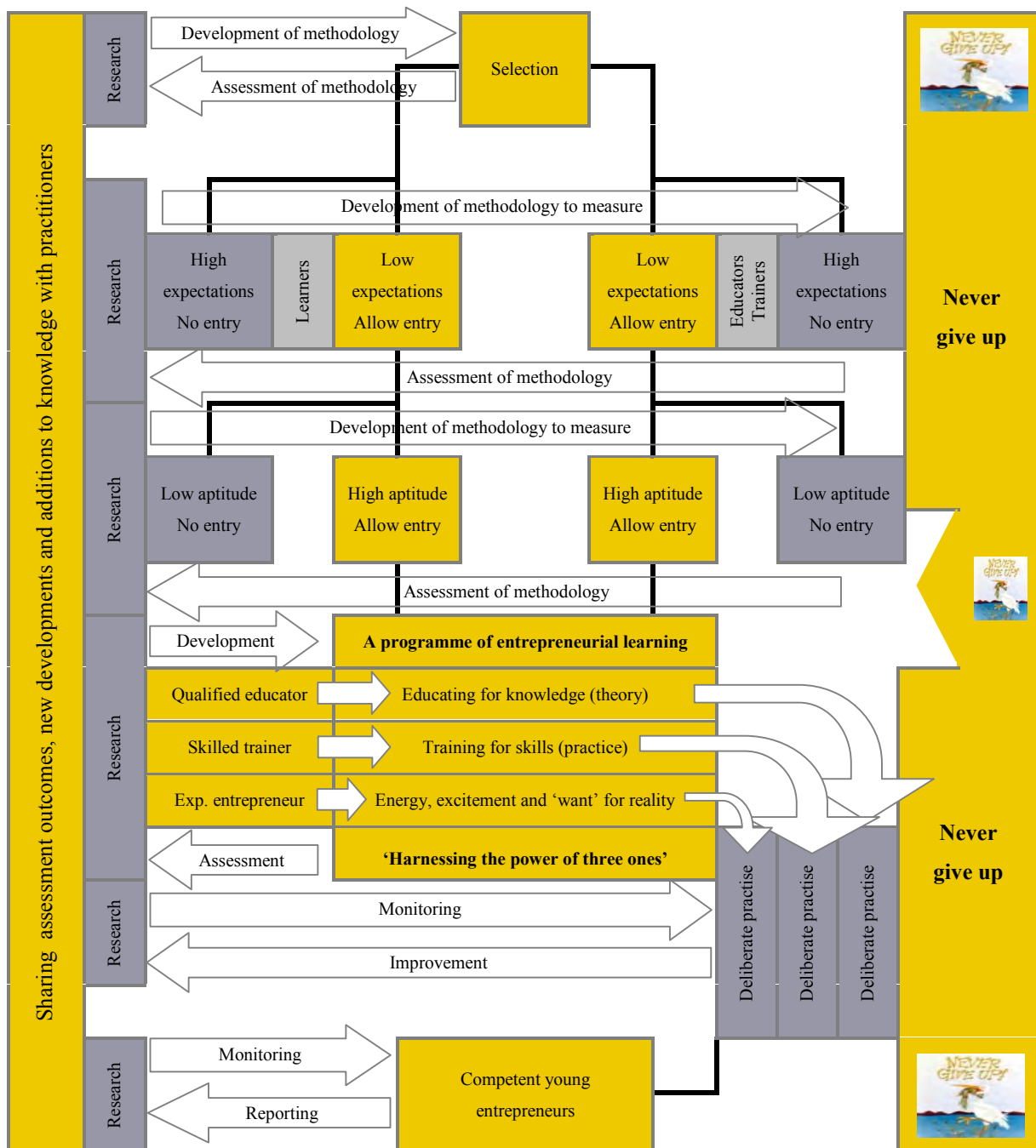
The practicality of this recommendation speaks for itself, and the attainability? The attainability of recommendation six lies in getting the three ‘species’ together (one of each), to start with one single institution (under a tree if necessary) based upon this symbiotic relationship, and to enrol a small group of entrepreneurially inclined young learners (even after hours) in view of producing the first small batch of a new breed of young entrepreneurs for this country.

The overriding advantage of this approach is its susceptibility for bringing together and forging the relationships between entrepreneurship education, training and entrepreneurial learning (see figure 10.2) into a single, unitary nursery for young entrepreneurs.

Just imagine...

10.3.7 The recommendations in action

The recommendations formulated in sections 10.3.1 to 10.3.6 above are combined in figure 10.5 on the following page to introduce an entrepreneurial solution for improved youth entrepreneurship education and training in South Africa.

Figure 10.5 Six recommendations, one entrepreneurial solution

10.4 A CONCLUDING THOUGHT

Approaching the consummation of this study, and as a final thought, the proposition by Hannon (2006) on teaching pigeons to dance presented in section 5.3.4 (chapter five) deserves reconsideration:

Teaching pigeons to dance requires the pigeons to learn a set of skills. The pigeons do not know what it means to be a dancer. The challenge is to

create dancers, not only individuals who have the capability to dance
(Hannon, 2006: 307).

Why would anyone want to teach pigeons to dance in the first place knowing that they will never understand what it means to be a dancer? Surely, pigeons were not placed on this earth for the amusement of mere mortals or to prove some point that skills can be learnt?

One should rather respect pigeons for who and what they are; allow their elders to teach them the art of flying; and then watch in admiration as the young birds take to the sky and soar effortlessly higher. Instead of enticing them with seed to perform tricks, they should be given the freedom to fly above us and look down in appreciation for giving them the opportunity to do what pigeons do. In the same way, why would anyone want to entice young South Africans with the promise of great reward to educate or train them for an entrepreneurial lifestyle in such a way that they will never understand what it means to be an entrepreneur?

In concurrence with Hannon's (2006) example of the dancing pigeons, the challenge in South Africa is to create entrepreneurs, not young people who have the capability to perform entrepreneurial tricks...

10.5 ACHIEVEMENT OF OBJECTIVES

This concluding section critically measures the outcomes of this study against the research objectives formulated in section 1.4 of chapter one.

10.5.1 The primary objective

The primary objective of this study was to determine whether *ad hoc* youth entrepreneurship education and training in South Africa in its current form has any quantifiable, positive impact on young learners in the secondary school curriculum.

The attainment of this objective was dependent upon realising a total of ten secondary objectives discussed below.

10.5.2 The secondary objectives

The first objective, namely to examine the origin and true meaning of entrepreneurship and the entrepreneur, was achieved in chapter two where the origin and theories of entrepreneurship were examined in search of fundamental and functional themes that still

have relevance for modern-day entrepreneurship and the entrepreneur. Some important lessons emanating from these theories were highlighted and brought into the context of the modern environment, and the existing definitions of entrepreneurship and the entrepreneur were examined to identify common aspects which resulted in the formulation of new, hopefully universally agreeable definitions for both concepts.

The second objective was to examine the contemporary challenges facing South Africa and present sufficient evidence from the academic literature to propose entrepreneurship, the small business sector and youth development as the panacea for many of the country's ills. This objective was achieved in chapter three where pressing challenges including poverty, inequality, the prevalence of HIV/AIDS, skills shortages, the poor quality of basic education and large-scale unemployment were explained, supported by facts and figures to emphasise the extent of these challenges.

Following the renewed emphasis on these deeply entrenched challenges facing South Africa, chapter three continued by likening entrepreneurship to the magical 'genie in a bottle' – a mystical creature with powers to grant wishes to those that release it from the confines of its bottle. The concomitant discussion revealed that entrepreneurship, small businesses and youth development indeed have the capacity to redress many of the country's ills in the same way as the magical genie's powers to make dreams come true, but simultaneously highlighted severe challenges restricting the successful release of the genie that is entrepreneurship.

The third objective was to determine whether entrepreneurship education is a reality or a myth and to establish whether the concept of entrepreneurship can be taught successfully. Chapter four showed that this question is debated extensively in the academic literature, but highlighted the importance of education and revealed several links between general education, entrepreneurship education, youth entrepreneurship education and entrepreneurial learning on the one hand and entrepreneurial activity on the other.

The essentials of effective entrepreneurship education, including its drivers, required conditions, objectives and outcomes along with its challenges and barriers and the need for continuous impact assessment were expounded. Chapter four concluded, based on sufficient evidence from the academic literature, that entrepreneurship is indeed a reality and that it can be taught successfully. This conclusion represented the attainment of objective three, but the

question whether entrepreneurship can be taught successfully in South Africa remained unanswered and was consequently reserved for the empirical research in later chapters.

The first part of objective four required the examination of existing youth entrepreneurship training programmes in an attempt to identify common themes in the current paradigm. Several local and international programmes were discussed in chapter five to achieve this, followed by the second part of objective four to determine what and how it should be taught and applied to constitute effective entrepreneurship education.

This (second) part of objective four was achieved, also in chapter five, by identifying the need for transforming attitudes, intentions and theory into entrepreneurial action; designing and structuring effective programmes; developing appropriate programme content and curricula; implementing the 'GENIE'-model for effective youth entrepreneurship education; improving teaching methodology and teacher/trainer development; promoting more involvement by stakeholders; redefining the role of funding for aspiring entrepreneurs; promoting reflection, feedback and assessment; and most importantly, by introducing the 'Eureka'-factor as a critical component of effective entrepreneurship education.

The fifth objective was to develop an appropriate research approach for the attainment of the primary objective, including the incorporation of suitable measuring instruments and the construction of a practical research instrument(s) for employment in the empirical study. This objective was achieved in chapter six where the research approach and design, the selection of suitable measuring instruments, the compilation of the AEG-3 and PMY-3 Youth Entrepreneurship Surveys for School Learners, and the data coding procedures for the statistical analyses were explained and supported by evidence from the academic literature.

Chapter six also described the attainment of objective six, i.e., to secure collaboration from reputable youth entrepreneurship training providers in South Africa for participation in the empirical study and for the provision of an entrepreneurship training intervention as part and parcel of the study. The Education with Enterprise Trust (EWET) was identified as the research partner for the pilot study, whereas Junior Achievement South Africa (JASA) was named as the research partner for the main study, and as a result, also the entrepreneurship training provider responsible for the provision of the training intervention to the two test groups included in the study sample.

Objective seven, aimed at subjecting the research instruments constructed from the literature review to pilot testing and review, was achieved in chapter seven where the pilot study design, the collection of data in Harrismith (Free State province) in February 2011 and the results and discussion of the results were presented, further supported by the explication of important improvements to both the AEG-3 and PMY-3 surveys for employment in the subsequent main study.

Objective eight was aimed at conducting a main study using a pre- and post test control-group design to examine and report scientifically on the entrepreneurial characteristics of a sample representative of secondary school learners in South Africa. This objective was achieved over the span of three chapters, including part of chapter seven where the preparations for the main study were discussed, and chapters eight and nine respectively dealing with the design, gathering of data, statistical analysis, results and discussion of the AEG-3 and PMY-3 main studies spread across seven of the nine provinces in South Africa.

The ninth objective of this study was to draw valid conclusions on the impact of youth entrepreneurship education and training on young learners in South African secondary schools. This objective was partly achieved in the presentation of the AEG-3 (chapter eight) and PMY-3 (chapter nine) main study results where conclusions were drawn as the discussion progressed, but was consummated in chapter ten where valid conclusions from the literature review, the transition to the empirical research and the empirical research were presented and discussed, further amplified by a compendium of critical conclusions.

The tenth and final objective of the study was to formulate practical recommendations for sustainable youth entrepreneurship development in South Africa. This objective was also achieved in chapter ten where six practical and attainable recommendations were presented and motivated, culminating into the formulation of one entrepreneurial solution (shown in figure 10.5) to illustrate the recommendations in action and its susceptibility for improved youth entrepreneurship education and training in South Africa.

In essence, the achievement of all the secondary objectives led to the attainment of the primary objective of this study by showing that entrepreneurship can indeed be learnt, but that the current dispensation and methodology employed in South Africa is not favourable for entrepreneurial learning and the development of more, competent entrepreneurs insofar the scope of this study is concerned.

10.6 SUGGESTIONS FOR FURTHER RESEARCH

The suggestions for further research are embodied in recommendation four of this study (see section 10.3.4 of this chapter) and can be condensed as follows:

- Continuous academic research to gain better understanding of entrepreneurship;
- the development of a truly South African measuring instrument capable of improving selection processes for youth entrepreneurship education and training, perhaps with the Youth Innovation Skills Measurement Tool (YISQ) employed in this study as the starting point;
- the selection of existing youth entrepreneurship education and training programmes in South Africa for empirical testing to determine the impact of such programmes on the entrepreneurial inclination of young people; and,
- scientific reporting on the outcomes of such empirical studies, but more importantly, the sharing of gained knowledge and cooperation between researchers, academics and education and training practitioners to enable continuous assessment and improvement in the South African context.

10.7 CHAPTER SUMMARY

Chapter ten is the final chapter of this study and focused on the contents and outcomes of the preceding chapters to draw valid conclusions from the study and formulate practical and attainable recommendations for improved and sustainable youth entrepreneurship education and training in South Africa.

A number of conclusions were drawn from the literature review, the transition to the empirical research and the empirical study conducted as an integral part of this study. In essence, these conclusions indicated that entrepreneurship and the working of the entrepreneurial mind are still not fully understood, but that entrepreneurship is nothing more and nothing less than opportunity plus risk plus ‘want’ plus high levels of action and determination to promote self-interest.

Entrepreneurship is indeed the ‘magical genie’ capable of steering South Africa onto a path of economic growth and social upliftment, but the development of more young, capable

entrepreneurs depends heavily on contextual education, long-term strategies, vastly improved selection processes to draw learners with both the attitude and aptitude to excel in both entrepreneurship education and training and subsequent entrepreneurial activity, the provision of suitable support during the learning process and appropriate methods of impact assessment to promote continuous improvement.

The roles of entrepreneurship educators/trainers and entrepreneurship learners were elevated to a level much higher than conceived by most people: The path to entrepreneurial success is indeed dependent on the aforementioned determinants, but relies even heavier on the energy and excitement of both the educator/trainer and the learner. Moreover, it is the learner (and not the educator) who has to transform the entrepreneurship education and training he/she receives into entrepreneurial learning and embark on the strenuous path of deliberate practise driven by his/her personal 'want' (desire) to become a successful entrepreneur.

It was concluded that the empirical research conducted in this study had failed to produce statistical evidence of any positive relationship between entrepreneurship training and an increase in the propensity of young learners towards entrepreneurial behaviour. The commitment and energy to share knowledge and instil skills seemed present on the part of JASA partners and agents who made a significant contribution to the empirical study, so perhaps the absence of real 'want' and entrepreneurial learning on the part of learners may be part-cause of the recorded outcome.

It must be emphasised (again) that this outcome is limited to the Mini-Enterprise Programme (MEP) of Junior Achievement South Africa (JASA) and the AEG-3 and PMY-3 samples included in this study. These results and conclusions can only be generalised if similar results are obtained with different programmes and with different samples. The inherent flaw in employing measuring instruments developed and validated in other (contextually different) countries was recognised, and it is also possible that the six instruments employed in this study were not optimum for the (challenging) South African environment.

Still, the lack of any differences between learners in two mutually exclusive groups following exposure of the test groups to focused entrepreneurship training by a reputable training provider such as JASA is cause for major concern, and again exclaims the challenges associated with releasing the spirit of enterprise among the youth in South Africa. All is not

lost, as it is entirely conceivable that a small seed planted by JASA in 2012 may germinate in years to come to deliver yet another high-potential entrepreneur. Or is it?

The recommendations flowing from this study were formulated from the perspectives of practicality and attainability. Six recommendations for improved and sustainable youth entrepreneurship development were presented, including [1] getting rid of high expectations; [2] to never give up; [3] improving learner selection; [4] continuous research; [5] embracing the power of one; and [6] adopting an entrepreneurial solution.

Based on the requirements of practicality and attainability, these recommendations were combined into a single entrepreneurial solution for improved youth entrepreneurship education and training in South Africa. The implementation of this solution will not be without many difficult challenges, but since when has anything associated with entrepreneurship been just plain sailing? At the heart of these recommendations lies the urgent need to create young entrepreneurs, not young people capable of merely performing entrepreneurial tricks.

Chapter ten concluded with a brief synopsis highlighting the achievement of the objectives set for this study and suggestions for further research aimed at promoting the development of effective youth entrepreneurship education and training in South Africa.

EPILOGUE

True entrepreneurs should be celebrated, but they don't expect it.

They work eighteen hour days, but are said to have a leisurely lifestyle.

They take risks and expose themselves to failure, but are described as 'easygoing' people.

They possess the magical 'spirit of enterprise', but describe themselves as 'ordinary'.

They provide much needed products and services, but are frowned upon for being capitalists.

They give shelter to the homeless, but are ridiculed for not providing three meals a day.

They start new businesses and employ jobless people, but are said to be 'greedy'.

The list continuous indefinitely...

True entrepreneurs are no ordinary people, regardless of whether they are born or 'made'. This study has shown that entrepreneurship can be learnt and that any person can be an entrepreneur, but also that it takes a very special kind of 'want', determination and practise to become a successful entrepreneur, and even more 'want', determination and practise to become an expert entrepreneur.

The secret does not lie in gathering the masses and 'pushing' them through a quick entrepreneurship education and/or training programme, expecting them to exit from the programme with the capacity to start and manage a new entrepreneurial business venture.

The answer lies in carefully searching through 50 million people in this country to find those youngsters with the attitude, the aptitude and the 'want' to become successful entrepreneurs and pooling the available resources around them.

We must find them; educate them; train them; nurture them; support them; motivate them; practise them tirelessly – they will do the rest. That is what entrepreneurs do!

André

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APPENDIX ONE

PILOT STUDY QUESTIONNAIRES

PILOT STUDY:
AEG-3 AND PMY-3 YOUTH ENTREPRENEURSHIP SURVEYS
FOR SCHOOL LEARNERS
(VERSIONS 1.1 AND 2.1)

**NUMBER:****CODING:**

AEG	CODE	NUMBER
[01] Pilot test	[02] Case pre-test	[03] Case post test

AEG-3 YOUTH ENTREPRENEURSHIP SURVEY SCHOOL LEARNERS (VERSION 1.1)

Compiled by:

Stèphan P. van der Merwe, MSc, MBA, PhD

André G. Steenekamp, MBA

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Unemployment and poverty are major concerns in South Africa. As a young South African you will soon be entering the labour market or tertiary education. It is important that we understand your current feelings and your plans for the future. This questionnaire is designed to collect information on how you feel about the creation of new business and entrepreneurial activity. We hope that you will find the questionnaire both interesting and stimulating.

This questionnaire is not an exam or a test, so please relax and enjoy the exercise. Your name will not appear on the questionnaire, so none of the answers can be traced back to you. Please answer all the questions honestly and seriously.

GENERAL INSTRUCTIONS

1. Please answer all the questions. Incomplete questionnaires cannot be used for analysis.
2. Follow the instructions given at each question or section.
3. The numbers in brackets, e.g. [01], are only for the analysis of the questionnaire.
4. Please complete the questionnaire with a black pen.

