

Creativity and flexibility: essential skills in training learners for a potential entrepreneurial career

A MEINTJES

(North-West University)

[Aloe.Meintjes@nwu.ac.za]

Abstract

Following an entrepreneurial career is a viable way out of the disconcerting problem of unemployment among the youth aged 15-34 in South Africa. The greatest challenge in resolving this predicament is the creation of more jobs, and entrepreneurship might offer a way towards this aspiration, but potential young entrepreneurs, many of who don't pursue tertiary education after leaving school, don't necessarily have the required education or training in entrepreneurship.

Literature suggests that creativity and flexibility are among the essential skills needed for a successful entrepreneurial career. This research aimed to determine whether active learning in a business simulated set-up at secondary school level would enhance learners' creativity and flexibility competencies. These competencies of a specific group of grade 11 learners were tested before and after they had been exposed to an enriched Business Studies curriculum. Assessments were done quantitatively through a questionnaire based on different given scenarios, as well as qualitatively through observation and interviews.

The findings revealed that this intervention enhanced these learners' entrepreneurial competencies regarding creativity and flexibility considerably. Implications are that real-world exposure in a business simulated set-up, has the potential to give birth to successful entrepreneurial careers and also contribute to an accelerated pace of economic growth and job creation.

Key phrases

active learning; business-simulation; creativity; entrepreneurship; flexibility

1. INTRODUCTION

Economists worldwide agree that economic growth is crucial for a country's financial well-being. The vital role of entrepreneurs in accelerating the pace of economic growth in any country cannot be denied and is enlightened by Ogunleye, Owolabi and Adeyemo (2013:1). Entrepreneurs not only give rise to new technologies, products and services, they also provide employment opportunities and create new markets (Nicolaidis 2011:1044) which

are invaluable assets in South Africa, considering its high unemployment rate of 25.4% (Statistics South Africa: Quarterly Labour Force Survey Jul-Sep 2014:v). The greater part of South African entrepreneurs anticipates that they can generate one to five jobs in the near future. Unfortunately, the tremendously high failure rate of small businesses in this country confines the impact on unemployment and mars the perception of viability of entrepreneurial businesses (Herrington & Kew 2013:28, 47).

In 2012 the Global Entrepreneurship Monitor (Turton & Herrington 2012:8) reported a disconcerting youth unemployment rate in South Africa 48%, which urgently calls for a solution. The term youth refers to young people between the age of 18 and 34 years (Herrington & Kew 2013:41). In 2013 this situation seemed to have improved slightly, with 43.6% of young people between 15 and 34 officially unemployed at that stage. The expanded rate of unemployment (including people who have given up looking for work) was 20-30% higher for this age group (Herrington & Kew 2013:41).

Moreover, in 2012 nearly three-quarters (73%) of grade 12 learners in South Africa did not pursue further studies at higher institutions (SA Department of Education 2012:51), which limits their opportunities to find a job in the formal and public sector. Turton and Herrington (2012:8) declare that the greatest challenge in resolving the youth unemployment predicament is to create more jobs. Entrepreneurship might offer a way out of this dilemma, and many entrepreneurs have been motivated to start entrepreneurial ventures by necessity without necessarily having had any formal education or training in entrepreneurship (Turton & Herrington 2012:29). Training in entrepreneurship is imperative for creating an entrepreneurial mindset and furnishing potential entrepreneurs with appropriate knowledge, relevant skills and essential capabilities to start and operate a business (Maas & Herrington 2007:26; Nicolaidis 2011:1043).

Considering the large percentage of grade 12 learners who don't proceed to tertiary education, it seems essential that business studies at secondary school level should provide effective entrepreneurship training. This would enable learners to successfully start and run a sustainable entrepreneurial venture. It can be assumed that a sound primary and secondary school entrepreneurial education will not only advance self-efficacy and self-confidence in learners, but provide the necessary basic knowledge and skills (Herrington & Kew 2013:32). Active learning, including practical exposure to the business environment such as business trips, case studies and exercises involving problem-solving, creativity and risk-taking in a simulated business set-up is suggested by Antonites and Wordsworth (2009:83).

2. LITERATURE REVIEW

Some of the competencies regarded as essential for entrepreneurial training, are problem solving, creativity, flexibility, planning, risk-taking, goal orientation, teamwork and self-confidence (Dixon, Meier, Brown & Custer 2005:32-33; Katz & Green 2011:60-63). This article will focus on creativity and flexibility.

2.1 Creativity

Creativity entails the generation and creation of new and useful ideas in any domain (Amabile & Pillemer 2012:9). According to Boddy and Paton (2011:16), creativity is the ability to link ideas in a specific way or to make unusual associations between ideas. Griffin (2014:266) views creativity as the ability to create new ideas or to use existing ideas in new ways. According to Robbins, Decenzo and Coulter (2013:110), creativity embraces ideas that are different from previous ones and are also appropriate to a problem or opportunity. Creativity and imagination play an important role in the fostering of entrepreneurship and are essential in the design and development of new products and services (Nicolaidis 2011:1044; Ruppert 2010:1), and comprise the production of a product by an individual or group with the interaction of aptitude, process and environment (Plucker, Beghetto & Dow 2004:90).

The development of the creativity competency of school learners is a demanding issue in teaching and learning. According to Adams (2005:14-15), the classroom practices in formal education do not focus sufficiently on promoting creativity and even sometimes inhibit it. However, several theorists such as Adams (2005), Amabile (1996), Nickerson (1998), Sternberg and Williams (1996) provide suggestions for adapting educational programmes in order to address the abovementioned shortcoming. Sternberg and Williams (1996) list 25 steps to promote creativity in the classroom.