You may now start completing the questionnaire

PART A: ATE Test

ATTITUDE TOWARD ENTERPRISE TEST



© Rosemary Athayde

Please indicate how much you agree or disagree with each of the following statements by circling one number in each line using the following scale:

Strongly disagree = 1.....strongly agree = 7

A.1 I believe that a good imagination helps you do well at school.

strongly disagree 1 2 3 4 5 6 7 strongly agree

A.2 I work hard to make my projects successful.

strongly disagree 1 2 3 4 5 6 7 strongly agree

A.3 I think my future career success is largely up to me.

strongly disagree 1 2 3 4 5 6 7 strongly agree

A.4 My friends would say I am a follower rather than a leader.

strongly disagree 1 2 3 4 5 6 7 strongly agree

A.5 At work I would prefer a more demanding job with a high salary to an easy one with a low salary.

strongly disagree 1 2 3 4 5 6 7 strongly agree

A.6 I prefer doing work that really stretches my imagination.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.7 If you don't know all the facts about a problem then there is no way you can find the answer.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.8 I'm good at motivating my fellow students.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.9 I have a lot of faith in my ability to succeed in my future career.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.10 To achieve something worthwhile it is necessary to take some risks.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.11 I believe it is important to finish off a project as well as you can.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.12 I am good at getting people to work well together.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.13 I don't enjoy course work where it is up to students to come up with ideas.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.14 It feels really good when a group project works out well.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.15 It is important to plan my future career.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.16 If there was a chance to multiply capital then I would invest in the shares of an innovative but untried company.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.17 It doesn't matter if my project work is no good.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.18 I am successful at persuading my fellow students to agree on a plan.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.19 Making mistakes is a good way of finding out how to solve a problem.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.20 I take pride in my project work.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.21 I dislike teachers who are always coming up with new approaches to teaching.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.22 I would be prepared to invest my own money in a venture I believed in.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.23 I take responsibility for getting things done when working with others.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.24 I am worried that I will not make a success of my future working life.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.25 I'll keep trying out different solutions to a problem rather than give up.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.26 If there was a high probability of large profits in a new idea I would invest as much as I could.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.27 Working hard on projects is well worth the effort.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.28 Other people will get all the best jobs.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.29 I trust my own instinct when solving problems in coursework.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.30 I am skilful at reasonable risk-taking.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.31 I think I am a very imaginative person.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.32 I hate being the centre of attention.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.33 If I don't know the answer to a problem, then I'll have a guess.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.34 I have as much chance as anyone else of getting a good job in the future.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.35 I enjoy lessons where the teacher tries out different ways of teaching.

strongly disagree	1	2	3	4	5	6	7	strongly agree

A.36 My personal judgement is a reliable guide to solving problems.

strongly disagree	1	2	3	4	5	6	7	strongly agree

PART B: EIQ**ENTREPRENEURIAL INTENTION QUESTIONNAIRE**

UNIVERSITY OF SEVILLE
NATIONAL CHENGCHI UNIVERSITY

© Francisco Liñán & Yi-Wen Chen

Please indicate your level of agreement with each of the following statements by circling one number in each line using the following scale:

Totally disagree = 1.....totally agree = 7

B.1 To start a firm and keep it working would be easy for me.

totally disagree	1	2	3	4	5	6	7	totally agree

B.2 A career as entrepreneur is attractive for me.

totally disagree	1	2	3	4	5	6	7	totally agree

B.3 My friends would approve of my decision to start a business.

totally disagree	1	2	3	4	5	6	7	totally agree

B.4 I am ready to do anything to be an entrepreneur.

totally disagree	1	2	3	4	5	6	7	totally agree

B.5 I am prepared to start a viable firm.

totally disagree	1	2	3	4	5	6	7	totally agree

B.6 I will make every effort to start and run my own firm.

totally disagree	1	2	3	4	5	6	7	totally agree

B.7 I can control the creation process of a new firm.

totally disagree	1	2	3	4	5	6	7	totally agree

B.8 My immediate family would approve of my decision to start a business.

totally disagree	1	2	3	4	5	6	7	totally agree

B.9 I have very seriously thought of starting a firm.

totally disagree	1	2	3	4	5	6	7	totally agree

B.10 If I had the opportunity and resources, I'd like to start a firm.

totally disagree	1	2	3	4	5	6	7	totally agree

B.11 My fellow students at school would approve of my decision to start a business.

totally disagree	1	2	3	4	5	6	7	totally agree

B.12 Among various options, I would rather be an entrepreneur.

totally disagree	1	2	3	4	5	6	7	totally agree

B.13 I am determined to create a firm in the future.

totally disagree	1	2	3	4	5	6	7	totally agree

B.14 If I tried to start a firm, I would have a high probability of succeeding.

totally disagree	1	2	3	4	5	6	7	totally agree

B.15 Being an entrepreneur would give me great satisfaction.

totally disagree	1	2	3	4	5	6	7	totally agree

B.16 I know how to develop an entrepreneurial project.

totally disagree	1	2	3	4	5	6	7	totally agree

B.17 My professional goal is to become an entrepreneur.

totally disagree	1	2	3	4	5	6	7	totally agree

B.18 Being an entrepreneur implies more advantages than disadvantages to me.

totally disagree	1	2	3	4	5	6	7	totally agree

B.19 I have the firm intention to start a firm some day.

totally disagree	1	2	3	4	5	6	7	totally agree

B.20 I know the necessary practical details to start a firm.

totally disagree	1	2	3	4	5	6	7	totally agree

PART C: GET GENERAL ENTERPRISING TENDENCY TEST

UNIVERSITY OF DURHAM

© Sally Caird

This exercise comprises 54 different statements. On the answer sheet provided, you should circle the A in the box corresponding with the statement number if you agree, or circle the D if you disagree with the statement.

There are only two options: agree (A) or disagree (D). If for any reason, you neither fully agree nor fully disagree with a particular statement, please decide whether you agree more or disagree more and then circle the appropriate answer.

- C.1 I would not mind routine unchallenging work if the pay was good.
- C.2 When I have to set my own targets, I set difficult rather than easy ones.
- C.3 I do not like to do things that are novel or unconventional.
- C.4 Capable people who fail to become successful have not taken chances when they have occurred.
- C.5 I rarely day dream.
- C.6 I usually defend my point of view if someone disagrees with me.
- C.7 You are either naturally good at something or you are not, effort makes no difference.
- C.8 Sometimes people find my ideas unusual.
- C.9 If I had to gamble R 10, I would rather buy a raffle ticket than play cards.
- C.10 I like challenges that really stretch my abilities rather than things I can do easily.
- C.11 I would prefer to have a reasonable income in a job that I was sure of keeping rather than in a job that I might lose if I did not perform well.
- C.12 I like to do things in my own way without worrying about what other people think.
- C.13 Many of the bad times that people experience are due to bad luck.
- C.14 I like to find out about things even if it means handling some problems whilst doing so.
- C.15 If I am having problems with a task I leave it and move on to something else.
- C.16 When I make plans to do something, I nearly always do what I plan.
- C.17 I do not like sudden changes in my life.
- C.18 I will take risks if the chances of success are 50/50.
- C.19 I think more of the present and the past than of the future.
- C.20 If I had a good idea for making some money, I would be willing to borrow some money to enable me to do it.
- C.21 When I am in a group I am happy to let someone else take the lead.
- C.22 People generally get what they deserve.
- C.23 I do not like guessing.
- C.24 It is more important to do a job well than to try to please people.
- C.25 I will get what I want from life if I please the people with control over me.
- C.26 Other people think that I ask a lot of questions.

- C.27 If there is a chance of failure I would rather not do it.
- C.28 I get annoyed if people are not on time.
- C.29 Before I make a decision I like to have all the facts no matter how long it takes.
- C.30 When tackling a task I rarely need or want help.
- C.31 Success cannot come unless you are in the right place at the right time.
- C.32 I prefer to be quite good at several things rather than very good at one thing.
- C.33 I would rather work with a person I liked, but who was not very good at the job, than work with someone I did not really like who was very good at the job.
- C.34 Being successful is the result of working hard, luck has nothing to do with it.
- C.35 I prefer doing things in the usual way rather than trying out new ways.
- C.36 Before making an important decision, I prefer to weigh up the pros and cons rather quickly rather than spending a lot of time thinking about it.
- C.37 I would rather work on a task as a member of a team than to take responsibility for it myself.
- C.38 I would rather take an opportunity that might lead to even better things than have an experience that I am sure to enjoy.
- C.39 I do what is expected of me and follow instructions.
- C.40 For me, getting what I want has little to do with luck.
- C.41 I like to have my life organised so that it runs smoothly and to plan.
- C.42 When I am faced with a challenge I think more about the results of succeeding than the effects of failing.
- C.43 I believe that what happens to me in life is determined mostly by other people.
- C.44 I can handle a lot of things at the same time.
- C.45 I find it difficult to ask favours from other people.
- C.46 I get up early, stay late or skip meals in order to get special tasks done.
- C.47 What we are used to is usually better than what is unfamiliar.
- C.48 Most people think that I am stubborn.
- C.49 People's failures are rarely the result of their poor judgement.
- C.50 Sometimes I have so many ideas I do not know which one to pick.
- C.51 I find it easy to relax on holiday.
- C.52 I get what I want from life because I work hard to make it happen.

C.53 It is harder for me to adapt to change than keep to routine.

C.54 I like to start new projects that may be risky.

ANSWER SHEET: GET TEST

C.46 A D	C.37 A D	C.28 A D	C.19 A D	C.10 A D	C.1 A D
C.47 A D	C.38 A D	C.29 A D	C.20 A D	C.11 A D	C.2 A D
C.48 A D	C.39 A D	C.30 A D	C.21 A D	C.12 A D	C.3 A D
C.49 A D	C.40 A D	C.31 A D	C.22 A D	C.13 A D	C.4 A D
C.50 A D	C.41 A D	C.32 A D	C.23 A D	C.14 A D	C.5 A D
C.51 A D	C.42 A D	C.33 A D	C.24 A D	C.15 A D	C.6 A D
C.52 A D	C.43 A D	C.34 A D	C.25 A D	C.16 A D	C.7 A D
C.53 A D	C.44 A D	C.35 A D	C.26 A D	C.17 A D	C.8 A D
C.54 A D	C.45 A D	C.36 A D	C.27 A D	C.18 A D	C.9 A D

PART D

DEMOGRAPHICAL INFORMATION

Please answer the following questions. Mark choices with a clear 'X'.

D.1 The name of your school:

D.2 In which grade are you?

8 [01]	9 [02]	10 [03]	11 [04]	12 [05]

D.3 In which class are you?

A [01]	B [02]	C [03]	D [04]	E [05]	F [06]	G [07]

D.4 Type of school:

Public	[01]	Private	[02]

D.5 Your age:

11 [01]	12 [02]	13 [03]	14 [04]	15 [05]	16 [06]	17 [07]	18 [08]	19 [09]	20 [10]

D.6 Your gender:

Female [01]	Male [02]

D.7 What is your home language (the language you speak at home with your family)?

Afrikaans [01]	English [02]	N.Sotho [03]	S.Sotho [04]	Tswana [05]	Xhosa [06]	Zulu [07]	Other (please specify) [08]

D.8 Which language is used mostly by teachers in the classroom?

Afrikaans [01]	English [02]	N.Sotho [03]	S.Sotho [04]	Tswana [05]	Xhosa [06]	Zulu [07]	Other (please specify) [08]

D.9 Please mark your ethnic group (for statistical purposes only).

Asian [01]	Black [02]	Coloured [03]	White [04]	Other (please specify) [05]

D.10 What is the highest qualification you expect to achieve one day?

Type of Qualification	Mark one box with X
School (please specify what grade):	[01]
Trade (e.g. Fitter and Turner / Welder / Electrician / Plumber)	[02]
Diploma	[03]
University Degree	[04]
Higher Degree (e.g. Honours / Masters / Doctorate)	[05]
Other type of course (please specify):	[06]

D.11 What is the highest qualification your parents or guardians achieved?

Type of Course	Mother or Female Guardian (mark one box with X)	Father or Male Guardian (mark one box with X)
School (please specify what Grade):	[01]	[08]
Trade (e.g. Fitter and Turner / Welder / Plumber)	[02]	[09]
Diploma	[03]	[10]
University Degree	[04]	[11]
Higher Degree (e.g. Honours / Masters / Doctorate)	[05]	[12]
Other type of course (please specify):	[06]	[13]
I don't know	[07]	[14]

D.12 Please answer the questions below by marking the appropriate box with 'X'.

D.12.1 Have you ever participated in any of the following formal Entrepreneurship Education Programmes?

	YES	NO
• EWET syllabi (entrepreneurship training in the classroom)	[01]	[02]
• EWET Practical clubs (Youth Enterprise Society – YES)	[03]	[04]
• EWET YES Simama Ranta competitions	[05]	[06]

D.12.2 Have you ever participated in any other type of entrepreneurship training (at school or outside school)?

	YES	NO
	[07]	[08]
• If yes, tell us when: _____		
• If yes, tell us where: _____		
• Training presented by: _____		

D.12.3 Do any of your parents or guardians (with whom you live) currently own and manage their own business?

YES	NO
[09]	[10]

PART E
SOCIO-ECONOMIC INFORMATION

We need to gather some information regarding your situation at home. Please be honest when answering the questions below. Remember that your name does not appear on the questionnaire, so no one will know what you answered!

E.1 Please indicate whether each of the following statements about your home are true or false by marking the corresponding box with 'X'.

	TRUE	FALSE
E.1.1 Our home has hot running water from a geyser		
E.1.2 We have a washing machine at home		
E.1.3 We have an electric stove at home		
E.1.4 We have a computer at home (desktop or laptop)		
E.1.5 There are none or only one radio set in our household		
E.1.6 We have no domestic workers or helpers in our home		
E.1.7 Our home has a flush toilet (inside or outside)		
E.1.8 We have a television (or televisions)		
E.1.9 We have a motor vehicle in our household		
E.1.10 We have a vacuum cleaner or floor polisher at home		
E.1.11 Our home has a microwave oven		
E.1.12 We have M-Net and / or DSTV at home		
E.1.13 We live in a house / cluster house / town house		
E.1.14 We live in a metropolitan area (with municipal services)		
E.1.15 We have a DVD player at home		
E.1.16 We have a tumble dryer at home		
E.1.17 There are 3 or more cell phones in our household		
E.1.18 There are no more than 2 cell phones in our household		
E.1.19 We have a VCR (Video Cassette Recorder) at home		
E.1.20 We have tap water in our house or yard / stand / plot		
E.1.21 We have a home security service (alarm / armed reaction)		
E.1.22 We have a refrigerator or combined fridge / freezer at home		
E.1.23 We have a free standing deep freezer at home		
E.1.24 We live in a non-urban area (rural area away from town)		
E.1.25 Our kitchen has a built-in sink		
E.1.26 We have a home theatre system (for music and movies)		
E.1.27 We have a home telephone (excluding cell phones)		
E.1.28 We have a dishwashing machine at home		
E.1.29 We have a hi-fi / music centre at home		

E.2 Please tell us what your parents or guardians do for a living by writing the name of their job in the space provided below:

Mother or female guardian:

Father or male guardian:

E.3 Considering your answer above, which one of the following types of employment best describes the job(s) your parents or guardians do?

Type of employment	Mother or Female Guardian (mark one box with X)	Father or Male Guardian (mark one box with X)
Private sector employee	[01]	[08]
Public sector employee	[02]	[09]
Self-employed or entrepreneur	[03]	[10]
Retired	[04]	[11]
Unemployed	[05]	[12]
At home by own choice (not looking for work)	[06]	[13]
Other (please specify).....	[07]	[14]

PART F
LONGITUDINAL QUESTIONNAIRE ID

Finally, we ask that you help us to test a personal code for use in a later stage of our study. The code is based on some personal information known only to you, and will help us monitor the development of learners without asking their names on the questionnaire.

Please use the examples below to construct your own personal code in the last column.

No.	Question	Examples	Your Code
F.1	Write down the first two letters of the name of your school.	<u>G</u> eneral Smuts = GE <u>J</u> ordan = JO	
F.2	Write down the last two digits of the year in which you were born.	<u>1993</u> = 93 <u>1997</u> = 97	
F.3	Write down the second letter of your first name and the third letter of your surname.	<u>P</u> eter Mof <u>o</u> keng = EF <u>S</u> anet Gro <u>b</u> ler = AO	
F.4	On which day of the month do you celebrate your birthday?	<u>05</u> April = 05 <u>23</u> September = 23	
F.5	Write down the first two letters of your mother's first name.	<u>S</u> elinah = SE <u>M</u> argaret = MA	

THE QUESTIONNAIRE IS NOW COMPLETE

THANK YOU FOR YOUR PARTICIPATION!

**NUMBER:****CODING:**

PMY	CODE	NUMBER
[01] Pilot test	[02] Case pre-test	[03] Case post test

PMY-3 YOUTH ENTREPRENEURSHIP SURVEY SCHOOL LEARNERS (VERSION 2.1)

Compiled by:

Stèphan P. van der Merwe, MSc, MBA, PhD

André G. Steenekamp, MBA

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Unemployment and poverty are major concerns in South Africa. As a young South African you will soon be entering the labour market or tertiary education. It is important that we understand your current feelings and your plans for the future. This questionnaire is designed to collect information on how you feel about the creation of new business and entrepreneurial activity. We hope that you will find the questionnaire both interesting and stimulating.

This questionnaire is not an exam or a test, so please relax and enjoy the exercise. Your name will not appear on the questionnaire, so none of the answers can be traced back to you. Please answer all the questions honestly and seriously.

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2. Follow the instructions given at each question or section.
3. The numbers in brackets, e.g. [01], are only for the analysis of the questionnaire.
4. Please complete the questionnaire with a black pen.

You may now start completing the questionnaire

PART A: PWI-SC

PERSONAL WELLBEING INDEX – SCHOOL CHILDREN

DEAKIN UNIVERSITY

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Part A asks a few questions about how happy you feel using a scale from 0 to 10. On this scale, zero means you feel VERY SAD and 10 means you feel VERY HAPPY. The middle of the scale is 5, which means you feel NOT HAPPY OR SAD.

Please use 'X' to mark the box that best describes your feelings about each question.

A.1 How happy are you **with your life as a whole?**

VERY SAD	NOT HAPPY OR SAD								VERY HAPPY	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10

[Non-PWI domain: Overall happiness]

A.2 How happy are you **about the things you have? Like the money you have and the things you own?**

VERY SAD	NOT HAPPY OR SAD								VERY HAPPY	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10

[PWI domain: Standard of living]

A.3 How happy are you **with your health?**

VERY SAD					NOT HAPPY OR SAD					VERY HAPPY
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10

[PWI domain: Personal health]

A.4 How happy are you **with the things you want to be good at?**

VERY SAD					NOT HAPPY OR SAD					VERY HAPPY
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10

[PWI domain: Achievement in life]

A.5 How happy are you **about getting on with the people you know?**

VERY SAD					NOT HAPPY OR SAD					VERY HAPPY
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10

[PWI domain: Personal relationships]

A.6 How happy are you **about how safe you feel?**

VERY SAD					NOT HAPPY OR SAD					VERY HAPPY
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10

[PWI domain: Personal safety]

A.7 How happy are you **about doing things away from your home?**

VERY SAD					NOT HAPPY OR SAD					VERY HAPPY
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10

[PWI domain: Part of the community]

A.8 How happy are you **about what may happen to you later on in your life?**

VERY SAD					NOT HAPPY OR SAD					VERY HAPPY
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10

[PWI domain: Future security]

A.9 How happy are you **with your family?**

VERY SAD						NOT HAPPY OR SAD						VERY HAPPY
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10		

[Non-PWI domain: Personal relationships 1]

A.10 How happy are you **with your friends?**

VERY SAD						NOT HAPPY OR SAD						VERY HAPPY
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10		

[Non-PWI domain: Personal relationships 2]

A.11 How happy are you **with people involved in teaching you?**

VERY SAD						NOT HAPPY OR SAD						VERY HAPPY
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10		

[Non-PWI domain: Personal relationships 3]

PART B: MAC

GENERALIZED MEASURE OF ADAPTIVE COGNITION

SYRACUSE & INDIANA UNIVERSITIES

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Please indicate how much each of the following statements are like you by circling one number in each line using the following scale:

Not very much like me = 1.....very much like me = 7

B.1 When performing a task, I frequently assess my progress against my objectives.

not very much like me 1 2 3 4 5 6 7 very much like me

B.2 I ask myself questions about how well I am doing while I am performing a novel (new) task.

not very much like me 1 2 3 4 5 6 7 very much like me

B.3 I try to use strategies that have worked in the past.

not very much like me 1 2 3 4 5 6 7 very much like me

B.4 I organize my time to best accomplish my goals.

not very much like me 1 2 3 4 5 6 7 very much like me

B.5 I think about how others may react to my actions.

not very much like me	1	2	3	4	5	6	7	very much like me

B.6 I often define goals for myself.

not very much like me	1	2	3	4	5	6	7	very much like me

B.7 I consciously focus my attention on important information.

not very much like me	1	2	3	4	5	6	7	very much like me

B.8 I stop and go back over information that is not clear.

not very much like me	1	2	3	4	5	6	7	very much like me

B.9 I try to break problems down into smaller components.

not very much like me	1	2	3	4	5	6	7	very much like me

B.10 I stop and reread when I get confused.

not very much like me	1	2	3	4	5	6	7	very much like me

B.11 I create my own examples to make information more meaningful.

not very much like me	1	2	3	4	5	6	7	very much like me

B.12 I know what kind of information is most important to consider when faced with a problem.

not very much like me	1	2	3	4	5	6	7	very much like me

B.13 I find myself analyzing the usefulness of a given strategy while engaged in a given task.

not very much like me	1	2	3	4	5	6	7	very much like me

B.14 I ask myself questions about the task before I begin.

not very much like me	1	2	3	4	5	6	7	very much like me

B.15 I find myself pausing regularly to check my comprehension of the problem or situation at hand.

not very much like me	1	2	3	4	5	6	7	very much like me

B.16 I set specific goals before I begin a task.

not very much like me	1	2	3	4	5	6	7	very much like me

B.17 I perform best when I already have knowledge of the task.

not very much like me	1	2	3	4	5	6	7	very much like me

B.18 My "gut" tells me when a given strategy I use will be most effective.

not very much like me	1	2	3	4	5	6	7	very much like me

B.19 I focus on the meaning and significance of new information.

not very much like me	1	2	3	4	5	6	7	very much like me

B.20 I am aware of what strategies I use when engaged in a given task.

not very much like me 1 2 3 4 5 6 7 very much like me

B.21 I ask myself if I have considered all the options when solving a problem.

not very much like me 1 2 3 4 5 6 7 very much like me

B.22 I ask myself how well I've accomplished my goals once I've finished.

not very much like me 1 2 3 4 5 6 7 very much like me

B.23 I re-evaluate my assumptions when I get confused.

not very much like me 1 2 3 4 5 6 7 very much like me

B.24 I periodically review to help me understand important relationships.

not very much like me 1 2 3 4 5 6 7 very much like me

B.25 I try to translate new information into my own words.

not very much like me 1 2 3 4 5 6 7 very much like me

B.26 I ask myself if I have learned as much as I could have when I finished the task.

not very much like me 1 2 3 4 5 6 7 very much like me

B.27 I understand how accomplishment of a task relates to my goals.

not very much like me 1 2 3 4 5 6 7 very much like me

B.28 I think of several ways to solve a problem and choose the best one.

not very much like me 1 2 3 4 5 6 7 very much like me

B.29 I think about what I really need to accomplish before I begin a task.

not very much like me 1 2 3 4 5 6 7 very much like me

B.30 I ask myself if I have considered all the options after I solve a problem.

not very much like me 1 2 3 4 5 6 7 very much like me

B.31 I use different strategies depending on the situation.

not very much like me 1 2 3 4 5 6 7 very much like me

B.32 I challenge my own assumptions about a task before I begin.

not very much like me 1 2 3 4 5 6 7 very much like me

B.33 I find myself automatically employing strategies that have worked in the past.

not very much like me 1 2 3 4 5 6 7 very much like me

B.34 I am good at organizing information.

not very much like me 1 2 3 4 5 6 7 very much like me

B.35 I depend on my intuition to help me formulate strategies.

not very much like me 1 2 3 4 5 6 7 very much like me

B.36 I ask myself if there was an easier way to do things after I finish a task.

not very much like me	1	2	3	4	5	6	7	very much like me

PART C: YISQ**YOUTH INNOVATION SKILLS MEASUREMENT TOOL**

NESTA (National Endowment for
Science, Technology and the Arts)

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Please indicate how much you agree or disagree with the following statements by circling one number in each line using the following scale:

Strongly disagree = 1.....strongly agree = 7

C.1 I would like my lessons to involve lots of different creative activities.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.2 I really like being leader of a group.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.3 It's energising when you are given rewards for good work (e.g. a school day trip).

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.4 I have lots of energy for work and play.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.5 I like to pursue my interests outside school where I feel more in control.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.6 I'm not easily swayed by other people's opinions, but do what I think is best.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.7 When I make choices I want to be as sure as possible what the future consequences will be for me.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.8 I prefer lessons that involve different activities rather than just sitting at my desk.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.9 Project work gives me the chance to take a leading role in the group.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.10 I feel really motivated when I produce something that no one else has.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.11 I want my future work to be based around a set of challenges that I would find interesting.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.12 I'd like to do something no one has ever thought of before that would bring about positive changes to society, the environment, or politics.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.13 I want my work to provide me with opportunities to show that I can overcome problems.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.14 I feel proud when I've designed something myself and made it.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.15 When working in a group I do my best to persuade the others to take up my ideas.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.16 I intend to design or create something new such as in music, software, buildings, dance, film, TV, or fashion.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.17 I feel really enthusiastic about my chosen subjects.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.18 Once I start something I like to finish it.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.19 I like doing things that are very practical.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.20 I am often chosen to be the team leader or captain of my team.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.21 It's energising and rewarding to help other people.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.22 I would join a club / interest group independently of my friends if it was something I really wanted to do.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.23 I would not take a risk on an activity that might spoil my chances of getting good grades at school.

strongly disagree 1 2 3 4 5 6 7 strongly agree

C.24 The subjects I have chosen at school require my imagination.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.25 My friends follow my suggestions when they can't make up their minds.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.26 When I'm doing something I like to feel it has a purpose or goal.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.27 I would like to invent something that is new to the world.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.28 My spending money is important because it gives me a sense of my independence.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.29 I have chosen subjects at school that give me the freedom to express my own ideas.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.30 I like organising other people.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.31 Students should have a say in how a school is run.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.32 Fearing that I might fail my exams is a powerful motivator at school.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.33 My ambition is to set up a new company that offers something completely new.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.34 I really push myself to achieve good grades.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.35 I've been brought up to think for myself.

strongly disagree	1	2	3	4	5	6	7	strongly agree

C.36 I intend to get a job in a large company and apply my skills to develop new products or services.

strongly disagree	1	2	3	4	5	6	7	strongly agree

PART D

DEMOGRAPHICAL INFORMATION

Please answer the following questions. Mark choices with a clear 'X'.

D.1 The name of your school:

D.2 In which grade are you?

8 [01]	9 [02]	10 [03]	11 [04]	12 [05]

D.3 In which class are you?

A [01]	B [02]	C [03]	D [04]	E [05]	F [06]	G [07]

D.4 Type of school:

Public	[01]	Private	[02]

D.5 Your age:

11 [01]	12 [02]	13 [03]	14 [04]	15 [05]	16 [06]	17 [07]	18 [08]	19 [09]	20 [10]

D.6 Your gender:

Female [01]	Male [02]

D.7 What is your home language (the language you speak at home with your family)?

Afrikaans [01]	English [02]	N.Sotho [03]	S.Sotho [04]	Tswana [05]	Xhosa [06]	Zulu [07]	Other (please specify) [08]

D.8 Which language is used mostly by teachers in the classroom?

Afrikaans [01]	English [02]	N.Sotho [03]	S.Sotho [04]	Tswana [05]	Xhosa [06]	Zulu [07]	Other (please specify) [08]

D.9 Please mark your ethnic group (for statistical purposes only).

Asian [01]	Black [02]	Coloured [03]	White [04]	Other (please specify) [05]

D.10 What is the highest qualification you expect to achieve one day?

Type of Qualification	Mark one box with X
School (<i>please specify what grade</i>):	[01]
Trade (e.g. Fitter and Turner / Welder / Electrician / Plumber)	[02]
Diploma	[03]
University Degree	[04]
Higher Degree (e.g. Honours / Masters / Doctorate)	[05]
Other type of course (<i>please specify</i>):	[06]

D.11 What is the highest qualification your parents or guardians achieved?

Type of Course	Mother or Female Guardian (mark one box with X)	Father or Male Guardian (mark one box with X)
School (please specify what Grade):	[01]	[08]
Trade (e.g. Fitter and Turner / Welder / Plumber)	[02]	[09]
Diploma	[03]	[10]
University Degree	[04]	[11]
Higher Degree (e.g. Honours / Masters / Doctorate)	[05]	[12]
Other type of course (please specify):	[06]	[13]
I don't know	[07]	[14]

D.12 Please answer the questions below by marking the appropriate box with 'X'.

D.12.1 Have you ever participated in any of the following formal Entrepreneurship Education Programmes?

	YES	NO
• EWET syllabi (entrepreneurship training in the classroom)	[01]	[02]
• EWET Practical clubs (Youth Enterprise Society – YES)	[03]	[04]
• EWET YES Simama Ranta competitions	[05]	[06]

D.12.2 Have you ever participated in any other type of entrepreneurship training (at school or outside school)?

	YES	NO
	[07]	[08]
• If yes, tell us when: _____		
• If yes, tell us where: _____		
• Training presented by: _____		

D.12.3 Do any of your parents or guardians (with whom you live) currently own and manage their own business?

YES	NO
[09]	[10]

PART E
SOCIO-ECONOMIC INFORMATION

We need to gather some information regarding your situation at home. Please be honest when answering the questions below. Remember that your name does not appear on the questionnaire, so no one will know what you answered!

E.1 Please indicate whether each of the following statements about your home are true or false by marking the corresponding box with 'X'.

	TRUE	FALSE
E.1.1 Our home has hot running water from a geyser		
E.1.2 We have a washing machine at home		
E.1.3 We have an electric stove at home		
E.1.4 We have a computer at home (desktop or laptop)		
E.1.5 There are none or only one radio set in our household		
E.1.6 We have no domestic workers or helpers in our home		
E.1.7 Our home has a flush toilet (inside or outside)		
E.1.8 We have a television (or televisions)		
E.1.9 We have a motor vehicle in our household		
E.1.10 We have a vacuum cleaner or floor polisher at home		
E.1.11 Our home has a microwave oven		
E.1.12 We have M-Net and / or DSTV at home		
E.1.13 We live in a house / cluster house / town house		
E.1.14 We live in a metropolitan area (with municipal services)		
E.1.15 We have a DVD player at home		
E.1.16 We have a tumble dryer at home		
E.1.17 There are 3 or more cell phones in our household		
E.1.18 There are no more than 2 cell phones in our household		
E.1.19 We have a VCR (Video Cassette Recorder) at home		
E.1.20 We have tap water in our house or yard / stand / plot		
E.1.21 We have a home security service (alarm / armed reaction)		
E.1.22 We have a refrigerator or combined fridge / freezer at home		
E.1.23 We have a free standing deep freezer at home		
E.1.24 We live in a non-urban area (rural area away from town)		
E.1.25 Our kitchen has a built-in sink		
E.1.26 We have a home theatre system (for music and movies)		
E.1.27 We have a home telephone (excluding cell phones)		
E.1.28 We have a dishwashing machine at home		
E.1.29 We have a hi-fi / music centre at home		

E.2 Please tell us what your parents or guardians do for a living by writing the name of their job in the space provided below:

Mother or female guardian:

Father or male guardian:

E.3 Considering your answer above, which one of the following types of employment best describes the job(s) your parents or guardians do?

Type of employment	Mother or Female Guardian (mark one box with X)	Father or Male Guardian (mark one box with X)
Private sector employee	[01]	[08]
Public sector employee	[02]	[09]
Self-employed or entrepreneur	[03]	[10]
Retired	[04]	[11]
Unemployed	[05]	[12]
At home by own choice (not looking for work)	[06]	[13]
Other (please specify).....	[07]	[14]

PART F
LONGITUDINAL QUESTIONNAIRE ID

Finally, we ask that you help us to test a personal code for use in a later stage of our study. The code is based on some personal information known only to you, and will help us monitor the development of learners without asking their names on the questionnaire.

Please use the examples below to construct your own personal code in the last column.

No.	Question	Examples	Your Code
F.1	Write down the first two letters of the name of your school.	<u>G</u> eneral Smuts = GE <u>J</u> ordan = JO	
F.2	Write down the last two digits of the year in which you were born.	<u>1993</u> = 93 <u>1997</u> = 97	
F.3	Write down the second letter of your first name and the third letter of your surname.	<u>P</u> eter Mof <u>o</u> keng = EF <u>S</u> anet Gro <u>b</u> ler = AO	
F.4	On which day of the month do you celebrate your birthday?	<u>05</u> April = 05 <u>23</u> September = 23	
F.5	Write down the first two letters of your mother's first name.	<u>S</u> elinah = SE <u>M</u> argaret = MA	

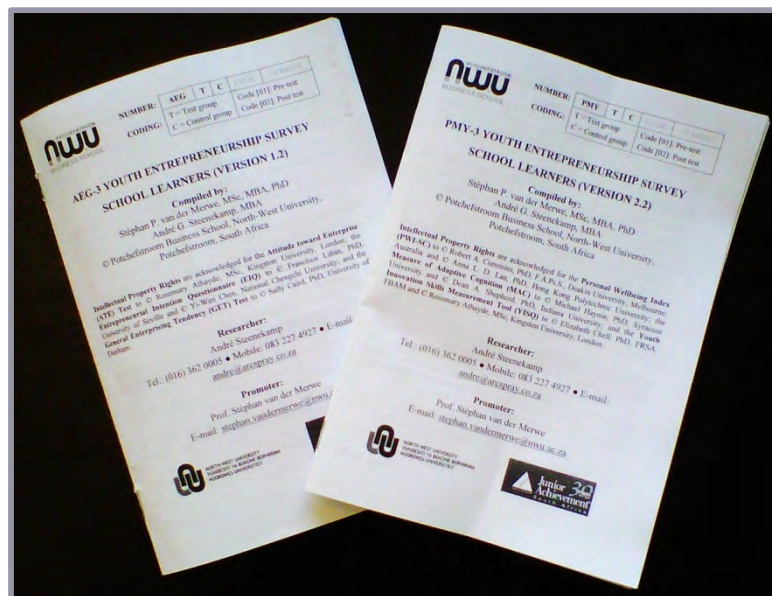
THE QUESTIONNAIRE IS NOW COMPLETE

THANK YOU FOR YOUR PARTICIPATION!

APPENDIX TWO

MAIN STUDY QUESTIONNAIRES

MAIN STUDY: AEG-3 AND PMY-3 YOUTH ENTREPRENEURSHIP SURVEYS FOR SCHOOL LEARNERS (VERSIONS 1.2 AND 2.2)





NUMBER:

AEG	T	C	CODE	NUMBER
T = Test group			Code [01]: Pre-test	
C = Control group			Code [02]: Post test	

CODING:

AEG-3 YOUTH ENTREPRENEURSHIP SURVEY SCHOOL LEARNERS (VERSION 1.2)

Compiled by:

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YUNIBESITHI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT

Unemployment and poverty are major concerns in South Africa. As a young South African you will soon be entering the labour market or tertiary education. It is important that we understand your current feelings and your plans for the future. This questionnaire is designed to collect information on how you feel about the creation of new business and entrepreneurial activity. We hope that you will find the questionnaire both interesting and stimulating.

This questionnaire is not an exam or a test, so please relax and enjoy the exercise. Your name will not appear on the questionnaire, so none of the answers can be traced back to you. Please answer all the questions honestly and seriously.

GENERAL INSTRUCTIONS

1. Please answer all the questions. Incomplete questionnaires cannot be used for analysis.
2. Follow the instructions given at each question or section.
3. The grey numbers in brackets, e.g. [01], are only for the analysis of the questionnaire.
4. Please complete the questionnaire with a black pen.

PART A: ATE Test ATTITUDE TOWARD ENTERPRISE TEST

This exercise will examine your attitude towards a number of things, in other words, how you, as a person, feel about certain things in school and your future.

Please indicate how much you agree or disagree with each of the following statements by circling one number in each line using the following scale:

Strongly disagree = 1.....strongly agree = 7

A.1 to A.6 will examine your feelings about your own creativity at school, in other words, your imagination about things, new ideas that come to you, and ways you follow to solve problems in school and everyday life.

		Strongly disagree						Strongly agree	
A.1	Having a good imagination helps me do well at school.	1	2	3	4	5	6	7	
A.2	I think I have a very good imagination.	1	2	3	4	5	6	7	
A.3	I like doing work that makes my imagination work hard.	1	2	3	4	5	6	7	
A.4	I like lessons where teachers use different ways of teaching me.	1	2	3	4	5	6	7	
A.5	I like teachers who always use new ways of teaching me.	1	2	3	4	5	6	7	
A.6	I like school work where I have to give my own ideas in class.	1	2	3	4	5	6	7	

A.7 to A.12 will examine how you feel about being a leader in school, in other words, bringing people together in groups, getting people to agree with you, and getting other learners and friends to work together with you.

		Strongly disagree						Strongly agree	
A.7	I am good at getting other learners to agree with my plans.	1	2	3	4	5	6	7	
A.8	My friends would say I am a leader rather than a follower.	1	2	3	4	5	6	7	

A.9	I am good at getting people to work well together.	1	2	3	4	5	6	7	
A.10	I like being the centre of attention in class.	1	2	3	4	5	6	7	
A.11	I take responsibility for getting things done when working with others.	1	2	3	4	5	6	7	
A.12	I am good at motivating my class mates to do something.	1	2	3	4	5	6	7	

A.13 to A.18 will examine how you feel about trusting your own feelings when solving problems, in other words, how you feel about not being sure what to do next, or taking a chance on something even if you are not sure it will work.