In addition, Adams (2005:17) also suggests the use of problem-based learning to enhance creativity. Problem-based learning proves effective for creativity and a broad range of thinking skills. Earlier assumptions underlined the fact that creativity was an exclusively inherited capacity and also strongly genetic. New insights indicating that creativity can in fact be learned hold important implications for entrepreneurs who need to be creative in their thinking on new products or services. In South Africa, various organisations offer workshops to learners to stimulate creativity among learners in the formal learning environment (Farrington, Venter & Neethling 2012:28). These authors also emphasise the importance of

educational institutions to foster an environment where entrepreneurial competencies such as creativity can be developed and enhanced.

Abilities that Rabbior, Lang, Cranson and Smith (1996:19) identify to develop and enhance creativity of learners are to:

- think in new ways;
- generate various ideas;
- believe in their capability to be creative;
- break with old habits and routine;
- explore new and relevant information.

2.2 Flexibility

Flexibility is the ability to create a diverse mix of ideas (Proctor 2010:18). In addition, flexibility encompasses handling changing or multiple circumstances (Farrington *et al.* 2012:22). According to Wu (2009:282), flexibility entails the ability to effectively adapt to a variety of situations. Likewise, Boddy and Paton (2011:40) view flexibility as the ability to cope with rapid change. According to Spinelli and Adams (2012:41), flexibility is the ability to change goals depending on market and other changing circumstances.

Furthermore, flexible thinking includes provision for changes in ideas, different viewpoints, alternative plans, differing approaches and various perspectives of a situation (Victor & Vidal 2009:419). Baron and Shane (2005:24) emphasise that flexibility is also the ability to transfer knowledge from one circumstance to another and use previous knowledge and apply that knowledge to evolving conditions, problems, challenges and opportunities.

Flexible performance depends on individual differences, in terms of personality and cognitive ability, skills gained from education and experience, and an environment that requires flexible performance (Mueller-Hanson, White, Dorsey & Pulakos 2005:5-7). The development of flexibility can be hindered by barriers (Burns & Freeman 2010:11-12). In the first place, the fact that humans resist change deters the development of flexibility. In addition, a resistance to work also has a negative influence on flexibility. However, strategies such as advanced flexible learning, recognition of flexible performance, and suitable methods for developing this skill, will enhance flexibility.

For learners to effectively demonstrate the competency of flexibility they have to be able to (Career & Employability Service 2012:5):

- manage multiple tasks;
- adapt to changing requirements of a given task;
- function in a group;
- function individually.

3. PROBLEM STATEMENT

The present curriculum for Business Studies in grade 10-12 focuses on the development of knowledge, skills and values that are necessary for productive and effective business activities in both the formal and informal sectors (SA Department of Education 2011). This curriculum also includes business principles, theory and practice that encourage the development of entrepreneurial initiatives and propagate sustainable businesses and economic growth (SA Department of Education 2011:7).

However, Kelley and Kelley (2012:2) are of the opinion that the conventional education systems hinder the development of attitudes and motives necessary for the development of creativity. Seeing that business simulation is considered to stimulate creativity and flexibility (Van der Aalst 2013:3) through active learning, a scenario where learners are confronted with a real business situation could be expected to advance various entrepreneurial skills.

Consequently, the research question for this study is: Will essential entrepreneurial skills and specifically creativity and flexibility, be enhanced by enriching the Business Studies curriculum of secondary South African schools through adding action learning activities in a simulated business set-up?

4. GOAL OF THE STUDY

The broad goal was to enrich the Business Studies secondary school curriculum in order to enhance creativity and flexibility competencies and to measure the effect of the intervention on learners' creativity and flexibility.

In order to reach the goal, the following objectives were set:

- The development of additional activities in the Business Studies curriculum regarding creativity and flexibility competencies, specifically creativity and flexibility in a simulated business set-up.
- The quantitative measurement of learners' achievement regarding creativity and flexibility after having completed the above intervention.

- A qualitative investigation through interviews and observations into the experience of the learners regarding the ease with which they could master the creativity and flexibility competencies and the satisfaction derived from the intervention exercise.
- Offering recommendations for the education of secondary school learners in Business Studies.

5. RESEARCH METHODOLOGY

The experimental design whereby quantitative data collection took place and where qualitative data collection was embedded in, was a nonrandomised control group pre-test-post-test design (Leedy & Ormrod 2005:227) with a non-probability sample of grade 11 Business Studies learners consisting of two classes, one of which formed the experimental group and the other the control group (Table 1). Although this sample is not large or representative enough for the generalisation of the results to the larger South African context, this was not the aim of this research. This research is rather an in-depth exploratory examination of the study population and their response to the teaching strategy proposed in this article. Consequently, this study can be deemed positivistic (Babbie 2007:40-42; De Vos, Schultze & Patel 2005:5-6).

TABLE 1: The non-randomised control group pre-test-post-test design

| Group | Pre-test on scenario 1 | Intervention 1 | Post-test 1 on scenario 2 | Intervention 2 | Post-test 2 on scenario 3 |
|-----------------------------|------------------------|----------------|---------------------------|----------------|---------------------------|
| Experimental group (n = 23) | X | X | X | _____ | X |
| Control group (n=24) | X | _____ | X | X | X |

Source: Leedy & Ormrod 2005:227

The rationale for performing the same intervention on both the experimental and control groups was threefold: In the first place the ethical committee suggested that both groups are given the same treatment. Secondly, the effectiveness of the enriched curriculum would be tested twice, and thirdly the effect of a time lapse between the intervention and testing would be evaluated, and consequently, the sustainability of the effect would be elucidated.

At the beginning of the investigation both the experimental and control group completed a pre-test, embracing a given business scenario (scenario 1) and questions regarding creativity and flexibility with reference to the given scenario.

Of the two standard Business Studies classes, one of them (the experimental group) was isolated after the pre-test and exposed to the first intervention, which comprised of the application of a teaching framework for the enhancement of entrepreneurial competencies specifically focusing on creativity and flexibility, during contact sessions over a period of 24 days (28 sessions of 40 minutes).