		Strongly disagree						Strongly agree	
A.13	I can find the answer to a problem even if I do not know everything about it.	1	2	3	4	5	6	7	
A.14	Making mistakes is a good way of finding out how to solve a problem.	1	2	3	4	5	6	7	
A.15	My own feelings about what to do is a good way of solving problems.	1	2	3	4	5	6	7	
A.16	I trust my feelings when I must solve problems in school work.	1	2	3	4	5	6	7	
A.17	I will guess what to do if I do not know the answer to a problem.	1	2	3	4	5	6	7	

A.18	I will keep on trying to solve a problem in different ways rather than give up.	1	2	3	4	5	6	7
<i>A.19 to A.24 will examine how you feel about doing things well, in other words, working hard to get good results, and being proud of the work you have done.</i>		Strongly disagree						Strongly agree
A.19	I work hard to make my school work successful.	1	2	3	4	5	6	7
A.20	It feels really good when work we did as a group gets good results.	1	2	3	4	5	6	7
A.21	It makes me unhappy if my project work at school is not good.	1	2	3	4	5	6	7
A.22	I believe it is important to finish off school work as well as I can.	1	2	3	4	5	6	7
A.23	I am really proud of my school work.	1	2	3	4	5	6	7
A.24	Working hard on school work is definitely worth the effort.	1	2	3	4	5	6	7
<i>A.25 to A.30 will examine how you feel about being in control of your own life, in other words, do you feel that you can decide what to do with your life or do you feel that other people control your life and your future.</i>		Strongly disagree						Strongly agree
A.25	I can also get the best job one day.	1	2	3	4	5	6	7

A.26	I think I can decide to have a successful career when I finish school.	1	2	3	4	5	6	7
A.27	I believe in my own ability to be successful in my future career.	1	2	3	4	5	6	7
A.28	I feel it is important to plan my future career.	1	2	3	4	5	6	7
A.29	I am sure that I will be successful in my future career.	1	2	3	4	5	6	7
A.30	My chances of getting a good job one day are just as good as anybody else's.	1	2	3	4	5	6	7
<i>A.31 to A.36 will examine how you feel about taking risks in life, in other words, will you take a chance on something if you think it will work out well, or maybe spend money on something that might make more money even if you are not sure.</i>		Strongly disagree						Strongly agree
A.31	I would rather have a difficult job with a high salary than an easy one with low pay.	1	2	3	4	5	6	7
A.32	I feel one must take some risks to be successful in life.	1	2	3	4	5	6	7
A.33	I would put my money into a <i>new</i> company with good ideas if I thought it would make me much more money.	1	2	3	4	5	6	7

A.34	If I believed in a company, I would be prepared to put my own money into it.	1	2	3	4	5	6	7
A.35	I would put as much money as I could into a new idea if there was a good chance that I could make a lot of profit.	1	2	3	4	5	6	7
A.36	I am good at taking reasonable risks.	1	2	3	4	5	6	7

PART B: EIQ ENTREPRENEURIAL INTENTION QUESTIONNAIRE

The following exercise will examine how you feel about being an entrepreneur, the way you think your community feels about what entrepreneurs do, and how easy or difficult you think it will be to become an entrepreneur.

Please indicate your level of agreement with each of the following statements by circling one number in each line using the following scale:

Strongly disagree = 1.....strongly agree = 7

B.1 to B.5 will examine how you, as a person, feel about being an entrepreneur.		Strongly disagree						Strongly agree
B.1	I think being an entrepreneur will be more good than bad for me as a person.	1	2	3	4	5	6	7

B.2	I would really like to be an entrepreneur.	1	2	3	4	5	6	7
B.3	I would like to start my own business if I had the chance and the money.	1	2	3	4	5	6	7
B.4	It would give me great satisfaction to be an entrepreneur.	1	2	3	4	5	6	7
B.5	If I had many options for a job, I would choose to be an entrepreneur.	1	2	3	4	5	6	7

B.6 to B.8 will examine how you think people around you will feel about you being an entrepreneur.

		Strongly disagree						Strongly agree
B.6	I think my family would be happy if I decided to start a business.	1	2	3	4	5	6	7
B.7	I think my friends would be happy if I decided to start a business.	1	2	3	4	5	6	7
B.8	I think other children in my school would be happy if I decided to start a business.	1	2	3	4	5	6	7

B.9 to B.14 will examine how easy or difficult you think it would be for you to become an entrepreneur.

		Strongly disagree						Strongly agree
B.9	It would be easy for me to start a business and to keep it working.	1	2	3	4	5	6	7
B.10	I am ready to start a business that would work well.	1	2	3	4	5	6	7
B.11	I think I can control the process to create a new business.	1	2	3	4	5	6	7
B.12	I think I have the practical knowledge to start a business.	1	2	3	4	5	6	7
B.13	I know how to develop an entrepreneurial project.	1	2	3	4	5	6	7
B.14	I think I would be successful if I tried to start a new business.	1	2	3	4	5	6	7

B.15 to B.20 will examine whether you, as a person, have any plans to become an entrepreneur one day.

		Strongly disagree						Strongly agree
B.15	I am ready to do anything to be an entrepreneur.	1	2	3	4	5	6	7
B.16	My professional goal is to become an entrepreneur.	1	2	3	4	5	6	7

B.17	I will do anything possible to start and run my own business.	1	2	3	4	5	6	7
B.18	I am determined to create a business in the future.	1	2	3	4	5	6	7
B.19	I have very seriously thought about starting a business.	1	2	3	4	5	6	7
B.20	I am definitely planning to start a business one day.	1	2	3	4	5	6	7

PART C: GET GENERAL ENTERPRISING TENDENCY TEST

The following exercise will examine how you feel about entrepreneurship as a career choice and a way of life in general.

There are only two options: agree (A) or disagree (D). Please read each statement carefully and mark the corresponding box with 'X'. If for any reason, you neither fully agree nor fully disagree with a particular statement, please decide whether you agree more or disagree more and then select your answer.

		Agree	Disagree
C.1	I would not mind doing easy work every day as long as the pay I receive was good.	A	D
C.2	I enjoy challenges that really test my abilities rather than doing things I can do easily.	A	D
C.3	I think more about the past and the present than of what the future may hold.	A	D
C.4	I get unhappy if people are not on time.	A	D

C.1 to C.12 will examine your feelings towards doing things well, both at school and at home.

C.5	I would rather work on a task as a team member than to take responsibility for the task myself.	A	D
C.6	I get up early, stay up late or even skip meals in order to get special tasks completed.	A	D
C.7	I usually defend my own point of view if someone disagrees with me.	A	D
C.8	If I am having problems with a task, I leave it and do something else.	A	D
C.9	It is more important to do a job well than to try and make other people happy.	A	D
C.10	I want to work with people I like even if they are not very good at their jobs, rather than working with people I do not like even if they are very good at their jobs.	A	D
C.11	When I am facing a challenge, I think more about the results of succeeding than the effects of failing.	A	D
C.12	It is easy for me to relax when I am on holiday.	A	D
<i>C.13 to C.18 will examine your feelings towards doing things on your own and in your own way.</i>		Agree (A)	Disagree (D)
C.13	I do not like doing things that are new to me or different than normally done.	A	D
C.14	I like doing things my own way without worrying what other people think.	A	D
C.15	When I am in a group I am happy to let someone else take the lead.	A	D

C.16	When doing a task I seldom need or want help from someone else.	A	D
C.17	I do what is expected of me and follow instructions.	A	D
C.18	Most people think that I am stubborn (doing things my own way).	A	D
<i>C.19 to C.30 will examine your feelings about your own creativity, in other words, your imagination about things, new ideas that come to you, and ways you follow to solve problems in school and everyday life.</i>		Agree (A)	Disagree (D)
C.19	I very seldom day dream.	A	D
C.20	I like to find out about new things even if it means facing some problems whilst doing so.	A	D
C.21	I do not like guessing about what to do.	A	D
C.22	I want to be good at many things rather than being very good at just one thing.	A	D
C.23	I like to have my life organised so that everything runs smooth and to plan.	A	D
C.24	Sometimes I have so many ideas that I do not know which one to pick.	A	D
C.25	Sometimes people find my ideas unusual.	A	D
C.26	I do not like sudden changes in my life.	A	D
C.27	Other people think that I ask a lot of questions.	A	D
C.28	I prefer doing things in the usual way rather than trying out new ways.	A	D
C.29	I can handle a lot of things at the same time.	A	D

C.30	It is harder for me to change than to keep on doing the same things.	A	D
<i>C.31 to C.42 will examine how you feel about taking risks in life, in other words, will you take a chance on something if you think it will work out well, or maybe spend money on something that might make more money even if you are not sure.</i>		Agree (A)	Disagree (D)
C.31	When I have to set my own goals, I choose difficult ones rather than easy goals.	A	D
C.32	I would rather have a reasonable income in a job that was easy to keep, than in a job I might lose if I did not perform well.	A	D
C.33	If I had a good idea for making some money, I would be willing to borrow some money to enable me to do it.	A	D
C.34	Before making a decision I like to have all the facts, no matter how long it takes.	A	D
C.35	I would rather spend my time on something difficult that might lead to great things than doing something easy that I know I will enjoy.	A	D
C.36	What we are used to is usually better than what is unknown.	A	D
C.37	If I had to gamble R10, I would rather buy a lotto ticket than play cards.	A	D
C.38	I will take risks if the chances of success are 50/50.	A	D
C.39	If there is a chance of failure, I would rather not do something.	A	D

C.40	Before making an important decision, I quickly think about the good and bad things that can happen instead of thinking about it for a long time.	A	D
C.41	I find it difficult to ask favours from other people.	A	D
C.42	I like to start new projects that may be risky.	A	D

C.43 to C.54 will examine how you feel about your own ability to take advantage of opportunities around you, to make your own life successful, and to keep on trying until you reach your personal goals.

		Agree (A)	Disagree (D)
C.43	People that can be successful in life, but fail to become successful have not taken chances when they had the opportunity.	A	D
C.44	Many of the bad times that people experience are the result of bad luck.	A	D
C.45	People generally get what they deserve.	A	D
C.46	Success cannot come to you unless you are in the right place at the right time.	A	D
C.47	For me, getting what I want has little to do with luck.	A	D
C.48	People's failures are seldom the result of their poor decisions.	A	D
C.49	You are either naturally good at something or you are not, effort makes no difference.	A	D
C.50	When I make plans to do something, I nearly always do what I plan.	A	D
C.51	I will get what I want from life if I please the people with control over me.	A	D

C.52	Being successful is the result of working hard, luck has nothing to do with it.	A	D
C.53	I believe that what happens to me in life is determined mostly by other people.	A	D
C.54	I get what I want from life because I work hard to make it happen.	A	D

PART D DEMOGRAPHICAL INFORMATION

Please answer the following questions. Mark choices with a clear 'X'.

D.1 In which province are you?

D.2 In which town do you live?

D.3 The name of your school:

D.4 In which grade are you?

8 [01]	9 [02]	10 [03]	11 [04]	12 [05]

D.5 In which class are you?

A [01]	B [02]	C [03]	D [04]	E [05]	F [06]	G [07]

D.6 Type of school: Public [01] Private [02]

D.7 Your age:

11 [01]	12 [02]	13 [03]	14 [04]	15 [05]	16 [06]	17 [07]	18 [08]	19 [09]	20 [10]

D.8 Your gender: Female [01] Male [02]

D.9 What is your home language (the language you speak at home with your family)?

Afrikaans [01]	English [02]	N.Sotho [03]	S.Sotho [04]	Tswana [05]	Xhosa [06]	Zulu [07]	Other (please specify) [08]

D.10 Which language is used mostly by teachers in the classroom?

Afrikaans [01]	English [02]	N.Sotho [03]	S.Sotho [04]	Tswana [05]	Xhosa [06]	Zulu [07]	Other (please specify) [08]

D.11 Please mark your ethnic group (statistical purposes only).

Asian/Indian [01]	Black [02]	Coloured [03]	White [04]	Other (please specify) [05]

D.12 Please answer the questions below by marking the appropriate box with 'X'.

D.12.1 Have you ever participated in the 'Mini Enterprise Programme' of Junior Achievement South Africa (JASA)?

YES [01]	NO [02]

If 'yes', in which year? _____

D.12.2 Have you ever participated in any other enterprise or entrepreneurship training programme? If 'yes', please provide the name of the programme below.

YES [03]	NO [04]

Year: _____

D.12.3 Do any of your parents or guardians (with whom you live) currently own and manage their own business?

YES
[05]

NO
[06]

PART E SOCIO-ECONOMIC INFORMATION

We need to gather some information regarding your situation at home. Please be honest when answering the questions below. Remember that your name does not appear on the questionnaire, so no one will know what you answered!

E.1 Please indicate whether each of the following statements about your home are true or false by marking the corresponding box with 'X'.

E.1.1	Our home has hot running water from a geyser.	TRUE	FALSE
E.1.2	We have a washing machine at home.	TRUE	FALSE
E.1.3	We have an electric stove at home.	TRUE	FALSE
E.1.4	We have a computer at home (desktop or laptop).	TRUE	FALSE
E.1.5	There are none or only one radio set in our household.	TRUE	FALSE
E.1.6	We have no domestic workers or helpers in our home.	TRUE	FALSE
E.1.7	Our home has a flush toilet (inside or outside).	TRUE	FALSE
E.1.8	We have a television (or televisions).	TRUE	FALSE
E.1.9	We have a motor vehicle in our household.	TRUE	FALSE

E.1.10	We have a vacuum cleaner or floor polisher at home.	TRUE	FALSE
E.1.11	Our home has a microwave oven.	TRUE	FALSE
E.1.12	We have M-Net and / or DSTV at home.	TRUE	FALSE
E.1.13	We live in a house / cluster house / town house.	TRUE	FALSE
E.1.14	We live in a metropolitan area (with municipal services).	TRUE	FALSE
E.1.15	We have a DVD player at home.	TRUE	FALSE
E.1.16	We have a tumble dryer at home.	TRUE	FALSE
E.1.17	There are 3 or more cell phones in our household.	TRUE	FALSE
E.1.18	There are no more than 2 cell phones in our household.	TRUE	FALSE
E.1.19	We have a VCR (Video Cassette Recorder) at home.	TRUE	FALSE
E.1.20	We have tap water in our house or yard / stand / plot.	TRUE	FALSE
E.1.21	We have a home security service (alarm / armed reaction).	TRUE	FALSE
E.1.22	We have a refrigerator or combined fridge / freezer at home.	TRUE	FALSE
E.1.23	We have a free standing deep freezer at home.	TRUE	FALSE
E.1.24	We live in a non-urban area (rural area away from town).	TRUE	FALSE
E.1.25	Our kitchen has a built-in sink.	TRUE	FALSE

E.1.26	We have a home theatre system (for music and movies).	TRUE	FALSE
E.1.27	We have a home telephone (excluding cell phones).	TRUE	FALSE
E.1.28	We have a dishwashing machine at home.	TRUE	FALSE
E.1.29	We have a hi-fi / music centre at home.	TRUE	FALSE

E.2 Please tell us what your parents or guardians do for a living by writing the name of their job in the space provided below:

Mother or female guardian:	
Father or male guardian:	

E.3 Considering your answer above, which one of the following types of employment best describes the job(s) your parents or guardians do?

Type of employment	Mother or Female Guardian (mark one box with X)	Father or Male Guardian (mark one box with X)
Private sector employee	[01]	[08]
Public sector employee	[02]	[09]
Self-employed or entrepreneur	[03]	[10]
Retired	[04]	[11]
Unemployed	[05]	[12]
At home by choice (not looking for work)	[06]	[13]
Other (please specify).....	[07]	[14]

PART F LONGITUDINAL QUESTIONNAIRE ID

Finally, we wish to ask you to construct your own personal code by answering the five questions below. This code will only be known to you, and as your name does not appear on the questionnaire, no one will know what you have answered to any of the questions.

Your personal code will enable us to examine your development at a later stage without your identity being revealed. When you complete this questionnaire again later this year, we will ask you to answer the same questions to reconstruct your code. This code will enable us to study your development over time without anybody knowing who you are.

Nº	Question	Examples	Your Code
F.1	Write down the first two letters of the name of your school.	<u>G</u> eneral Smuts = GE <u>J</u> ordan = JO	
F.2	Write down the last two digits of the year in which you were born.	19 <u>93</u> = 93 19 <u>97</u> = 97	
F.3	Write down the second letter of your first name and the third letter of your surname.	<u>P</u> eter Mofokeng = EF <u>S</u> anet Grobler = AO	
F.4	On which day of the month do you celebrate your birthday?	<u>05</u> April = 05 <u>23</u> September = 23	
F.5	Write down the first two letters of your mother's first name.	<u>S</u> elinah = SE <u>M</u> argaret = MA	

THE QUESTIONNAIRE IS NOW COMPLETE
THANK YOU FOR YOUR PARTICIPATION!



NUMBER:

PMY	T	C	CODE	NUMBER
T = Test group			Code [01]: Pre-test	
C = Control group			Code [02]: Post test	

CODING:

PMY-3 YOUTH ENTREPRENEURSHIP SURVEY SCHOOL LEARNERS (VERSION 2.2)

Compiled by:

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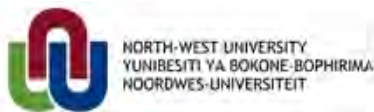
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Unemployment and poverty are major concerns in South Africa. As a young South African you will soon be entering the labour market or tertiary education. It is important that we understand your current feelings and your plans for the future. This questionnaire is designed to collect information on how you feel about the creation of new business and entrepreneurial activity. We hope that you will find the questionnaire both interesting and stimulating.

This questionnaire is not an exam or a test, so please relax and enjoy the exercise. Your name will not appear on the questionnaire, so none of the answers can be traced back to you. Please answer all the questions honestly and seriously.

GENERAL INSTRUCTIONS

- Please answer all the questions. Incomplete questionnaires cannot be used for analysis.
- Follow the instructions given at each question or section.
- The grey numbers in brackets, e.g. [01], are only for the analysis of the questionnaire.
- Please complete the questionnaire with a black pen.

PART A: PWI-SC

PERSONAL WELLBEING INDEX – SCHOOL CHILDREN

This exercise will ask you a few questions about how happy you feel today using a scale from 0 to 10. On this scale, zero means you feel VERY SAD and 10 means you feel VERY HAPPY. The middle of the scale is 5, which means you feel NOT HAPPY OR SAD.

Please circle the number that best describes your feelings about each question.