Five sections of the curriculum were covered during this period, namely planning, buying, manufacturing, selling and controlling. For each section a simulated business was proposed to the learners. Problem recognition and problem solving by ways of applying creativity were required of them. The learners' written solutions for the problems in each simulated business example were evaluated by the educator, researcher and teaching advisor by using an evaluation rubric. While the learners were "operating" the simulated businesses, various additional scenarios such as unexpected problems and circumstances occurring in their simulated businesses were introduced in order to enhance their flexibility skills.

During this intervention, observations on the reactions of the participants were also done in order to determine how to adjust the teaching framework to improve the functioning of the participants. The intervention that was applied focused on business simulation accompanied by activities directed at creativity and flexibility. The intervention was carried out in two phases. The first one was done on the experimental group, after which they were given a second business scenario (scenario 2) in post-test 1 consisting of 6 questions based on the scenario. The second intervention was done on the control group, and embraced exactly the same creativity and flexibility competencies, after which both groups were given a third business scenario in post-test 2 (same questions as in post-test 1), based on scenario 3.

The tests were assessed by the researcher and moderated by an independent teaching adviser. To be able to make quantitative interpretations, all the questions were marked by means of an assessment rubric. The scores from the assessment rubric were transferred to a four-point Likert scale where score 1 = cannot demonstrate competency; score 2 = demonstrates competency with gaps, score 3 = demonstrates competency and score 4 = outstanding demonstration of competency.

In order to support the above quantitative results, a qualitative investigation was undertaken where a number of the participants were randomly selected from both groups and interviewed. After 10 interviews, a satisfactory level of data saturation was obtained. Guest, Namey and Mitchell (2013:59) describe theoretical saturation as the point at which no or little new information is being extracted from the data. Observations were also carried out on all

of the respondents in both classes during the entire intervention process. The purpose of the qualitative component was to verify and support the quantitative findings and emphasize the strong points of each (Johnson & Onwuegbuzie 2004:14).

6. RESULTS AND DISCUSSION

The results will be discussed according to the objectives.

6.1 Development of an enriched Business Studies curriculum

The first objective which was investigated qualitatively was to develop an enriched Business Studies curriculum for grade 11 learners. This objective was reached, as a successful extended curriculum with a practical orientation was designed, as described in the research methodology. Success could be affirmed on grounds of the positive outcomes as evaluated by the research team. During the interviews, most of the learners pointed out that the content was stimulating and promoted creativity and flexibility skills which they did not have before, which indicates that they found this extended curriculum effective for the purpose. According to Van der Aalst (2013:3), advantages of business simulation include aspects such as the flexibility of simulations, simulations can provide answers to a wide range of questions, simulation stimulates creativity, and simulation is easy to understand.

The second objective was to quantitatively assess learners' attainment upon having completed an intervention session in the Business Studies subject, by means of a questionnaire.

6.1.1 Psychometric properties of the measuring instrument

Since creativity and flexibility were represented by only one comprehensive and effective item for each on the evaluation rubric as explained in the research methodology, the most common methods of investigating validity (factor analysis) and reliability (Cronbach alpha coefficients) could not be used.

In this study, validity was investigated by appraising face validity and content validity.

Face validity is concerned with the extent to which the instrument, in this case the questionnaire, appears to measure what it is supposed to measure (Maree 2010:217). Apart from the researcher, two colleagues who are experts in the field of entrepreneurship, as well as the senior teacher teaching Business Studies at the secondary school where the study was performed, scrutinised the instrument and found it face valid.

Content validity was investigated by following guidelines given by Babbie (2008:161) and Murphy and Davidshofer (2001:150). According to these authors, content validity is confirmed when the items in a construct seem to measure what the heading of the construct specifies. Once again, the experts in the field of entrepreneurship mentioned above were consulted and they all agreed that the item in each of the two constructs fell within the boundaries of the content domain under investigation.

Furthermore, the items measuring creativity and flexibility corresponded with items in other instruments or characteristics measuring the same constructs, which is another indication of content validity (Goosen, De Coning & Smit 2002:41-42; Gouws 1997:145; Spinelli & Adams 2012:136,146). The researchers were therefore satisfied that the content validity was satisfactory.

Reliability of this instrument was examined by inspecting four variables, namely the research method, the role of the researcher, the respondents and the research conditions, as suggested by Mouton and Marais (1989:79) as well as Babbie (2008:159), who further accentuate that clarity and specificity of the items can prevent a certain extent of unreliability.

As the researcher was in personal contact with the respondents all the time, clarity was not a problem and experimental circumstances with regard to the research method, researcher and the respondents, were optimised. The fact that the future and well-being of the respondents were at stake, in that skills for a possible career were introduced, probably advanced the reliability further. As all these requirements were met, the instrument was deemed reliable.

6.1.2 Creativity

The results of the pre-test, post-test 1 and post-test 2 pertaining to creativity are presented graphically in Figure 1. There was no remarkable difference between the two groups regarding the pre-test scores, as was to be expected, since none of them had been subjected to any intervention at that stage. The first intervention was done on the experimental group only, between the pre-test and post-test 1. During this time the control group did not receive any intervention and continued with their normal school programme. The second intervention was done on the control group only between post-test 1 and post-test 2. At this stage the experimental group did not receive any intervention and continued with their normal school programme. The test scores were calculated out of a maximum of 4.0.

From Figure 1 it can be noted that the experimental group, which was exposed to the first intervention, performed considerably better in post-test 1 than the control group, who had not

received an intervention at that point of time. After the second intervention applied to the control group only, the control group measured on par with the performance of the experimental group in post-test 1. These results confirm the presumption that the intervention advanced the learners' creativity significantly, and are in accordance with the findings of Rabanos and Torres (2012:1153) that creative skills can be developed through the use of relevant activities. Timmons and Spinelli (2009:53) confirm that creativity can actually be acquired through learning, and subsequently developed. For the experimental group, the group score for post-test 2 did not drop lower than that for post-test 1 due to the time lapse between the two tests. This can probably be due to the fact that the learners were constantly aware of the importance of creativity as it forms an important part of their normal Business Studies curriculum. It is noted that both groups yielded higher results for creativity after having been exposed to an intervention.