<i>Please <u>circle</u> the number that best describes your feelings about each question.</i>		Very sad					Not happy or sad					Very happy				
A.1	How happy are you with your life as a whole?	0	1	2	3	4	5	6	7	8	9	10				
A.2	How happy are you about the things you have? Like the money you have and the things you own?	0	1	2	3	4	5	6	7	8	9	10				
A.3	How happy are you with your health?	0	1	2	3	4	5	6	7	8	9	10				
A.4	How happy are you with the things you want to be good at?	0	1	2	3	4	5	6	7	8	9	10				
A.5	How happy are you about getting on with the people you know?	0	1	2	3	4	5	6	7	8	9	10				
A.6	How happy are you about how safe you feel?	0	1	2	3	4	5	6	7	8	9	10				
A.7	How happy are you about doing things away from your home?	0	1	2	3	4	5	6	7	8	9	10				
A.8	How happy are you about what may happen to you later on in your life?	0	1	2	3	4	5	6	7	8	9	10				

		Very sad					Not happy or sad					Very happy				
A.9	How happy are you with your family?	0	1	2	3	4	5	6	7	8	9	10				
A.10	How happy are you with your friends?	0	1	2	3	4	5	6	7	8	9	10				
A.11	How happy are you with people involved in teaching you?	0	1	2	3	4	5	6	7	8	9	10				

PART B: MAC GENERALISED MEASURE OF ADAPTIVE COGNITION

This exercise will examine the way you see your personal goals, your past experiences in life, the way you make choices, and the way you use what you have learnt to guide you through life.

Please indicate how much each of the following statements are like you by circling one number in each line using the following scale:

Not very much like me = 1.....very much like me = 7

B.1 to B.5 will examine the way you approach your personal goals in life.

		Not very much like me						Very much like me
B.1	I often define goals for myself.	1	2	3	4	5	6	7
B.2	I understand how the successful completion of a task relates to my goals.	1	2	3	4	5	6	7
B.3	I set specific goals before I begin a task.	1	2	3	4	5	6	7
B.4	I ask myself how well I have reached my goals once I have finished a task.	1	2	3	4	5	6	7
B.5	When doing a task, I often measure my progress against my goals.	1	2	3	4	5	6	7

B.6 to B.16 below will examine the way you use your knowledge of yourself, other people and things you have done to make decisions on how to reach your own personal goals.

		Not very much like me						Very much like me
B.6	I think of many different ways to solve a problem and then choose the best one.	1	2	3	4	5	6	7
B.7	I challenge my own thoughts about a task before I begin.	1	2	3	4	5	6	7
B.8	I think about how other people may react to my actions.	1	2	3	4	5	6	7
B.9	I find myself automatically using strategies that have worked in the past.	1	2	3	4	5	6	7
B.10	I perform best when I already have knowledge of the task.	1	2	3	4	5	6	7
B.11	I create my own examples to understand information better.	1	2	3	4	5	6	7
B.12	I try to use strategies (methods) that have worked in the past.	1	2	3	4	5	6	7
B.13	I ask myself questions about the task before I begin.	1	2	3	4	5	6	7
B.14	I try to translate new information into my own words.	1	2	3	4	5	6	7

B.15	I try to break problems down into smaller parts.	1	2	3	4	5	6	7
B.16	I focus on the meaning and importance of new information.	1	2	3	4	5	6	7
<i>B.17 to B.24 will examine the way you use your previous experiences and feelings to make decisions on how to reach your own personal goals.</i>		Not very much like me						Very much like me
B.17	I think about what I really need to achieve before I begin a task.	1	2	3	4	5	6	7
B.18	I use different strategies (methods) depending on the situation.	1	2	3	4	5	6	7
B.19	I organise my time to best achieve my goals.	1	2	3	4	5	6	7
B.20	I am good at organising information.	1	2	3	4	5	6	7
B.21	I know what kind of information is important to consider when faced with a problem.	1	2	3	4	5	6	7
B.22	I focus my attention on important information.	1	2	3	4	5	6	7
B.23	Something inside me tells me when a given strategy I use will be most effective.	1	2	3	4	5	6	7

B.24	I depend on my intuition (feeling) to help me develop strategies.	1	2	3	4	5	6	7
<i>B.25 to B.29 will examine the way you choose from different options the best way to live your life in a world that is always changing.</i>		Not very much like me						Very much like me
B.25	I ask myself if I have considered all the options when solving a problem.	1	2	3	4	5	6	7
B.26	I ask myself if there was an easier way to do things after I finish a task.	1	2	3	4	5	6	7
B.27	I ask myself if I have considered all the options after I solve a problem.	1	2	3	4	5	6	7
B.28	I rethink my own thoughts when I get confused.	1	2	3	4	5	6	7
B.29	I ask myself if I have learned as much as I could have after I finish a task.	1	2	3	4	5	6	7

B.30 to B.36 will examine the way you use your own feedback to live your life in a world that is always changing.

		Not very much like me						Very much like me
B.30	I often review to help me understand important relationships.	1	2	3	4	5	6	7
B.31	I stop and go back over information that is not clear.	1	2	3	4	5	6	7
B.32	I am aware of what strategies I use when busy with a given task.	1	2	3	4	5	6	7
B.33	I find myself analysing the usefulness of a given strategy when busy with a task.	1	2	3	4	5	6	7
B.34	I find myself pausing regularly to check my understanding of the problem or situation at hand.	1	2	3	4	5	6	7
B.35	I ask myself how well I am doing while I am performing a new task.	1	2	3	4	5	6	7
B.36	I stop and reread when I get confused.	1	2	3	4	5	6	7

PART C: YISQ YOUTH INNOVATION SKILLS MEASUREMENT TOOL

This exercise will examine the way you, as a person, see using your imagination, beliefs about yourself, your energy, your ability to lead other people, and whether you are willing to take chances or not, to change the world around you.

Please indicate how much you agree or disagree with the following statements by circling one number in each line using the following scale:

Strongly disagree = 1.....strongly agree = 7

C.1 to C.5 will show us if you plan to make a difference to people and the way business is done around you.

		Strongly disagree						Strongly agree
C.1	I would like to invent something that is new to the world.	1	2	3	4	5	6	7
C.2	My dream is to set up a new company that offers something completely new.	1	2	3	4	5	6	7
C.3	I intend getting a job in a large company and using my skills to develop new products or services.	1	2	3	4	5	6	7
C.4	I intend to design or create something new such as in music, software, buildings, dance, film, television, or fashion.	1	2	3	4	5	6	7

C.5	I would like to do something no one has ever thought of before that would bring about positive changes to society, the environment, or politics.	1	2	3	4	5	6	7

C.6 to C.11 will examine your feelings about using your imagination and own ideas in class, as well as doing practical things.

		Strongly disagree						Strongly agree
C.6	I would like my lessons to involve lots of different creative activities.	1	2	3	4	5	6	7
C.7	I would like lessons that involve different activities rather than just sitting at a desk.	1	2	3	4	5	6	7
C.8	I feel proud when I have designed and made something myself.	1	2	3	4	5	6	7
C.9	I like doing things that are very practical.	1	2	3	4	5	6	7
C.10	I have chosen subjects at school that give me the freedom to express my own ideas.	1	2	3	4	5	6	7
C.11	The subjects I have chosen at school require my imagination.	1	2	3	4	5	6	7

C.12 to C.17 will examine how you feel about being a leader in school and organising other people to reach common goals.

		Strongly disagree						Strongly agree
C.12	I really like being the leader of a group.	1	2	3	4	5	6	7
C.13	Project work gives me the chance to take a leading role in the group.	1	2	3	4	5	6	7
C.14	When working in a group, I do my best to convince other students to accept my ideas.	1	2	3	4	5	6	7
C.15	I am often chosen to be the team leader or captain of my team.	1	2	3	4	5	6	7
C.16	I like organising other people.	1	2	3	4	5	6	7
C.17	My friends follow my suggestions when they cannot make up their minds.	1	2	3	4	5	6	7
		Strongly disagree						Strongly agree
C.18	It gives me energy when I am rewarded for good work (e.g. a school day trip).	1	2	3	4	5	6	7

C.18 to C.24 will examine how hard you are willing to work and whether you are motivated with lots of energy to be successful in school.

C.19	I feel really motivated when I produce something that no one else has.	1	2	3	4	5	6	7
C.20	I feel really enthusiastic (happy and excited) about my chosen subjects at school.	1	2	3	4	5	6	7
C.21	It is energising and rewarding to help other people.	1	2	3	4	5	6	7
C.22	I really push myself hard to get good grades at school.	1	2	3	4	5	6	7
C.23	When I am doing something, I like to feel that it has a purpose or a goal.	1	2	3	4	5	6	7
C.24	I have lots of energy for work and play.	1	2	3	4	5	6	7
<i>C.25 to C.32 will examine how you feel about yourself and whether you have the confidence to do many things at school and outside school.</i>		Strongly disagree						Strongly agree
C.25	I like to follow my interests outside school where I feel more in control.	1	2	3	4	5	6	7
C.26	I want my future work to have many challenges that I would find interesting.	1	2	3	4	5	6	7
C.27	Once I start something I like to finish it.	1	2	3	4	5	6	7

C.28	I would join a club or group if it was something I really wanted to do, even if my friends would not also join.	1	2	3	4	5	6	7
C.29	I am not easily turned by other people's opinions, but do what I think is best.	1	2	3	4	5	6	7
C.30	Learners should have a say in how a school is run.	1	2	3	4	5	6	7
C.31	My spending money is important because it gives me a sense of independence.	1	2	3	4	5	6	7
C.32	I have been brought up to think for myself.	1	2	3	4	5	6	7
<i>C.33 to C.36 will examine how you feel about taking risks in life to be successful and whether you are able to live your life while being uncertain about things around you.</i>		Strongly disagree						Strongly agree
C.33	When I make choices I want to be as sure as possible what the future results will be for me.	1	2	3	4	5	6	7
C.34	I want my work to provide me with opportunities to show that I can solve problems.	1	2	3	4	5	6	7
C.35	I would not take a risk on an activity that might spoil my chances of getting good grades.	1	2	3	4	5	6	7

C.36	Fearing that I might fail my exams is a powerful motivator at school.	1	2	3	4	5	6	7

PART D DEMOGRAPHICAL INFORMATION

Please answer the following questions. Mark choices with a clear 'X'.

D.1 In which province are you?

D.2 In which town do you live?

D.3 The name of your school:

D.4 In which grade are you?

8 [01]	9 [02]	10 [03]	11 [04]	12 [05]

D.5 In which class are you?

A [01]	B [02]	C [03]	D [04]	E [05]	F [06]	G [07]

D.6 Type of school: Public [01] Private [02]

D.7 Your age:

11 [01]	12 [02]	13 [03]	14 [04]	15 [05]	16 [06]	17 [07]	18 [08]	19 [09]	20 [10]

D.8 Your gender:

Female [01]	Male [02]

D.9 What is your home language (the language you speak at home with your family)?

Afrikaans [01]	English [02]	N.Sotho [03]	S.Sotho [04]	Tswana [05]	Xhosa [06]	Zulu [07]	Other (please specify) [08]

D.10 Which language is used mostly by teachers in the classroom?

Afrikaans [01]	English [02]	N.Sotho [03]	S.Sotho [04]	Tswana [05]	Xhosa [06]	Zulu [07]	Other (please specify) [08]

D.11 Please mark your ethnic group (statistical purposes only).

Asian/Indian [01]	Black [02]	Coloured [03]	White [04]	Other (please specify) [05]

D.12 Please answer the questions below by marking the appropriate box with 'X'.

D.12.1 Have you ever participated in the 'Mini Enterprise Programme' of Junior Achievement South Africa (JASA)?

YES [01]	NO [02]

If 'yes', in which year? _____

D.12.2 Have you ever participated in any other enterprise or entrepreneurship training programme? If 'yes', please provide the name of the programme below.

YES [03]	NO [04]

Year: _____

D.12.3 Do any of your parents or guardians (with whom you live) currently own and manage their own business?

YES [05]	NO [06]

PART E SOCIO-ECONOMIC INFORMATION

We need to gather some information regarding your situation at home. Please be honest when answering the questions below. Remember that your name does not appear on the questionnaire, so no one will know what you answered!

E.1 Please indicate whether each of the following statements about your home are true or false by marking the corresponding box with 'X'.

E.1.1	Our home has hot running water from a geyser.	TRUE	FALSE
E.1.2	We have a washing machine at home.	TRUE	FALSE
E.1.3	We have an electric stove at home.	TRUE	FALSE
E.1.4	We have a computer at home (desktop or laptop).	TRUE	FALSE
E.1.5	There are none or only one radio set in our household.	TRUE	FALSE
E.1.6	We have no domestic workers or helpers in our home.	TRUE	FALSE
E.1.7	Our home has a flush toilet (inside or outside).	TRUE	FALSE
E.1.8	We have a television (or televisions).	TRUE	FALSE
E.1.9	We have a motor vehicle in our household.	TRUE	FALSE

E.1.10	We have a vacuum cleaner or floor polisher at home.	TRUE	FALSE
E.1.11	Our home has a microwave oven.	TRUE	FALSE
E.1.12	We have M-Net and / or DSTV at home.	TRUE	FALSE
E.1.13	We live in a house / cluster house / town house.	TRUE	FALSE
E.1.14	We live in a metropolitan area (with municipal services).	TRUE	FALSE
E.1.15	We have a DVD player at home.	TRUE	FALSE
E.1.16	We have a tumble dryer at home.	TRUE	FALSE
E.1.17	There are 3 or more cell phones in our household.	TRUE	FALSE
E.1.18	There are no more than 2 cell phones in our household.	TRUE	FALSE
E.1.19	We have a VCR (Video Cassette Recorder) at home.	TRUE	FALSE
E.1.20	We have tap water in our house or yard / stand / plot.	TRUE	FALSE
E.1.21	We have a home security service (alarm / armed reaction).	TRUE	FALSE
E.1.22	We have a refrigerator or combined fridge / freezer at home.	TRUE	FALSE
E.1.23	We have a free standing deep freezer at home.	TRUE	FALSE
E.1.24	We live in a non-urban area (rural area away from town).	TRUE	FALSE
E.1.25	Our kitchen has a built-in sink.	TRUE	FALSE

E.1.26	We have a home theatre system (for music and movies).	TRUE	FALSE
E.1.27	We have a home telephone (excluding cell phones).	TRUE	FALSE
E.1.28	We have a dishwashing machine at home.	TRUE	FALSE
E.1.29	We have a hi-fi / music centre at home.	TRUE	FALSE

E.2 Please tell us what your parents or guardians do for a living by writing the name of their job in the space provided below:

Mother or female guardian:	
Father or male guardian:	

E.3 Considering your answer above, which one of the following types of employment best describes the job(s) your parents or guardians do?

Type of employment	Mother or Female Guardian (mark one box with X)	Father or Male Guardian (mark one box with X)
Private sector employee	[01]	[08]
Public sector employee	[02]	[09]
Self-employed or entrepreneur	[03]	[10]
Retired	[04]	[11]
Unemployed	[05]	[12]
At home by choice (not looking for work)	[06]	[13]
Other (please specify).....	[07]	[14]

PART F LONGITUDINAL QUESTIONNAIRE ID

Finally, we wish to ask you to construct your own personal code by answering the five questions below. This code will only be known to you, and as your name does not appear on the questionnaire, no one will know what you have answered to any of the questions.

Your personal code will enable us to examine your development at a later stage without your identity being revealed. When you complete this questionnaire again later this year, we will ask you to answer the same questions to reconstruct your code. This code will enable us to study your development over time without anybody knowing who you are.

Nº	Question	Examples	Your Code
F.1	Write down the first two letters of the name of your school.	<u>G</u> eneral Smuts = GE <u>J</u> ordan = JO	
F.2	Write down the last two digits of the year in which you were born.	19 <u>93</u> = 93 19 <u>97</u> = 97	
F.3	Write down the second letter of your first name and the third letter of your surname.	<u>P</u> eter Mofokeng = EF <u>S</u> anet Grobler = AO	
F.4	On which day of the month do you celebrate your birthday?	<u>05</u> April = 05 <u>23</u> September = 23	
F.5	Write down the first two letters of your mother's first name.	<u>S</u> elinah = SE <u>M</u> argaret = MA	

THE QUESTIONNAIRE IS NOW COMPLETE
THANK YOU FOR YOUR PARTICIPATION!

APPENDIX THREE

INSTRUCTION MANUAL: ADMINISTERING THE SURVEYS

ADMINISTERING THE AEG-3 AND PMY-3 YOUTH ENTREPRENEURSHIP SURVEYS FOR SCHOOL LEARNERS (VERSIONS 1.2 AND 2.2)



INSTRUCTION MANUAL

ADMINISTERING THE AEG-3 AND PMY-3

YOUTH ENTREPRENEURSHIP SURVEYS

SCHOOL LEARNERS (VERSIONS 1.2 AND 2.2)

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1. INTRODUCTION

The North-West University (NWU, Potchefstroom) is currently conducting research on the impact of entrepreneurship education and training on the entrepreneurial attitudes and intentions of young learners in South African secondary schools. The study forms part of a doctoral thesis by André Steenekamp (MBA) under the supervision of Prof. Stèphan van der Merwe (MSc; MBA; PhD) of the Potchefstroom Business School, North-West University, Potchefstroom campus.

A study of this magnitude would not be possible without the support of a reputable training provider with access to learners in schools, and consequently, the researcher is greatly indebted to Ms. Linda McClure, the Managing Director of Junior Achievement South Africa (JASA), for committing JASA as a partner to this important study.

2. PURPOSE AND BENEFITS OF THE STUDY

Unemployment, poverty and a shortage of skills are major stumbling blocks for economic and social development in South Africa. Youth unemployment has reached critical proportions, and it has long been evident that much needs to be done to improve the South African youth's potential to contribute meaningfully to both economic progress and social upliftment.

The main objective of this study is to examine the impact of entrepreneurship education and training on the entrepreneurial attitudes and intentions of young learners in South African secondary schools. The empirical component of the study is aimed at gathering data from secondary school learners for statistical analysis and reporting, followed by the formulation of practical recommendations for the advancement of an entrepreneurial culture among young people in South Africa.

The benefits of this study are threefold:

- ✦ Firstly, it is ideally suited to make a significant contribution to the existing body of academic knowledge on youth entrepreneurship education in South Africa.
- ✦ Secondly, it will be the first academic study supported by a recognised South African Higher Education Institution (HEI) to report scientifically on the impact of JASA's programmes on young learners.

- ✦ Thirdly, once the study has been accepted by the North-West University, a copy of the thesis will be presented to the JASA National Office in Johannesburg. This hardcopy may be displayed by JASA and used for reference, marketing purposes, the acquisition of funding, and most importantly, as scientific proof of the important work the organisation is doing.

3. THE ROLE OF JUNIOR ACHIEVEMENT SOUTH AFRICA

Academic research generally employs sampling methods to obtain data from randomly selected respondents in localised areas for interpretation of the characteristics of a larger population. This study is similar in design, but with the added advantage of JASA being favourably positioned throughout South Africa to obtain widespread data which may be representative of the entire country, at least to the extent of JASA's activities in the different provinces.

Considering the envisaged national scope of the study, it must be emphasised that the fulfilment of certain roles by both JASA's National Office and JASA agents in the different regions is crucial for the attainment of the objectives of this research project.

3.1 The JASA National Office

The leadership of Ms. Linda McClure and the boards of directors and trustees, supported by the National Office staff, will play an integral role in the planning and execution of the project. All activities relating to this research project will be planned, executed and controlled through the JASA National Office in close collaboration with the researcher.

3.2 JASA Agents

JASA agents have a crucial role to play in bringing this study to print. Being resident in the various regions of South Africa, JASA agents will have intimate knowledge of their regions as well as sound relationships with educators and schools in these areas.

Agents are invited, subject to the approval and directives of the JASA National Office, to manage the collection of data for both the pre- and post testing phases of the longitudinal study in their respective areas. These duties will include the selection and documenting of test and control groups for the study, administering the two surveys for the pre- and post test

phases, and assisting with the coding and submission of the completed questionnaires within certain timeframes to be communicated in due course.

4. FUNDING AND REMUNERATION FOR SERVICES

It should be noted that the researcher has no external funding for this research project, neither from the North-West University nor from any third parties. The researcher will provide sufficient quantities of the AEG-3 and PMY-3 questionnaires and related forms (discussed elsewhere), and will carry the costs for postage or transport of the questionnaires to and from the various JASA offices in South Africa. However, it must be emphasised that the researcher is not in any position to remunerate any office bearer, employee, agent, or trainer of JASA for the time and effort that will be consumed by this project.

The researcher, therefore, relies on the goodwill of all JASA personnel to make this study their own for the greater good of the South African youth, as well as to realise the benefits a scientific study of this calibre may hold for the reinforcement of JASA's activities in the country.

5. TIMEFRAME FOR THE STUDY

This study has been in writing since February 2010, and is set for final submission for examination in either April 2013 or November 2013 (depending on the duration of JASA's programmes selected for evaluation and the workload of Statistical Consultation Services of the North-West University, Potchefstroom campus).

The empirical component of this research project is set for the 2012 school year as agreed with JASA's Managing Director, Ms. Linda McClure. **Pre-testing of respondents for both the test and control groups must be completed soon after schools reopen in 2012, but before any of the JASA programmes are introduced or implemented** (this is a crucial factor to ensure that learners in the test and control groups are pre-tested on equal footing as the starting point for the longitudinal study, meaning that none of them should have been exposed to any of JASA's interventions).

Once pre-testing of the sample has been completed with all the supporting information documented, the completed questionnaires will be returned to the researcher for final coding and presentation to Statistical Consultation Services (NWU) for data capturing, cleaning and

storage until such time as the dataset for the post testing phase has been gathered for analysis and comparison.

The test groups will then be exposed to JASA's selected programmes, whereas the control groups will receive no additional exposure apart from the standard curriculum offered by South African secondary schools. During this period agents can focus on delivering their programmes to participating learners, as there will be no activities directly relating to this research project.

Once the JASA training programmes have run its course (period still to be confirmed; six months noted as a baseline), respondents who participated in the test and control groups during the pre-testing phase will again be subjected to testing using the same questionnaires (AEG-3 and PMY-3 surveys). After post testing, the questionnaires will again be returned to the researcher for further coding and presentation to Statistical Consultation Services (NWU) for data capturing, cleaning and then, for comparative statistical analysis and reporting.

6. THE AEG-3 AND PMY-3 YOUTH ENTREPRENEURSHIP SURVEYS

The AEG-3 (Version 1.2) and PMY-3 (Version 2.2) Youth Entrepreneurship Surveys (School Learners) were developed to measure youth entrepreneurship from a number of perspectives including entrepreneurial attitudes, intentions and general entrepreneurial tendencies (AEG-3), as well as personal wellbeing, adaptive cognition and innovation skills (PMY-3).

Initially, all six tests were included in a single instrument, but evaluation by Statistical Consultation Services of the North-West University suggested that young learners would suffer fatigue during completion of such an extensive battery of tests. This could have caused unreliable data as a result of incomplete questionnaires and an acquiescent approach to answering the questions (selecting any answer just to get the questionnaire completed).

Consequently, the single instrument was split into two questionnaires each consisting of six parts (A to F). Parts A to C of the two questionnaires each comprise three different tests that were developed and validated by academic scholars in a number of countries to measure different aspects of latent youth entrepreneurship potential, as well as underlying personal wellbeing, cognition and innovation. Several changes were made to the tests following a pilot study involving three secondary schools in Harrismith in February 2011, which indicated that some statements needed simplifying; some reverse score items had to be changed to positive

statements; and respondents' understanding of the tests could be improved by adding brief introductions between the different collections of constructs.

Parts D to F of the two questionnaires are identical, and were designed to collect demographical (Part D) and socio-economic (Part E) information from respondents, whereas Part F asks respondents to construct their own personal longitudinal questionnaire ID. This ID will enable the researcher to compare the pre- and post test results of individual respondents without their identities being revealed (it should be noted that respondents' names may not appear on any of the questionnaires).

6.1 Preparing for the study

As with any project, success depends on meticulous planning and focused execution of the plan. It is imperative that this study follows prescribed methodology to ensure that outliers (data differing significantly from the mean values) and incomplete questionnaires are minimised, as this will undoubtedly have an adverse effect on the outcome of the study.

All agents are, therefore, urged to adhere strictly to the following phases in preparation for the study:

6.1.1 Phase 1: Determining the sample for the study

The required samples (numbers of respondents) for each province will be communicated by the JASA National Office after consultation with the researcher. A total (national) sample of between 2 000 and 3 000 secondary school learners (Grades 8 to 12) is envisaged, and the JASA National Office is in a favourable position to determine representative samples for each region based on operational capacity and funding for the 2012 financial year.

What is important, though, is that the samples in each region must be representative of the South African population and equally distributed between test and control groups, as well as between different grades and groups allocated for the AEG-3 and PMY-3 questionnaires.

6.1.2 Phase 2: Selecting respondents in the different regions for the study

JASA agents are in a favourable position to identify suitable learners in their respective regions for inclusion in the study. Remember that for the pre-testing phase none of the learners in the sample should have been exposed to any training by JASA – this is to ensure

that learners in the test and control groups are on the same level of educational development when the study commences.

The following guidelines must be employed for the selection of respondents and subsequent allocation to the test and control groups:

- ✦ Test groups must consist of grade 8 to 12 learners who have not previously participated in any JASA training, but who will be participating in the programme in 2012.
- ✦ Control groups must consist of grade 8 to 12 learners who have never participated in any JASA training, and who will not be participating in the programme in 2012.

6.1.3 Phase 3: Permission to participate in the study

Learners targeted for participation in this study are minors, and as both a consequence and in line with the North-West University's rules and regulations for academic research, written parental permission is required for participation. The researcher will provide parental permission slips which must be completed and returned with the completed questionnaires. JASA agents must please ensure that no learner participates in the study without having presented their parents' written approval.

In the event of testing being conducted during school hours (likely for the testing of learners in the control groups), permission is required from the principal of the particular school. The researcher will again provide the necessary form for principals to complete, and the completed form must also be returned with the questionnaires.

The parental permission slips and principals' approval forms (if required) will only be completed prior to the pre-testing phase, as both forms will facilitate permission/approval for the duration of the study (including both pre- and post testing).

6.1.4 Phase 4: Final selection of the sample for the study

Once sufficient numbers of learners have been identified and the required permissions obtained, JASA agents will probably encounter one of the following scenarios:

- a. The number of learners with permission to participate in the study (test and control groups combined) may be far below the required sample size specified by the JASA National Office in consultation with the researcher.

- b. The number of learners with permission to participate in the study (test and control groups combined) may be more or less equal to the required sample size specified by the JASA National Office in consultation with the researcher.
- c. The number of learners with permission to participate in the study (test and control groups combined) may far exceed the required sample size specified by the JASA National Office in consultation with the researcher.

Scenario (a) may present problems if same occurs in most of the regions. Too small a national sample (below the minimum of 2 000 learners) may influence the outcome of the study, and agents will be requested to make every effort to secure a larger sample.

Scenario (b) will not present any problems as all the learners with permission will then be included in the sample.

Scenario (c) will necessitate the use of random sampling to reduce the number of learners in the sample. In such cases, JASA agents will be asked to forward the names of learners (see 6.1.5 below) to the researcher for statistical random selection, and a list containing the names of selected learners will then be returned to the agent for inclusion in the sample.

6.1.5 Phase 5: Preparing the list of respondents

JASA agents will be required to submit an Excel[®] spreadsheet clearly identifying the agent and the region, as well as the following information relating to respondents:

Full Name	Sex	School	Grade	Parental permission		Principal's approval			Enrolled for JASA 2012		Group allocation T = Test group / C = Control group			
				Yes	No	Yes	No	N/A	Yes	No	T.1 AEG-3	T.2 PMY-3	C.1 AEG-3	C.2 PMY-3

Learners enrolled for JASA training in 2012 must be allocated to test groups one (T.1) and two (T.2) in equal proportions respectively for the AEG-3 and PMY-3 questionnaires, whereas an equal number of learners who will not be participating in JASA's programmes must be allocated to control groups one (C.1) and two (C.2) for the respective questionnaires.

The required Excel[®] spreadsheet will enable the researcher to perform random selection in cases where learner numbers far exceed the required regional sample size, as well as assist both JASA agents and the researcher to keep track of participating learners and ensure that

only those learners who are tested during the pre-testing phase are again included for post testing later in 2012 as part of the longitudinal study.

6.1.6 Phase 6: Allocating respondents to the questionnaires

According to JASA's Report Card for 2010, the organisation's operations consist of the National Office in Johannesburg and 10 JASA agencies spread throughout South Africa.

If one assumes a mid-range total sample of say 2 500 learners, this equates to 227 (average) learners required per office/agency (numbers to be confirmed by the JASA National Office based on operational capacity and funding per region). Table 1 below is included as an example to provide clarity on the allocation of respondents to the test and control groups for the two questionnaires in any given region based on the average of 227 learners calculated above:

Table 1 Example of allocating learners to the test and control groups

JASA	Gr.	Test Groups (exposed to JASA)		Control Groups (not exposed)	
		Test group 1 [AEG-3]	Test group 2 [PMY-3]	Control group 1 [AEG-3]	Control group 2 [PMY-3]
Enrolled for 2012	8	11 Learners	12 Learners	0	0
	9	10 Learners	11 Learners	0	0
	10	9 Learners	13 Learners	0	0
	11	14 Learners	8 Learners	0	0
	12	12 Learners	13 Learners	0	0
Not enrolled for 2012	8	0	0	10 Learners	13 Learners
	9	0	0	11 Learners	10 Learners
	10	0	0	10 Learners	12 Learners
	11	0	0	13 Learners	9 Learners
	12	0	0	14 Learners	11 Learners
Totals:		56 Learners	57 Learners	58 Learners	55 Learners
Total sample for Region:					226 Learners

Important note: Each respondent will complete only one of the questionnaires; hence, the allocation of learners to two test groups and two control groups.

Table 1 shows that the test groups must include learners who will be participating in JASA's programmes in 2012, whereas the control groups must only include learners who will not be

exposed in any way to JASA. Also note that groups do not have to be identical in numbers as long as they are reasonably proportionate, i.e., approximately 50/50 distribution between respondents for the test and control groups for each questionnaire and equal representation by learners from different grades.

Once the pre-testing phase commences, it is of the utmost importance to indicate on the list of respondents (see 6.1.5 above) which learners respectively completed the AEG-3 and PMY-3 questionnaires for both the test and control groups. As part of a longitudinal study, it is essential that learners complete the same questionnaire during pre- and post testing.

6.2 Administering the surveys

Once the preparations for the study have been completed, JASA agents may proceed with the actual testing of learners included in the sample. The procedures for the pre- and post testing phases are identical, apart from highlighting once again that pre-testing must be completed prior to the commencement of any training or exposure, whereas post testing will be conducted after the programmes have run its course.

Learners in the control groups (no exposure to JASA) must be tested in the same period as the test groups to ensure the lapse of an equal period of time between pre- and post testing for both groups. This timing is important to isolate natural personal growth over time from becoming a potential variable in the analysis of the results.

6.2.1 General guidelines for administering the questionnaires

The following general guidelines are based on previous experience with similar studies and the outcome of the pilot study conducted in February 2011:

✦ It is recommended that data collection be conducted in four separate sessions for both pre- and post testing (running multiple sessions simultaneously will result in some learners proceeding to the next set of statements or section without receiving the necessary explanation or instructions from agents):

- Session 1: Test group 1 to complete the AEG-3 questionnaire.
- Session 2: Test group 2 to complete the PMY-3 questionnaire.
- Session 3: Control group 1 to complete the AEG-3 questionnaire.
- Session 4: Control group 2 to complete the PMY-3 questionnaire.

- ✦ Duration for the completion of each questionnaire is between 45 and 90 minutes (depending on the group), and it is advisable to have each session grouped in one room to enable the agent to guide respondents through the questionnaire.
- ✦ Both questionnaires include an introductory section and general instructions on the second page. Agents are requested to read the introduction to respondents and explain the general instructions.
- ✦ Learners must be informed that participation is not compulsory. Any learner indicating that he/she is not willing to participate in the research project must be excused from the session immediately.
- ✦ Learners must also be informed that they may ask for further explanation of each question or statement in the questionnaires. The questionnaires are available only in English; hence, every effort should be made to ensure that respondents clearly understand what is being asked of them.

6.2.2 The AEG-3 Youth Entrepreneurship Survey (Parts A to C)

Parts A to C of this questionnaire respectively include the Attitude toward Enterprise (ATE) Test, the Entrepreneurial Intention Questionnaire (EIQ) and the General Enterprising Tendency (GET) Test.

Each test is self-explanatory, but JASA agents are urged to introduce each test to the learners using the brief introduction provided under the heading and to explain the prescribed method of selecting answers for each test.

Learners must be instructed to answer only one section of each test at a time. Each section, consisting of a limited number of statements, is preceded by a brief introduction explaining the concepts to be tested. Agents are required to read these introductions to learners and to allow time for questions prior to each section being answered.

Agents must please ensure that the entire group has completed a given section before moving on to the next – this will prevent some learners from completing the test faster than others, which may cause distractions to those needing more time to ponder their responses.

6.2.3 The PMY-3 Youth Entrepreneurship Survey (Parts A to C)

Parts A to C of this questionnaire respectively include the Personal Wellbeing Index for School Children (PWI-SC), the Generalised Measure of Adaptive Cognition (MAC) and the Youth Innovation Skills Measurement Tool (YISQ).

Each test is also self-explanatory, but JASA agents are again urged to introduce each test to the learners using the brief introduction provided under the heading and to explain the prescribed method of selecting answers for each test.

Learners must be instructed to answer only one section of each test at a time. Each section, consisting of a limited number of statements, is preceded by a brief introduction explaining the concepts to be tested. Agents are required to read these introductions to learners and to allow time for questions prior to each section being answered.

Agents must again please ensure that the entire group has completed a given section before moving on to the next – this will prevent some learners from completing the test faster than others, which may distract those needing more time to answer.

6.2.4 The AEG-3 and PMY-3 Youth Entrepreneurship Surveys (Part D)

Part D of both questionnaires is identical and is designed to collect demographic information from respondents for comparative analysis of the test results for provinces, school grades, types of schools, age, gender, ethnic groups and the impact of different JASA programmes in which learners will participate.

Learners must be guided through this section to ensure that all questions are answered.

6.2.5 The AEG-3 and PMY-3 Youth Entrepreneurship Surveys (Part E)

Part E of both questionnaires is identical and consists of three sections (E.1 to E.3). The main purpose of section E.1 (comprising 29 statements) is to examine the differences between respondents in terms of their socio-economic background. The Living Standard Measure (LSM[®]) of the South African Advertising Research Foundation (SAARF) was incorporated with permission for this purpose as young learners will not necessarily have reliable information regarding their parents' income.

Before answering E.1, learners must be reassured that the information they are about to provide cannot be traced back to them. Agents are urged to emphasise this point and to ask respondents to be honest when answering the section (see the introductory paragraph under the heading in the questionnaires).

Once the procedure to complete section E.1 has been explained to learners, they should be given sufficient time to answer 'true' or 'false' to all 29 statements (any missing answers in this section will make the particular respondent's LSM[®] rating incalculable).

Sections E.2 and E.3 relate to parents' and guardians' employment profiles. In E.3 respondents are required to mark one box for both their parents or guardians. It is advisable for JASA agents to explain the differences between the types of employment listed in the section (particularly the differences between private and public sector employment) before allowing respondents to proceed.

6.2.6 The AEG-3 and PMY-3 Youth Entrepreneurship Surveys (Part F)

Part F is identical in both questionnaires and is designed to construct a secret personal code for each respondent. This code will enable the researcher to match the pre-test questionnaire of each respondent with the post test questionnaire in order to examine individual growth and development over time without the learner being identified by name.

The purpose of this section must be explained to learners in simple language using the introduction under the heading in the questionnaires as a guideline. Although examples are included in the questionnaires for each question, numerous problems were experienced with this section during the pilot study in Harrismith.

JASA agents are, therefore, advised to address one question at a time, and even use a black-board (if available) to create their own personal code as an example for respondents. Once the code has been constructed by all respondents, the questionnaires are complete. Please ensure that all questionnaires are handed in prior to respondents leaving the room.

6.3 Preparing the questionnaires for submission

Only one task remains: The questionnaires need to be coded for submission to the researcher. A coding table appears in the top right corner of the first page of each questionnaire. Please use the example on the following page to code the completed questionnaires:

NUMBER:	AEG	T	C	Code	Number
CODING:	T = Test group C = Control group			Code [01]: Pre-test Code [02]: Post test	

When coding the questionnaires, only blocks ‘T’ or ‘C’ should be marked by agents using the following guidelines:

- ✦ If the batch of questionnaires was completed by a test group (i.e., a group earmarked for training by JASA in 2012), block **T** should be marked with a clear X.
- ✦ If the batch of questionnaires was completed by a control group (i.e., a group not earmarked for training by JASA in 2012), block **C** should be marked with a clear X.

Please do not make any entries in the blocks designated ‘Code’ and ‘Number’ – the correct code will be inserted by the researcher and each questionnaire will receive a sequential number once all questionnaires from the different regions have been returned.

When returning the questionnaires to the researcher, please ensure that the following is included in the package:

- ✦ All completed questionnaires coded as shown above to distinguish between respondents in the test and control groups.
- ✦ All parental permission slips.
- ✦ Principals’ approval forms (if and where applicable).
- ✦ The completed list of respondents (Excel[®] spreadsheet provided).

7. MESSAGE FROM THE RESEARCHER

In planning the compilation of this manual, I envisaged a two page document which could be absorbed in a couple of minutes. However, as noted earlier, the success of this study relies heavily on the accuracy of both planning and execution, and accordingly, all aspects of preparing for the study, administering the surveys and returning the questionnaires for analysis had to be explained in detail.

Participation in this research project will place some burden on your time and resources, but the value of this study cannot be over-emphasised. Fortunately, the increased workload associated with this study will be for two brief periods only (during the pre- and post testing

phases), and agents are urged to start with planning as soon as this manual is received. Careful planning will significantly reduce your workload during the actual empirical research.