In Tables 2 and 3 the results of the statistical analysis regarding creativity after the first and second interventions respectively are given.

6.1.2.1 ANOVA for creativity for the intervention on the experimental group

Table 2 shows that the p-value after the first intervention (on the experimental group only) was < 0.05 ($p = 0.00000$) (Steyn 2005:1), indicating a statistically significant difference between the pre-test and post-test 1 for creativity scores of the experimental group. The mean value (least square mean=maximum 4) for the pre-test on creativity was 2.13 and for post-test 1 it was 2.52, meaning that for the experimental group there was a statistically significant improvement in creativity after the implementation of the intervention on them.

Furthermore, a d-value of 0.8 (Cohen 1988:25) indicates that the improvement was also practically significant.

TABLE 2: ANOVA for creativity of experimental group

| n | LS Mean Pre-test | LS Mean Post-test 1 | p-value | d-value | LS Mean Post-test 2 | p-value | d-value |
|----|------------------|---------------------|----------|---------|---------------------|---------|---------|
| 23 | 2.13 | 2.52 | < 0.05 | 0.8 | 2.65 | 0.12 | 0.2 |

Source: Calculated from results

Table 2 also shows that for post-test 2 the p-value was 0.12, indicating no statistically significant difference between post-test 1 and post-test 2 creativity scores for the experimental group, which was not submitted to the intervention at this stage of the research. The LS Mean value for post-test 1 on creativity was 2.52 and for the post-test 2 it

was 2.65, meaning that there was no statistically significant increase in creative ability from post-test 1 to post-test 2. The d-value of 0.2 indicates that the increase was moderate with a medium effect.

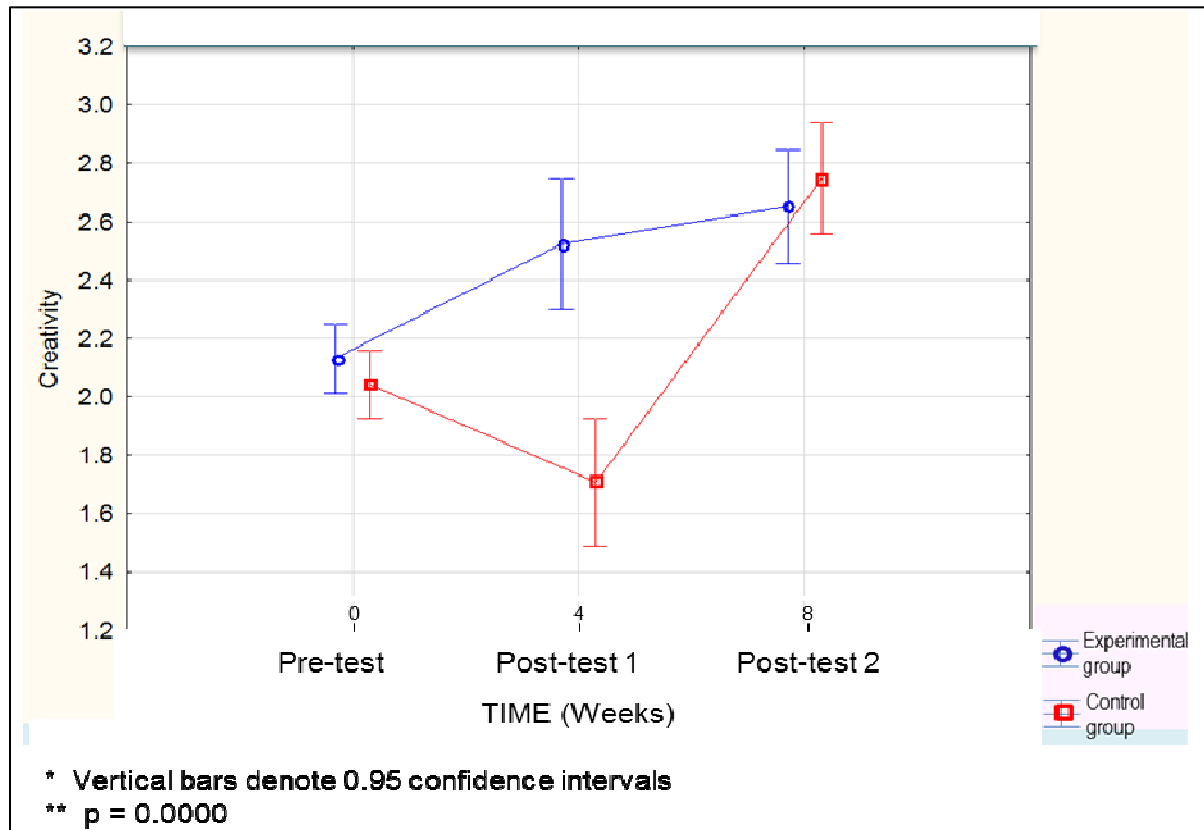


FIGURE 1: Creativity scores

Source: Constructed from results

6.1.2.2 ANOVA for creativity for the intervention on the control group

Table 3 shows that the p-value after post-test 1 was 1.0, indicating no statistically significant difference between the pre-test and post-test 1 for creativity scores of the control group which was not submitted to the intervention at this stage of the research. The LS mean value which can take on a maximum of 4, was 2.04 for the pre-test on creativity, and for post-test 1 it was 1.71 and the d-value was 0.8, which means that for the control group there was a slight deterioration in creativity but with a practically significant effect (Cohen 1988:25).

This slight decline in creativity can possibly be attributed to the fact that this group of respondents were not subjected to an intervention at this stage, and consequently their concentration on this competency was lessened during the relatively long time lapse

between the pre-test and the post-test. Another reason for the decline can possibly be ascribed to teaching problems in the classroom (an absent teacher at that point of time).

TABLE 3: ANOVA for creativity of the control group

| n | LS Mean Pre-test | LS Mean Post-test 1 | p-value | d-value | LS Mean Post-test 2 | p-value | d-value |
|----|------------------|---------------------|---------|---------|---------------------|---------|---------|
| 24 | 2.04 | 1.71 | 1.0 | 0.8 | 2.75 | < 0.05 | 2.5 |

Source: Calculated from results

Table 3 also shows that the p-value after the second intervention (on the control group only) was < 0.05 ($p=0.00000$), indicating a statistically significant difference between the post-test 1 and post-test 2 creativity scores for the control group. The LS mean value for post-test 1 on creativity was 1.71 and for post-test 2 it was 2.75, which means that for the control group there was a statistically significant improvement in creativity after implementation of the intervention. Furthermore, a d-value of 2.5 indicates that the improvement was also highly practically significant.

6.1.3 Flexibility

The results of the pre-test, post-test 1 and post-test 2 are presented graphically in Figure 2.

From Figure 2 it is clear that there was no remarkable difference between the two groups regarding the pre-test scores, as was to be expected, since none of them had been subjected to any intervention at this stage. The first intervention was done on the experimental group only, between the pre-test and post-test 1. During this time the control group did not receive any intervention and continued with their normal school programme. The second intervention was done on the control group only between post-test 1 and post-test 2. At this stage the experimental group did not receive any intervention and continued with their normal school programme.

From Figure 2 it can be noted that the experimental group (which was exposed to the first intervention), performed remarkably better in post-test 1 than the control group, who had not received an intervention at that point of time, which was to be anticipated. After the second intervention, in post-test 2 the control group measured on par with the performance of the experimental group in post-test 1.

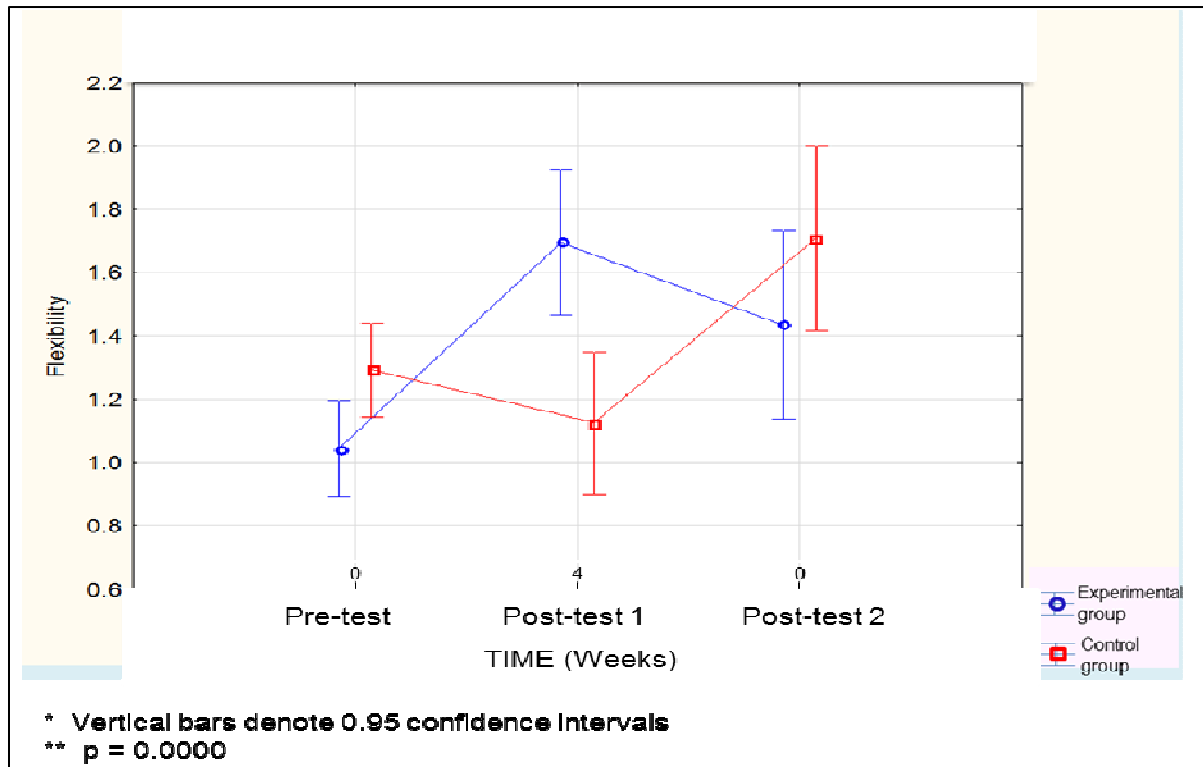


FIGURE 2: Flexibility scores

Source: Constructed from results

However, in post-test 2 the experimental group performed not only lower than the control group, but also lower than they did in post-test 1. This is probably due to the time lapse between the two post-tests without any intervention in between, and an indication that the intervention should be continuously implemented and integrated with the curriculum, otherwise the effect might not be sustainable. It is noted that both groups yielded higher results at the end of the intervention of flexibility.

In Tables 4 and 5 the results of the statistical analysis of the first and second intervention regarding flexibility are given and will be discussed to confirm the trend of Fig.2 statistically.

6.1.3.1 ANOVA of flexibility for the intervention on the experimental group

Table 4 shows that the p-value after the first intervention (on the experimental group only) was < 0.05 ($p = 0.00000$), indicating a statistically significant difference between the pre-test and post-test 1 for flexibility scores of the experimental group. LS Mean values for the pre-test on flexibility was 1.04 and for post-test 1 was 1.70, measured against a possible maximum value of 4.0, which means that for the experimental group there was a statistically

significant improvement in flexibility after implementation of the intervention on the experimental group.

Furthermore, a d-value of 1.0 indicates that the improvement was also of large practical significance.