Finally, I am confident that the outcome of this research project will add significant value to youth development, entrepreneurship education and the important work Junior Achievement is doing for South Africa. I sincerely hope that I can rely on your goodwill and commitment to make this research project a resounding success.

Please feel free to contact me at any time for further information or clarity on any aspect of this research project.

Yours in research,

André

APPENDIX FOUR

GUIDE TO CONDUCTING THE EMPIRICAL RESEARCH

GUIDE TO CONDUCTING THE EMPIRICAL RESEARCH:
ACTIVITIES, RESPONSIBILITIES, DURATION AND DEADLINES

Stage	Activity and (responsibility)	Duration	Deadline
1.	Determine sample sizes for each JASA region; confirm JASA programmes for inclusion in the questionnaires (JASA HQ/researcher).	1 month	25/11/2011
2.	Print questionnaires and related forms (researcher).	2 weeks	01/12/2011
3.	Courier questionnaires and related forms to JASA regional offices (researcher).	1 week	09/01/2012
4.	Locate and secure respondents for the test and control groups in JASA regions (JASA agents).	3 weeks	30/01/2012
5.	Obtain parents' permission and principals' approval (if required) for learners to participate in the study (JASA agents).	1 week	06/02/2012
6.	Compile the list of respondents using the supplied Excel [®] spreadsheet; submit list to the researcher by e-mail (JASA agents).	1 week	13/02/2011
7.	Allocate respondents to the test and control groups and different questionnaires; return allocation to JASA agents by e-mail (researcher).	2 weeks	27/02/2012
8.	Arrange four different sessions and conduct pre-testing of learners; code questionnaires immediately after each session to distinguish between test and control groups (JASA agents).	2 weeks	09/03/2012 Pre-testing complete
9.	Return questionnaires to the researcher for final coding and submission to Statistical Consultation Services for data entry (JASA agents/researcher).	1 week	19/03/2012
10.	Present JASA programmes to learners in the test groups; no involvement with learners in control groups during this period (JASA agents). Researcher carries on with own research – no involvement with JASA agents during this period.	± 6 months	12/03/2012 to 28/09/2012
11.	Courier questionnaires and related forms to JASA agents in different regions (researcher).	1 week	05/10/2012
12.	Re-establish contact with learners in control groups; arrange four different sessions and conduct post testing of learners; code questionnaires immediately after each session to distinguish between test and control groups (JASA agents).	3 weeks	29/10/2012 Post testing complete
13.	Return questionnaires to the researcher for final coding and submission to Statistical Consultation Services for data entry and analysis (JASA agents/researcher).	1 week	05/11/2012 Study complete

APPENDIX FIVE

CONSENT SLIP FOR PARENTS AND GUARDIANS

CONSENT SLIP FOR PARENTS AND GUARDIANS:
PERMISSION FOR LEARNERS TO PARTICIPATE IN THE STUDY

I, _____ (name and surname), the parent or legal guardian of learner _____ (name and surname of child), currently in grade _____ at _____ (school), hereby give permission for my child to participate in the research project being conducted by the North-West University, Potchefstroom and Junior Achievement South Africa. I understand that there are no costs to participate in the study, and that my child will complete a questionnaire soon after the schools re-open in 2012 and again later in the year.

Date: _____ Signature of parent / guardian: _____

I, _____ (name and surname), the parent or legal guardian of learner _____ (name and surname of child), currently in grade _____ at _____ (school), hereby give permission for my child to participate in the research project being conducted by the North-West University, Potchefstroom and Junior Achievement South Africa. I understand that there are no costs to participate in the study, and that my child will complete a questionnaire soon after the schools re-open in 2012 and again later in the year.

Date: _____ Signature of parent / guardian: _____

I, _____ (name and surname), the parent or legal guardian of learner _____ (name and surname of child), currently in grade _____ at _____ (school), hereby give permission for my child to participate in the research project being conducted by the North-West University, Potchefstroom and Junior Achievement South Africa. I understand that there are no costs to participate in the study, and that my child will complete a questionnaire soon after the schools re-open in 2012 and again later in the year.

Date: _____ Signature of parent / guardian: _____

I, _____ (name and surname), the parent or legal guardian of learner _____ (name and surname of child), currently in grade _____ at _____ (school), hereby give permission for my child to participate in the research project being conducted by the North-West University, Potchefstroom and Junior Achievement South Africa. I understand that there are no costs to participate in the study, and that my child will complete a questionnaire soon after the schools re-open in 2012 and again later in the year.

Date: _____ Signature of parent / guardian: _____

APPENDIX SIX

PRINCIPALS' APPROVAL FORM

PRINCIPALS' APPROVAL FORM:
PERMISSION FOR LEARNERS TO PARTICIPATE IN THE STUDY

 NORTH-WEST UNIVERSITY YUNIBESITHI YA BOKONE-BOPHIRIMA NOORDWES-UNIVERSITEIT				
<u>PRINCIPAL'S CONSENT FORM</u> FOR ACADEMIC RESEARCH IN SOUTH AFRICAN SECONDARY SCHOOLS				
The North-West University (Potchefstroom Business School, Potchefstroom) in collaboration with Junior Achievement South Africa (JASA), is currently conducting academic research on the impact of entrepreneurship education and training on the entrepreneurial attitudes and intentions of young learners in South African secondary schools. Learners in your school have been identified as potential respondents to participate in this important study. With your approval, participating learners will be asked to complete a questionnaire on two occasions in 2012 (pre-testing and post testing phases). Duration for completion of the questionnaire is between 45 and 90 minutes, and the exercise will be conducted under the supervision of the Junior Achievement agent presenting this form to you. Kindly indicate whether the responsible JASA agent has your permission to conduct this research in your school by marking one of the boxes below with a clear X:				
I, the undersigned, hereby give permission to the North-West University and Junior Achievement South Africa to conduct academic research in this school.		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 5px 20px;">YES</td> <td style="padding: 5px 20px;">NO</td> </tr> </table>	YES	NO
YES	NO			
Name of school:				
Name of Principal:				
Telephone №:				
Fax №:				
Cell №:				
E-mail:				
Date:				
Signature:				
PLEASE COMPLETE THIS FORM AND RETURN IT TO THE RESPONSIBLE JASA AGENT AS SOON AS POSSIBLE. THANK YOU FOR YOUR VALUED SUPPORT!				

APPENDIX SEVEN

PARTICIPATING SCHOOLS (MAIN STUDY)

MAIN EMPIRICAL STUDY: LIST OF PARTICIPATING SCHOOLS

Province	Nº	Name of school
Free State	1.	The Beacon Secondary School (Qwa-Qwa)
Gauteng	2.	Aurora Girls
	3.	Equiniswa High School
	4.	Hammanskraal High
	5.	Letsibogo Girls
	6.	McAuley House
	7.	Princess High
	8.	Sandtonview
	9.	Tembisa High
KwaZulu-Natal	10.	Crystal Point Secondary School
	11.	Durban Academy
	12.	Durban Girls Secondary School
	13.	Greenbury Secondary School
	14.	Kingsway High School
	15.	Mowat Park High School
	16.	New Forest High School
	17.	Newlands East Secondary School
	18.	Ogwini Comprehensive Technical School
Mpumalanga	19.	Carolina Combined School
	20.	Fundinjobo Secondary School
	21.	Khula Senior Secondary
Northern Cape	22.	Banksdrift Combined
North-West	23.	Khayaletu High
	24.	St. Anne's High
Western Cape	25.	Kensington High
	26.	Villiersdorp Secondary

APPENDIX EIGHT

ANCOVA RESULTS FOR THE AEG-3 DATASET

MAIN EMPIRICAL STUDY:
ANCOVA RESULTS FOR THE AEG-3 DATASET

GET

```

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Univariate Analysis of Variance**Notes**

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Between-Subjects Factors

		Value Label	N
ToetsKon	1	Kontrole	113
	2	Toets	124

Tests of Between-Subjects Effects

Dependent Variable: ATE_Creativity_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1666.532 ^a	2	833.266	46.946	.000
Intercept	985.847	1	985.847	55.542	.000
ATE_Creativity_vo or ToetsKon	1654.994	1	1654.994	93.242	.000
Error	1.223	1	1.223	.069	.793
Total	4153.375	234	17.749		
Corrected Total	298811.000	237			
	5819.907	236			

a. R Squared = .286 (Adjusted R Squared = .280)

Estimated Marginal Means**ToetsKon**

Dependent Variable: ATE_Creativity_Na

ToetsKon	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	35.236	.398	34.453	36.019	0.03
Toets	35.091	.379	34.344	35.839	

a. Covariates appearing in the model are evaluated at the following values: ATE_Creativity_voor = 35.57.


```

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Univariate Analysis of Variance

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	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
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Between-Subjects Factors

		Value Label	N
ToetsKon	1	Kontrole	113
	2	Toets	124

Tests of Between-Subjects Effects

Dependent Variable: ATE_Lead_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3546.031 ^a	2	1773.016	53.728	.000
Intercept	1183.116	1	1183.116	35.852	.000
ATE_Lead_voor	3289.910	1	3289.910	99.694	.000
ToetsKon	98.382	1	98.382	2.981	.086
Error	7722.028	234	33.000		
Total	234890.000	237			
Corrected Total	11268.059	236			

a. R Squared = .315 (Adjusted R Squared = .309)

Estimated Marginal Means**ToetsKon**

Dependent Variable: ATE_Lead_Na

ToetsKon	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	30.039	.542	28.971	31.106	0.23
Toets	31.336	.517	30.317	32.355	

a. Covariates appearing in the model are evaluated at the following values: ATE_Lead_voor = 31.89.

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Univariate Analysis of Variance**Notes**

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Between-Subjects Factors

		Value Label	N
ToetsKon	1	Kontrole	113
	2	Toets	123

Tests of Between-Subjects Effects

Dependent Variable: ATE_Achievement_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	405.097 ^a	2	202.549	22.663	.000
Intercept	1067.042	1	1067.04	119.39	.000
ATE_Achievement _voor	334.976	1	334.976	37.480	.000
ToetsKon	54.041	1	54.041	6.047	.015
Error	2082.411	233	8.937		
Total	349532.00	236			
Corrected Total	2487.508	235			

a. R Squared = .163 (Adjusted R Squared = .156)

Estimated Marginal Means**ToetsKon**

Dependent Variable: ATE_Achievement_Na

ToetsKon	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	37.847	.281	37.293	38.402	0.32
Toets	38.807	.270	38.275	39.338	

a. Covariates appearing in the model are evaluated at the following values: ATE_Achievement_voor = 38.90.

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Univariate Analysis of Variance

Notes

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Between-Subjects Factors

		Value Label	N
ToetsKon	1	Kontrole	113
	2	Toets	124

Tests of Between-Subjects Effects

Dependent Variable: ATE_PerControl_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	300.253 ^a	2	150.127	16.109	.000
Intercept	970.712	1	970.712	104.160	.000
ATE_PerControl_voor ToetsKon	296.870	1	296.870	31.855	.000
Error	.001	1	.001	.000	.992
Total	2180.742	234	9.319		
Corrected Total	369225.000	237			
	2480.996	236			

a. R Squared = .121 (Adjusted R Squared = .114)

Estimated Marginal Means**ToetsKon**

Dependent Variable: ATE_PerControl_Na

ToetsKon	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	39.34	.288	38.772	39.907	0.00
Toets	39.336	.275	38.794	39.877	

a. Covariates appearing in the model are evaluated at the following values: ATE_PerControl_voor = 39.45.

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Univariate Analysis of Variance

Notes

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Between-Subjects Factors

		Value Label	N
ToetsKon	1	Kontrole	113
	2	Toets	125

Tests of Between-Subjects Effects

Dependent Variable: ATE_RiskTaking_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1209.791 ^a	2	604.896	24.107	.000
Intercept	2013.259	1	2013.259	80.235	.000
ATE_RiskTaking_voor	1164.810	1	1164.810	46.421	.000
ToetsKon	14.188	1	14.188	.565	.453
Error	5896.633	235	25.092		
Total	317935.000	238			
Corrected Total	7106.424	237			

a. R Squared = .170 (Adjusted R Squared = .163)

Estimated Marginal Means**ToetsKon**

Dependent Variable: ATE_RiskTaking_Na

ToetsKon	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	35.881	.472	34.951	36.811	0.10
Toets	36.372	.449	35.487	37.256	

a. Covariates appearing in the model are evaluated at the following values: ATE_RiskTaking_voor = 36.03.

```

UNIANOVA ATE_Total_Na BY ToetsKon WITH ATE_Total_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(ToetsKon) WITH(ATE_Total_voor=MEAN)
  /CRITERIA=ALPHA(.05)
  /DESIGN=ATE_Total_voor ToetsKon.

```


Univariate Analysis of Variance

Notes		
Output Created		30-JAN-2013 11:39:31
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\AEG_matchfile.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1407
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		UNIANOVA ATE_Total_Na BY ToetsKon WITH ATE_Total_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(ToetsKon) WITH(ATE_Total_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=ATE_Total_voor ToetsKon.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

[DataSet3] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\AEG_matchfile.sav

Between-Subjects Factors

		Value Label	N
ToetsKon	1	Kontrole	113
	2	Toets	125

Tests of Between-Subjects Effects

Dependent Variable: ATE_Total_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	21599.139 ^a	2	10799.569	23.882	.000
Intercept	17051.777	1	17051.777	37.709	.000
ATE_Total_voor	20711.148	1	20711.148	45.801	.000
ToetsKon	114.525	1	114.525	.253	.615
Error	106266.109	235	452.196		
Total	10739483.000	238			
Corrected Total	127865.248	237			

a. R Squared = .169 (Adjusted R Squared = .162)

Estimated Marginal Means**ToetsKon**

Dependent Variable: ATE_Total_Na

ToetsKon	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	210.42	2.010	206.460	214.379	0.07
Toets	211.821	1.910	208.058	215.583	

a. Covariates appearing in the model are evaluated at the following values: ATE_Total_voor = 215.10.

```

UNIANOVA EIQ_PA_Na BY ToetsKon WITH EIQ_PA_voor
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(ToetsKon) WITH(EIQ_PA_voor=MEAN)
/CRITERIA=ALPHA(.05)
/DESIGN=EIQ_PA_voor
ToetsKon.

```

Univariate Analysis of Variance

Notes

Output Created		30-JAN-2013 11:39:45
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\AEG_matchfile.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1407
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		UNIANOVA EIQ_PA_Na BY ToetsKon WITH EIQ_PA_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(ToetsKon) WITH(EIQ_PA_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=EIQ_PA_voor ToetsKon.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.03

[DataSet3] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\AEG_matchfile.sav

Between-Subjects Factors

		Value Label	N
ToetsKon	1	Kontrole	113
	2	Toets	124

Tests of Between-Subjects Effects

Dependent Variable: EIQ_PA_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	149.947 ^a	2	74.974	57.383	.000
Intercept	32.477	1	32.477	24.857	.000
EIQ_PA_voor	143.372	1	143.372	109.732	.000
ToetsKon	.023	1	.023	.017	.895
Error	305.734	234	1.307		
Total	8037.143	237			
Corrected Total	455.682	236			

a. R Squared = .329 (Adjusted R Squared = .323)

Estimated Marginal Means**ToetsKon**

Dependent Variable: EIQ_PA_Na

ToetsKon	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	5.645	.109	5.431	5.860	0.02
Toets	5.665	.104	5.461	5.870	

a. Covariates appearing in the model are evaluated at the following values: EIQ_PA_voor = 5.9686.

```

UNIANOVA EIQ_SN_Na BY ToetsKon WITH EIQ_SN_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES (ToetsKon) WITH (EIQ_SN_voor=MEAN)
  /CRITERIA=ALPHA(.05)
  /DESIGN=EIQ_SN_voor
  ToetsKon.

```

Univariate Analysis of Variance**Notes**

Output Created		30-JAN-2013 11:39:57
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\AEG_matchfile.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1407
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		UNIANOVA EIQ_SN_Na BY ToetsKon WITH EIQ_SN_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(ToetsKon) WITH(EIQ_SN_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=EIQ_SN_voor ToetsKon.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03

[DataSet3] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\AEG_matchfile.sav

Between-Subjects Factors

		Value Label	N
ToetsKon	1	Kontrole	112
	2	Toets	123

Tests of Between-Subjects Effects

Dependent Variable: EIQ_SN_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	40.926 ^a	2	20.463	17.078	.000
Intercept	115.088	1	115.088	96.053	.000
EIQ_SN_voor	40.828	1	40.828	34.076	.000
ToetsKon	.066	1	.066	.055	.815
Error	277.975	232	1.198		
Total	8162.556	235			
Corrected Total	318.901	234			

a. R Squared = .128 (Adjusted R Squared = .121)

Estimated Marginal Means**ToetsKon**

Dependent Variable: EIQ_SN_Na

ToetsKon	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	5.795	.104	5.591	5.999	0.03
Toets	5.761	.099	5.566	5.956	

a. Covariates appearing in the model are evaluated at the following values: EIQ_SN_voor = 5.9206.

```

UNIANOVA EIQ_PBC_Na BY ToetsKon WITH EIQ_PBC_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES (ToetsKon) WITH (EIQ_PBC_voor=MEAN)
  /CRITERIA=ALPHA (.05)
  /DESIGN=EIQ_PBC_voor ToetsKon.

```

Univariate Analysis of Variance**Notes**

Output Created		30-JAN-2013 11:40:08
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\AEG_matchfile.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1407
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		UNIANOVA EIQ_PBC_Na BY ToetsKon WITH EIQ_PBC_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(ToetsKon) WITH(EIQ_PBC_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=EIQ_PBC_voor ToetsKon.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

[DataSet3] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\AEG_matchfile.sav

Between-Subjects Factors

		Value Label	N
ToetsKon	1	Kontrole	111
	2	Toets	123

Tests of Between-Subjects Effects

Dependent Variable: EIQ_PBC_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	126.324 ^a	2	63.162	54.849	.000
Intercept	82.717	1	82.717	71.829	.000
EIQ_PBC_voor	106.085	1	106.085	92.122	.000
ToetsKon	7.771	1	7.771	6.748	.010
Error	266.013	231	1.152		
Total	6918.488	234			
Corrected Total	392.337	233			

a. R Squared = .322 (Adjusted R Squared = .316)

Estimated Marginal Means**ToetsKon**

Dependent Variable: EIQ_PBC_Na

ToetsKon	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	5.087	.103	4.885	5.289	0.34
Toets	5.456	.097	5.265	5.648	

a. Covariates appearing in the model are evaluated at the following values: EIQ_PBC_voor = 5.4090.

```

UNIANOVA EIQ_EI_Na BY ToetsKon WITH EIQ_EI_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES (ToetsKon) WITH (EIQ_EI_voor=MEAN)
  /CRITERIA=ALPHA (.05)
  /DESIGN=EIQ_EI_voor
ToetsKon.