TABLE 4: ANOVA of flexibility of the experimental group

| n | LS Mean Pre-test | LS Mean Post-test 1 | p-value | d-value | LS Mean Post-test 2 | p-value | d-value |
|----|------------------|---------------------|---------|---------|---------------------|---------|---------|
| 23 | 1.04 | 1.70 | < 0.05 | 1.0 | 1.43 | 1.0 | 0.4 |

Source: Calculated from results

Table 4 also shows that the p-value after post-test 2 was 1.0, indicating no statistically significant difference between post-test 1 and post-test 2 for flexibility scores for the experimental group.

The LS mean value for post-test 1 on flexibility was 1.70 and for the post-test 2 it is 1.43, meaning that there was a slight, but not statistically significant deterioration in flexible ability from post-test 1 to post-test 2. The d-value of 0.4 indicates that the decline had no practically significant effect either. This slight decline in flexibility can possibly be attributed to the fact that this group of respondents was not subjected to an intervention at this stage, and consequently their concentration on this competency was lessened during the relatively long time lapse between post-test 1 and the post-test 2.

6.1.3.2 ANOVA for flexibility of intervention on the control group

Table 5 shows that the p-value after post-test 1 was 1.0, indicating no statistically significant difference between the pre-test and post-test 1 for flexibility scores of the control group. The LS mean value for the pre-test on flexibility was 1.29 and for post-test 1 it was 1.13 and the d-value was 0.2, which means that for the control group there was a slight deterioration in flexibility with a medium practically significant effect. This slight decline in flexibility can possibly be attributed to the fact that this group of respondents were not subjected to an intervention at this stage, and consequently their concentration on this competency was lessened during the relatively long time lapse between the pre-test and the post-test.

Another reason for the decline can possibly be ascribed to teaching problems in the classroom (an absent teacher at that point of time).

TABLE 5: ANOVA for flexibility of the control group

| n | LS Mean Pre-test | LS Mean Post-test 1 | p-value | d-value | LS Mean Post-test 2 | p-value | d-value |
|----|------------------|---------------------|---------|---------|---------------------|---------|---------|
| 24 | 1.29 | 1.13 | 1.0 | 0.2 | 1.71 | < 0.05 | 1.2 |

Source: Calculated from results

Table 5 also shows that the p-value after the second intervention (on control group only) was < 0.05 ($p=0.00000$), indicating a statistically significant difference between the post-test 1 and post-test 2 for flexibility scores for the control group. The LS mean value for post-test 1 on problem-solving was 1.13 and for post-test 2 it was 1.71, which means that for the control group there was a statistically significant improvement in flexibility after implementation of the intervention. Furthermore, a d-value of 1.2 indicates that the improvement was also highly practically significant, which was to be expected.

6.2 Qualitative results and discussion

The qualitative results are discussed by reporting the results of the observations and interviews.

6.2.1 Observations

The reliability of the observations was confirmed through the internal and external consistency of the happening that was observed (Neuman 2007:294).

In the current study, the internal consistency was obtained through the actual completion by the researcher and teaching advisor of the observation sheet that focused on the same aspects and the same criteria during the different teaching sessions. External consistency was obtained through the involvement of the expert teaching advisor in observing the teaching of the researcher.

The validity of the observations in this investigation was strengthened through confidentiality, credibility and confirmation of the observations. Although the interviews were not anonymous, the researcher is confident about the analysis of the data, and believes that the interviews reflected an accurate representation of the social world of the participants (Neuman 2007:294).

▪ Creativity

The researcher used business simulation to enhance the participants' creativity. The activities employed during the teaching focused on the participants' skills to design and market new products. The participants were encouraged to improve their creativity through

this activity. They generated several ideas by taking into account new developments and information. Their confidence in their ability to be creative also improved.

The participants' creativity in group context was good. During the course of the intervention, the creativity demonstrated by the groups improved slightly due to the challenge of developing new products, because participants had to develop new products. By the end of the intervention, the participants' creativity was good within their businesses as part of the business simulation.

- **Flexibility**

The participants initially had no idea that flexibility is important for every business. During the course of the intervention, participants experienced how important flexibility is for each business. Observations revealed that the participants could perform multiple tasks, could make adjustments to changing circumstances, could set up contingency plans, and could function in a group or individually. By the end of the intervention, the participants' attention was focused on adaptability to the extent that they could identify it.

6.2.2 Interviews

6.2.2.1 Validity and reliability

The validity and reliability of the interviews were assured through the trustworthiness of the interviews. Therefore the credibility, transferability, consistency and confirmation of the data have to be described (Bezuidenhout 2005:170–172).

- **Credibility**

Credibility was obtained through the extended and varied involvement of the researcher in the empirical field, peer evaluation, monitoring of progress and evaluation of the research process (Poggenpoel & Myburg 2004:421). In addition, a thorough relevant literature study was done to confirm that the purpose of the study was done (Kruger & Gericke 2004:44), to formulate interview questions and to verify data (Shenton 2004:69).

- **Transferability**

In this investigation, the transferability was obtained through a description of the method whereby participants were chosen for the interviews, as well as the provision of a correct and rich description of the results so that the voices of the participants could be heard (Poggenpoel & Myburgh 2004:421) and by determining the appropriateness compared to similar contexts (Shenton 2004:71).

Data from the interviews is discussed, based on applicable direct quotations to confirm results after an intensive data analysis was done.

▪ **Dependability**

Dependability contributes to the reliability of research and emphasises the consistency thereof (Poggenpoel & Myburgh 2004:421). In this investigation, the dependability was obtained through a process of verification and data reduction. The interview questions were evaluated by the teaching advisor and with the consensus of the researcher, they were further refined to address the objectives of the study (Kruger & Gericke 2004:44).

▪ **Confirmation**

In this investigation, confirmation was obtained through the verifying of the data to literature. A reflective analysis was applied through the awareness of the researcher in terms of his influence on the data (O'Leary 2004:58).

6.2.2.2 Creativity

The grade 11 learners were interviewed regarding their creative ability after completion of the intervention. Although some of the respondents indicated that they struggled with creativity, most of the respondents were of the opinion that they had learned to be more creative. A few of the remarks which they made were:

- My creative side has improved a lot.
- The solutions that you wrote down the first time may be two ... now you know that there might be four or five.
- I learned to look at things differently. There is not just one way, one can read between the lines, try to look deeper.

6.2.2.3 Flexibility

- The same respondents were also interviewed with reference to flexibility after completion of the intervention. Although some of the respondents indicated that they struggled with flexibility, most of the respondents indicated that they had learned to be more flexible. A few of the remarks which they made were:
 - Note what risks there are, and provide for it ...
 - It taught me to take out insurance on my products, because if there is a fire hazard ... insurance can help you.

- The risks, the pros and cons and the vision [and mission], take everything into account.

7. CONCLUSION

An extended curriculum was developed in order to enhance grade 11 learners' creativity and flexibility competencies, and this curriculum focused on active learning in a business simulated set-up. The learning gain when applying this extended curriculum was measured quantitatively by comparing learners' pre-test and post-test scores.

Results revealed that both the experimental and control groups' creativity as well as flexibility competencies increased statistically and practically significantly after application of the intervention.

The qualitative observations and interviews clearly indicated that the extended curriculum can be successfully used to enhance the entrepreneurial competencies of grade 11 learners in Business Studies. The results also showed that the learners had a positive experience during the intervention to which they were exposed and experienced the activities as challenging, useful and interesting. The extended curriculum also promoted social interaction between the learners, and is therefore esteemed suitable for group work and not individuals during the learning process.

Although the teaching framework was applied to small groups of learners, it can also be possible in bigger groups. Follow-up studies in this regard involving larger numbers of learners participating in an extended curriculum are highly recommended.

Further recommendations embrace:

- An extended Business Studies curriculum in secondary schools with a strong focus on active learning in a business simulated set-up is highly recommended. This curriculum could have the advantage that learners would be challenged to be creative and flexible in different business scenarios, which would enable them to apply their competencies in a wide range of entrepreneurial careers, which could address the serious problem of youth unemployment.
- The sustainability of the improvement in creativity and flexibility skills upon the suggested intervention should be tested after a time lapse of a few months.

Further important recommendations by Turton and Herrington (2012:77-78) that can augment the entrepreneurial skills of learners, are:

- conducting an investigation into the secondary school education system;

- making sure that competent individuals lead reforms in business education;
- ensuring decent education infrastructure conducive to learning for potential entrepreneurs;
- expanding intervention that deals with gaps in entrepreneurial education; and
- the use of experienced entrepreneurs and business people for mentoring entrepreneurial programmes.

To conclude, the view of Herrington and Kew (2013:69) that the extent to which the advancement of entrepreneurial qualities receive attention in various phases of business education and training can have a huge impact on the entrepreneurial potential of secondary school learners, is reinforced. It is the intention of the researcher to send this article to the Department of Education with the request that they disseminate it to instances involved in curriculum planning.

REFERENCES

- ADAMS K.** 2005. The sources of innovation and creativity. Washington, DC: NCEE. (A paper commissioned by the National Centre on Education and the economy for the new commission on the skills of the American Workforce.)
- AMABILE TM.** 1996. Creativity and innovation in organizations. Boston, MA: Harvard Business School Publishing.
- AMABILE TM & PILLEMER J.** 2012. Perspectives on the social psychology of creativity. *Journal of Creative Behavior* 46(1):3–15, March.
- ANTONITES AJ & WORDSWORTH R.** 2009. Risk tolerance: a perspective on entrepreneurship education. *Southern African Business Review* 13(3):69-85, Dec.
- BABBIE E.** 2008. The basic of social research. 4th ed. Belmont, CA: Thomson Wadsworth.
- BARON RA & SHANE SA.** 2005. Entrepreneurship: a process perspective. Mason, OH: Thomson South Western.
- BEZUIDENHOUT MJ.** 2005. A guide for accreditation reviews aimed at quality assurance in South African undergraduate medical education and training. Bloemfontein: UOFS. (DCom-thesis).
- BODDY D & PATON S.** 2011. Management: an introduction. 5th ed. Harlow, Essex, UK: Pearson.
- BURNS WR & FREEMAN WD.** 2010. Developing more adaptable individuals and institutions. Alexandria, VA: Institute for Defence Analyses (IDA).
- CAREER & EMPLOYABILITY SERVICE.** 2012. Selling your skills: how your degree has made you employable. Boston, MA: Boston University.
- COHEN J.** 1988. Statistical power analysis for behavioral sciences. 2nd ed. Hillsdale, NJ: Erlbaum.