```


Univariate Analysis of Variance**Notes**

Output Created		30-JAN-2013 11:40:20
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\AEG_matchfile.sav
	Active Dataset	DataSet3
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1407
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		UNIANOVA EIQ_EI_Na BY ToetsKon WITH EIQ_EI_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(ToetsKon) WITH(EIQ_EI_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=EIQ_EI_voor ToetsKon.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

[DataSet3] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\AEG_matchfile.sav

Between-Subjects Factors

		Value Label	N
ToetsKon	1	Kontrole	112
	2	Toets	124

Tests of Between-Subjects Effects

Dependent Variable: EIQ_EI_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	192.768 ^a	2	96.384	52.961	.000
Intercept	97.574	1	97.574	53.614	.000
EIQ_EI_voor	169.555	1	169.555	93.166	.000
ToetsKon	2.840	1	2.840	1.561	.213
Error	424.042	233	1.820		
Total	6664.389	236			
Corrected Total	616.811	235			

a. R Squared = .313 (Adjusted R Squared = .307)

Estimated Marginal Means**ToetsKon**

Dependent Variable: EIQ_EI_Na

ToetsKon	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	4.944	.129	4.689	5.198	0.17
Toets	5.169	.123	4.927	5.411	

a. Covariates appearing in the model are evaluated at the following values: EIQ_EI_voor = 5.3496.

APPENDIX NINE

ANCOVA RESULTS FOR THE PMY-3 DATASET

MAIN EMPIRICAL STUDY:
ANCOVA RESULTS FOR THE PMY-3 DATASET

GET

```

FILE='Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\PMY_matchfile.sav'.
DATASET NAME DataSet2 WINDOW=FRONT.
DATASET ACTIVATE DataSet2.
DATASET CLOSE DataSet1.
UNIANOVA PWI_na BY Test_Control_voor WITH PWI_total_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Test_Control_voor) WITH(PWI_total_voor=MEAN)
  /CRITERIA=ALPHA(.05)
  /DESIGN=PWI_total_voor Test_Control_voor.

```

Univariate Analysis of Variance**Notes**

Output Created		30-JAN-2013 11:05:30
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\PMY_matchfile.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1402
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		UNIANOVA PWI_na BY Test_Control_voor WITH PWI_total_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Test_Control_voor) WITH(PWI_total_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=PWI_total_voor Test_Control_voor.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

[DataSet2] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav

Between-Subjects Factors

	Value Label	N
Test_Control_voor 1	Kontrole	95
2	Toets	165

Tests of Between-Subjects Effects

Dependent Variable: PWI_na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9967.026 ^a	2	4983.513	41.866	.000
Intercept	11130.502	1	11130.502	93.506	.000
PWI_total_voor	8949.357	1	8949.357	75.183	.000
Test_Control_voor	364.054	1	364.054	3.058	.082
Error	30591.959	257	119.035		
Total	1537798.583	260			
Corrected Total	40558.986	259			

a. R Squared = .246 (Adjusted R Squared = .240)

Estimated Marginal Means

Test_Control_voor

Dependent Variable: PWI_na

Test_Control_voor	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	74.312	1.126	72.095	76.529	0.23
Toets	76.791	.852	75.113	78.469	

a. Covariates appearing in the model are evaluated at the following values: PWI_total_voor = 74.6364.

```
UNIANOVA MAC_Goal_Na BY Test_Control_voor WITH MAC_Goal_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Test_Control_voor) WITH(MAC_Goal_voor=MEAN)
  /CRITERIA=ALPHA(.05)
  /DESIGN=MAC_Goal_voor Test_Control_voor.
```

Univariate Analysis of Variance

Notes		
Output Created		30-JAN-2013 11:05:51
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1402
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		UNIANOVA MAC_Goal_Na BY Test_Control_voor WITH MAC_Goal_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Test_Control_voor) WITH(MAC_Goal_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=MAC_Goal_voor Test_Control_voor.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03

[DataSet2] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav

Between-Subjects Factors

		Value Label	N
Test_Control_voor	1	Kontrole	95
	2	Toets	165

Tests of Between-Subjects Effects

Dependent Variable: MAC_Goal_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	111.145 ^a	2	55.572	94.590	.000
Intercept	29.111	1	29.111	49.550	.000
MAC_Goal_voor	111.135	1	111.135	189.163	.000
Test_Control_voor	.030	1	.030	.052	.820
Error	150.989	257	.588		
Total	8896.952	260			
Corrected Total	262.134	259			

a. R Squared = .424 (Adjusted R Squared = .420)

Estimated Marginal Means**Test_Control_voor**

Dependent Variable: MAC_Goal_Na

Test_Control_voor	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	5.749	.079	5.594	5.903	0.03
Toets	5.771	.060	5.654	5.889	

a. Covariates appearing in the model are evaluated at the following values: MAC_Goal_voor = 5.7423.

```

UNIANOVA MAC_Knowledge_Na BY Test_Control_voor WITH MAC_MK_voor
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Test_Control_voor) WITH(MAC_MK_voor=MEAN)
/CRITERIA=ALPHA(.05)
/DESIGN=MAC_MK_voor Test_Control_voor.

```

Univariate Analysis of Variance

Notes

Output Created	30-JAN-2013 11:06:04	
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1402
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax	UNIANOVA MAC_Knowledge_Na BY Test_Control_voor WITH MAC_MK_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Test_Control_voor) WITH(MAC_MK_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=MAC_MK_voor Test_Control_voor.	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

[DataSet2] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav

Between-Subjects Factors

		Value Label	N
Test_Control_voor	1	Kontrole	95
	2	Toets	165

Tests of Between-Subjects Effects

Dependent Variable: MAC_Knowledge_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	56.221 ^a	2	28.111	66.349	.000
Intercept	32.821	1	32.821	77.468	.000
MAC_MK_voor	55.512	1	55.512	131.024	.000
Test_Control_voor	.643	1	.643	1.518	.219
Error	108.884	257	.424		
Total	9025.118	260			
Corrected Total	165.105	259			

a. R Squared = .341 (Adjusted R Squared = .335)

Estimated Marginal Means**Test_Control_voor**

Dependent Variable: MAC_Knowledge_Na

Test_Control_voor	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	5.772	.067	5.640	5.904	0.16
Toets	5.875	.051	5.775	5.975	

```

UNIANOVA MAC_Experience_Na BY Test_Control_voor WITH MAC_ME_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Test_Control_voor) WITH(MAC_ME_voor=MEAN)
  /CRITERIA=ALPHA(.05)
  /DESIGN=MAC_ME_voor Test_Control_voor.

```

Univariate Analysis of Variance**Notes**

Output Created	30-JAN-2013 11:06:26	
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1402
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax	UNIANOVA MAC_Experience_Na BY Test_Control_voor WITH MAC_ME_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Test_Control_voor) WITH(MAC_ME_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=MAC_ME_voor Test_Control_voor.	
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.03

[DataSet2] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav

Between-Subjects Factors

		Value Label	N
Test_Control_voor	1	Kontrole	95
	2	Toets	165

Tests of Between-Subjects Effects

Dependent Variable: MAC_Experience_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	71.514 ^a	2	35.757	65.534	.000
Intercept	31.665	1	31.665	58.035	.000
MAC_ME_voor	71.511	1	71.511	131.065	.000
Test_Control_voor	.463	1	.463	.849	.358
Error	140.224	257	.546		
Total	8745.058	260			
Corrected Total	211.737	259			

a. R Squared = .338 (Adjusted R Squared = .333)

Estimated Marginal Means**Test_Control_voor**

Dependent Variable: MAC_Experience_Na

Test_Control_voor	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	5.785	.076	5.635	5.934	0.12
Toets	5.697	.058	5.583	5.810	

a. Covariates appearing in the model are evaluated at the following values: MAC_ME_voor = 5.7117.

```

UNIANOVA MAC_Choice_Na BY Test_Control_voor WITH MAC_MC_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Test_Control_voor) WITH(MAC_MC_voor=MEAN)
  /CRITERIA=ALPHA(.05)
  /DESIGN=MAC_MC_voor Test_Control_voor.

```

Univariate Analysis of Variance

Notes

Output Created	30-JAN-2013 11:06:42	
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1402
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax	UNIANOVA MAC_Choice_Na BY Test_Control_voor WITH MAC_MC_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Test_Control_voor) WITH(MAC_MC_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=MAC_MC_voor Test_Control_voor.	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

[DataSet2] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav

Between-Subjects Factors

		Value Label	N
Test_Control_voor	1	Kontrole	94
	2	Toets	165

Tests of Between-Subjects Effects

Dependent Variable: MAC_Choice_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	78.138 ^a	2	39.069	58.436	.000
Intercept	45.042	1	45.042	67.370	.000
MAC_MC_voor	78.095	1	78.095	116.806	.000
Test_Control_voor	.129	1	.129	.192	.661
Error	171.157	256	.669		
Total	8943.505	259			
Corrected Total	249.295	258			

a. R Squared = .313 (Adjusted R Squared = .308)

Estimated Marginal Means**Test_Control_voor**

Dependent Variable: MAC_Choice_Na

Test_Control_voor	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	5.823	.084	5.657	5.990	0.06
Toets	5.777	.064	5.652	5.902	

a. Covariates appearing in the model are evaluated at the following values: MAC_MC_voor = 5.7869.

```

UNIANOVA MAC_Monitoring_Na BY Test_Control_voor WITH MAC_Monitoring_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Test_Control_voor) WITH(MAC_Monitoring_voor=MEAN)
  /CRITERIA=ALPHA(.05)
  /DESIGN=MAC_Monitoring_voor Test_Control_voor.

```

Univariate Analysis of Variance

Notes

Output Created	30-JAN-2013 11:06:54	
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\PMY_matchfile.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1402
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax	UNIANOVA MAC_Monitoring_Na BY Test_Control_voor WITH MAC_Monitoring_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Test_Control_voor) WITH(MAC_Monitoring_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=MAC_Monitoring_voor Test_Control_voor.	
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

[DataSet2] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\PMY_matchfile.sav

Between-Subjects Factors

	Value Label	N
Test_Control_voor 1	Kontrole	94
2	Toets	165

Tests of Between-Subjects Effects

Dependent Variable: MAC_Monitoring_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	58.491 ^a	2	29.245	57.331	.000
Intercept	22.446	1	22.446	44.002	.000
MAC_Monitoring_voor	57.431	1	57.431	112.585	.000
Test_Control_voor	.236	1	.236	.462	.497
Error	130.590	256	.510		
Total	9361.417	259			
Corrected Total	189.081	258			

a. R Squared = .309 (Adjusted R Squared = .304)

Estimated Marginal Means**Test_Control_voor**

Dependent Variable: MAC_Monitoring_Na

Test_Control_voor	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	5.911	.074	5.766	6.056	0.09
Toets	5.974	.056	5.864	6.083	

a. Covariates appearing in the model are evaluated at the following values: MAC_Monitoring_voor = 5.9061.

```

UNIANOVA YISQ_Creativity_Na BY Test_Control_voor WITH YISQ_Creativity_voor
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Test_Control_voor) WITH(YISQ_Creativity_voor=MEAN)
/CRITERIA=ALPHA(.05)
/DESIGN=YISQ_Creativity_voor Test_Control_voor.

```

Univariate Analysis of Variance

Notes

Output Created	30-JAN-2013 11:07:12	
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1402
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax	UNIANOVA YISQ_Creativity_Na BY Test_Control_voor WITH YISQ_Creativity_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Test_Control_voor) WITH(YISQ_Creativity_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=YISQ_Creativity_voor Test_Control_voor.	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

[DataSet2] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav

Between-Subjects Factors

	Value Label	N
Test_Control_voor 1	Kontrole	95
2	Toets	165

Tests of Between-Subjects Effects

Dependent Variable: YISQ_Creativity_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	78.910 ^a	2	39.455	83.367	.000
Intercept	9.324	1	9.324	19.702	.000
YISQ_Creativity_voor	77.194	1	77.194	163.107	.000
Test_Control_voor	.045	1	.045	.095	.759
Error	121.630	257	.473		
Total	9797.623	260			
Corrected Total	200.541	259			

a. R Squared = .393 (Adjusted R Squared = .389)

Estimated Marginal Means**Test_Control_voor**

Dependent Variable: YISQ_Creativity_Na

Test_Control_voor	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	6.093	.071	5.953	6.233	0.04
Toets	6.065	.054	5.959	6.171	

a. Covariates appearing in the model are evaluated at the following values: YISQ_Creativity_voor = 6.2301.

```

UNIANOVA YISQ_Leadership_Na BY Test_Control_voor WITH YISQ_Leadership_voor
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/EMMEANS=TABLES(Test_Control_voor) WITH(YISQ_Leadership_voor=MEAN)
/CRITERIA=ALPHA(.05)
/DESIGN=YISQ_Leadership_voor Test_Control_voor.

```

Univariate Analysis of Variance

Notes

Output Created	30-JAN-2013 11:07:23	
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\PMY_matchfile.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1402
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax	UNIANOVA YISQ_Leadership_Na BY Test_Control_voor WITH YISQ_Leadership_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Test_Control_voor) WITH(YISQ_Leadership_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=YISQ_Leadership_voor Test_Control_voor.	
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

[DataSet2] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\PMY_matchfile.sav

Between-Subjects Factors

		Value Label	N
Test_Control_voor	1	Kontrole	95
	2	Toets	165

Tests of Between-Subjects Effects

Dependent Variable: YISQ_Leadership_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	65.057 ^a	2	32.529	24.227	.000
Intercept	47.380	1	47.380	35.288	.000
YISQ_Leadership_voor	64.487	1	64.487	48.030	.000
Test_Control_voor	.524	1	.524	.391	.533
Error	345.063	257	1.343		
Total	8164.230	260			
Corrected Total	410.120	259			

a. R Squared = .159 (Adjusted R Squared = .152)

Estimated Marginal Means**Test_Control_voor**

Dependent Variable: YISQ_Leadership_Na

Test_Control_voor	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	5.52	.119	5.286	5.754	0.08
Toets	5.427	.090	5.249	5.605	

a. Covariates appearing in the model are evaluated at the following values: YISQ_Leadership_voor = 5.7406.

```

UNIANOVA YISQ_Energy_Na BY Test_Control_voor WITH YISQ_Energy_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Test_Control_voor) WITH(YISQ_Energy_voor=MEAN)
  /CRITERIA=ALPHA(.05)
  /DESIGN=YISQ_Energy_voor Test_Control_voor.

```

Univariate Analysis of Variance**Notes**

Output Created	30-JAN-2013 11:07:40	
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\PMY_matchfile.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1402
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax	UNIANOVA YISQ_Energy_Na BY Test_Control_voor WITH YISQ_Energy_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Test_Control_voor) WITH(YISQ_Energy_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=YISQ_Energy_voor Test_Control_voor.	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

[DataSet2] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekeer\PMY_matchfile.sav

Between-Subjects Factors

	Value Label	N
Test_Control_voor 1	Kontrole	95
2	Toets	165

Tests of Between-Subjects Effects

Dependent Variable: YISQ_Energy_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	29.111 ^a	2	14.556	33.055	.000
Intercept	116.844	1	116.844	265.345	.000
YISQ_Energy_voor	28.944	1	28.944	65.730	.000
Test_Control_voor	.005	1	.005	.011	.916
Error	113.169	257	.440		
Total	10419.424	260			
Corrected Total	142.280	259			

a. R Squared = .205 (Adjusted R Squared = .198)

Estimated Marginal Means**Test_Control_voor**

Dependent Variable: YISQ_Energy_Na

Test_Control_voor	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	6.293	.068	6.158	6.427	0.01
Toets	6.284	.052	6.182	6.386	

a. Covariates appearing in the model are evaluated at the following values: YISQ_Energy_voor = 5.6518.

```

UNIANOVA YISQ_SelfEfficacy_Na BY Test_Control_voor WITH YISQ_SelfEfficacy_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Test_Control_voor) WITH(YISQ_SelfEfficacy_voor=MEAN)
  /CRITERIA=ALPHA(.05)
  /DESIGN=YISQ_SelfEfficacy_voor Test_Control_voor.

```

Univariate Analysis of Variance**Notes**

Output Created	30-JAN-2013 11:07:50	
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1402
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax	UNIANOVA YISQ_SelfEfficay_Na BY Test_Control_voor WITH YISQ_SelfEfficacy_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Test_Control_voor) WITH(YISQ_SelfEfficacy_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=YISQ_SelfEfficacy_voor Test_Control_voor.	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

[DataSet2] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav

Between-Subjects Factors

		Value Label	N
Test_Control_voor	1	Kontrole	94
	2	Toets	165

Tests of Between-Subjects Effects

Dependent Variable: YISQ_SelfEfficay_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11.979 ^a	2	5.990	14.942	.000
Intercept	114.328	1	114.328	285.209	.000
YISQ_SelfEfficay_voor	11.721	1	11.721	29.240	.000
Test_Control_voor	.607	1	.607	1.513	.220
Error	102.619	256	.401		
Total	10127.370	259			
Corrected Total	114.599	258			

a. R Squared = .105 (Adjusted R Squared = .098)

Estimated Marginal Means**Test_Control_voor**

Dependent Variable: YISQ_SelfEfficay_Na

Test_Control_voor	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	6.282	.065	6.153	6.411	0.16
Toets	6.181	.049	6.084	6.278	

a. Covariates appearing in the model are evaluated at the following values: YISQ_SelfEfficay_voor = 5.8231.

```

UNIANOVA YISQ_Total_Na BY Test_Control_voor WITH YISQ_Total_voor
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Test_Control_voor) WITH(YISQ_Total_voor=MEAN)
  /CRITERIA=ALPHA(.05)
  /DESIGN=YISQ_Total_voor Test_Control_voor.

```

Univariate Analysis of Variance

Notes

Output Created	30-JAN-2013 11:08:05	
Comments		
Input	Data	Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1402
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax	UNIANOVA YISQ_Total_Na BY Test_Control_voor WITH YISQ_Total_voor /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Test_Control_voor) WITH(YISQ_Total_voor=MEAN) /CRITERIA=ALPHA(.05) /DESIGN=YISQ_Total_voor Test_Control_voor.	
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.03

[DataSet2] Q:\S\Steenekamp_Andre\2012\VoorEnNaAanmekaar\PMY_matchfile.sav

Between-Subjects Factors

		Value Label	N
Test_Control_voor	1	Kontrole	95
	2	Toets	165

Tests of Between-Subjects Effects

Dependent Variable: YISQ_Total_Na

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	47.673 ^a	2	23.836	99.779	.000
Intercept	5.107	1	5.107	21.378	.000
YISQ_Total_voor	47.671	1	47.671	199.549	.000
Test_Control_voor	.953	1	.953	3.988	.047
Error	61.396	257	.239		
Total	9637.613	260			
Corrected Total	109.068	259			

a. R Squared = .437 (Adjusted R Squared = .433)

Estimated Marginal Means**Test_Control_voor**

Dependent Variable: YISQ_Total_Na

Test_Control_voor	Mean	Std. Error	95% Confidence Interval		Effect size
			Lower Bound	Upper Bound	
Kontrole	6.134	.050	6.035	6.234	0.26
Toets	6.007	.038	5.932	6.083	

a. Covariates appearing in the model are evaluated at the following values: YISQ_Total_voor = 6.1105.