- DE VOS AS, SCHULZE S & PATEL L.** 2005. The sciences and the professions. (In De Vos AS, Strydom H, Fouche CB & Delpont CSL. eds. Research at grass roots for the social sciences and human service professions. Pretoria: Van Schaik p. 3-25).
- DIXON R, MEIER RL, BROWN DC & CUSTER RL.** 2005. The critical entrepreneurial competencies required by instructors from institution-based enterprises: a Jamaican study. *Journal of Industrial Teacher Education* 42(4):25-51.
- FARRINGTON SM, VENTER DJL & NEETHLING A.** 2012. Entrepreneurial attributes and intentions: perceptions of South African business science students. *Management Dynamics* 21(3):17-32.
- GOOSEN CJ, DE CONING TJ & SMIT EVD.** 2002. Corporate entrepreneurship and financial performance: the role of management. *South African Journal of Business Management* 33:21-26.
- GOUWS E.** 1997. Entrepreneurship education: an educational perspective. *South African Journal of Education* 17:143-148.
- GRIFFIN RW.** 2014. Fundamentals of management. 7th ed. Mason, OH: South Western.
- GUEST G, NAMEY, EE & MITCHELL ML.** 2013. Collecting qualitative data - a field manual for applied research. Sage.
- HERRINGTON M & KEW J.** 2013. Global entrepreneurship monitor report: South African report 2012. Cape Town: UCT.
- JOHNSON RB & ONWUEGBUZIE AJ.** 2004. Mixed-methods research: a research paradigm whose time has come. *Educational Researcher* 33(7):14-26, Oct.
- KATZ JA & GREEN RP.** 2011. Entrepreneurial small business. 3rd ed. New York, NY: McGraw-Hill.
- KELLEY T & KELLEY D.** 2012. Reclaim your creative confidence: how to get over the fears that block your best ideas. *Harvard Business Review* 90(12):115-118.
- KRUGER RL & GERICKE G.** 2004. A qualitative approach for exploration of feeding practices, knowledge and attitudes on child nutrition framework. *Journal of Family Ecology and Consumer Sciences* 32:36-45.
- LEEDY PD & ORMROD JE.** 2005. Practical research: planning and design. 8th ed. Upper Saddle River, NJ: Merrill.
- MAREE K.** 2010. First steps in research. Van Schaik: Pretoria.
- MAAS G & HERRINGTON M.** 2007. Global entrepreneurship monitor report: South African report 2007. Cape Town: UCT.
- MOUTON J & MARAIS HC.** 1989. Metodologie van die geesteswetenskappe: basiese begrippe. Pretoria: Raad vir Geesteswetenskaplike Navorsing.
- MUELLER-HANSON RA, WHITE SS, DORSEY DW & PULAKOS ED.** 2005. Training adaptable leaders: lessons from research and practice (Research Report 1844). Arlington, VA: Personnel Decisions Research Institutes.
- MURPHY KR & DAVIDSHOFER CO.** 2001. Psychological testing: principles and applications. 5th ed. Upper Saddle River, NJ: Prentice Hall.
- NEUMAN WL.** 2007. Basics of social research: qualitative and quantitative approaches. Needham, MA: Pearson.
- NICKERSON RS.** 1998. Applied experimental psychology. *Applied Psychology: an International Review* 47:155-173.
- NICOLAIDES A.** 2011. Entrepreneurship – the role of higher education in South Africa. *Educational Research* 2(4):1043-1050.

- OGUNLEYE A, OWOLABI T & ADEYEMO S.** 2013. The design and development of a web-based e-learning platform for the understanding and acquisition of various entrepreneurial skills in SMEs and industry. *US China Education Review* 3(4):239-251.
- O'LEARY Z.** 2004. The essential guide to doing research. London, UK: Sage.
- PLUCKER JA, BEGHETTO RA & DOW GT.** 2004. Why isn't creativity more important to educational psychologists? Potentials, pitfalls, and future directions in creativity research. *Educational Psychologist* 39:83-96.
- POGGENPOEL M & MYBURGH C.** 2004. The researcher as research instrument in education research: a possible threat to trustworthiness? A research instrument. *Journal of Education* 124(2):418-422.
- PROCTOR T.** 2010. Creative problem solving for managers: developing skills for decision making and innovation. 3rd ed. New York, NY: Roudledge.
- RABANOS NL & TORRES PA.** 2012. Effects of a program for developing creative thinking skills. *Electronic Journal of Research in Educational Psychology* 10(3):1139-1158.
- RABBIOR G, LANG J, CRANSON L & SMITH L.** 1996. Catching the wave: framework for youth entrepreneurship success. Toronto, CAN: Canadian Foundation for Economic Education.
- ROBBINS SP, DECENZO DA & COULTER M.** 2013. Fundamentals of management: essentials concepts and applications. 8th ed. Harlow, Essex, MD: Pearson.
- RUPPERT SS.** 2010. Creativity, innovation and arts learning: preparing all students for success in a global economy. Washington, DC: Arts Education Partnership.
- SA DEPARTMENT OF EDUCATION** see **SOUTH AFRICAN DEPARTMENT OF EDUCATION.**
- SHENTON AK.** 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information* 22(2):63-75.
- SOUTH AFRICAN DEPARTMENT OF EDUCATION.** 2011. Report on the National Senior Certificate examination 2011: national diagnostic report on learner performance. Pretoria: Government printer.
- SOUTH AFRICAN DEPARTMENT OF EDUCATION.** 2012. National diagnostic report on learner performance 2012. Pretoria: Government printer.
- STATISTICS SOUTH AFRICA.** 2014. Statistical release P0211: quarterly labour force survey 2014. Pretoria: Government printer.
- SPINELLI S & ADAMS R.** 2012. New venture creation: entrepreneurship for the 21st Century. 9th ed. New York, NY: McGraw-Hill.
- STERNBERG RJ & WILLIAMS WM.** 1996. How to develop student creativity. Alexandria, VA: Association of supervision and curriculum development.
- STEYN HS.** 2005. Handleiding vir die bepaling van effekgrootte-indekse en praktiese betekenisvolheid. [Internet: <http://www.puk.ac.za/fakunteite/natuur/skd/indeks.html>; downloaded on 2008-11-15.]
- TIMMONS JA & SPINELLI S.** 2009. New venture creation: entrepreneurship for the 21st century. 8th ed. New York, NY: McGraw-Hill.
- TURTON N & HERRINGTON M.** 2012. Global entrepreneurship monitor report: South African report 2012. Cape Town: UCT.
- VAN DER AALST WMP.** 2013. Business process simulation survival guide. [Internet: <http://bpmcenter.org/wp-content/uploads/reports/2013/BPM-13-11.pdf>; downloaded on 2014-01-15.]
- VICTOR R & VIDAL V.** 2009. Creativity. *AI & Soc* 23:409-432.
- WU WW.** 2009. A competency-based model for the success of an entrepreneurial start-up. *WSEAS Transactions on Business and Economics* 6(6):279-289.