CREATIVITY BARRIERS IN SOUTH AFRICAN HIGHER EDUCATION INSTITUTIONS

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OPSOMMING

SLEUTELWOORDE: Kreatiwiteit, Voorskrywende en Ontluikende Strategiese Bestuur, Volhoubare Mededingende Voordeel, Hoër Onderwys, Organisasie Klimaat.

Baie organisasies gebruik strategiese bestuur as 'n metode om 'n mededingende voordeel te verkry. Teoriste kon nog nie vasstel watter een van of voorskrywende of ontluikende strategiese benaderings die beste sal pas binne 'n organisatoriese klimaat vir 'n onderhoubare mededingende voordeel nie. Die idee van kreatiwiteit is geïdentifiseer as 'n bron van mededingende voordeel wat organisasies kan gebruik in hulle strategiese raamwerk. Nietemin kan daar binne die organisasie-klimaat verskeie hindernisse bestaan vir kreatiwiteit, wat prestasie-uitkomste, effektiwiteit en potensiële voordeel vir 'n organisasie kan benadeel.

Die studie is hoofsaaklik 'n ondersoek na die strategiese en organisatoriese klimaat binne geselekteerde hoër onderwys instellings in Suid-Afrika, aangesien hierdie instellings 'n behoefte het aan 'n evaluering van potensiële bronne van mededingende voordeel, om te oorleef. Hierdie behoefte om kompeterend te bly is hoofsaaklik te wyte aan die turbulente en veranderlike omgewings waarin hierdie instellings hulle bevind. Hierdie onstabiliteit het ontstaan as gevolg van verskeie veranderings in die hoër onderwys as gevolg van die samesmelting van verskeie hoër onderwys instellings en die verandering in die samestelling van ander.

Die studie het gewys dat kreatiwiteit 'n bron is van mededingende voordeel. Dit is gedoen deur vas te stel watter hindernisse vir kreatiwiteit teenwoordig is binne die organisatoriese klimaat van die geselekteerde instansies, sowel as die strategiese bestuursbenaderings wat deur hulle gebruik word. Die inligting is bekom deur versamelde data te vergelyk met twee mededingende voordeel-metings (deursit en navorsings uitset koers) van die genoemde hoër onderwys instellings. Drie belangrike vrae en antwoorde van die studie in hierdie verband.

- Wat is die oorheersende voorskrywende strategiese afmetings en die proses wat gebruik word deur geselekteerde Suid-Afrikaanse hoër onderwys instellings?

- Wat is die oorheersende kreatiwiteit-hindernis-afmetings wat bestaan in geselekteerde hoër onderwys institusies in Suid-Afrika?

- Watter verhoudings kan waargeneem word tussen beskrywende strategiese dimensies, die kreatiwiteit hindernis dimensies en die organisatoriese mededingende voordeel prestasie uitset dimensies van die deursit-koers en navorsings uitset in geselekteerde Suid-Afrikaanse hoër onderwys instellings?

'n Nie-waarskynlikheid, oordeel-steekproef is verkry vanaf vier geselekteerde Suid-Afrikaanse hoër onderwys instellings in Gauteng in die laaste helfte van 2004. Die opname het sekere biografiese inligting gevra van respondente (wat aan die kriteria voldoen het om voltydse akademiese werknemers vir die betrokke instansie te wees), asook inligting rondom die strategiese klimaat en hindernisse tot kreatiwiteit binne die organisasie klimaat. Die laaste gedeelte van die vraelys het bestaan uit oop-einde vrae. Data oor die deursit en navorsingsuitset koers van die instansies is onafhanklik verkry van die Suid-Afrikaanse Departement van Onderwys, en vergelyk met die data uit die vraelys.

Die vraelys het getoets vir agt vooraf bepaalde faktore binne die organisatoriese klimaat (geïdentifiseer uit die literatuur oorsig en vorige studies), en 'n aparte dimensie van voorskrywende strategiese beplanning. Slegs vyf van die kreatiwiteits-hindernisse is hoofsaaklik dominant gevind binne die geselekteerde hoër onderwys instellings naamlik: Ontoereikende Hulpbronne; Tekort aan Span Eenheid; Tekort aan Organisasie Eenheid; Organisasie Hindernisse en Werklas Druk. Die faktore is vergelyk met die mate van mededingende voordeel en dit is vasgestel dat daar 'n positiewe korrelasie bestaan tussen hoër voorkoms van hindernisse en 'n laer prestasie uitset, wat kreatiwiteit aandui as 'n bron van mededingende voordeel binne genoemde instansies. Dit bewys die oorspronklike eerste hipotese van die studie.

Verder is gevind dat genoemde instansies wat gebruik gemaak het van bestaande strategiese bestuursbenaderings geneig het tot hoër prestasie in terme van deursit snelheid. Dit bewys die tweede hipotese, dat ontluikende strategieë eerder mededingende voordeel tot gevolg sal hê, verkeerd. Hoër onderwys instellings, bekend vir hulle tipies burokratiese benadering, maak makliker van formele prosedures gebruik om verhoogde mededingende voordeel te verkry, as van meer informele ontluikende benaderings, aangesien akademiese werknemers meer vrylik kreatiewe alternatiewe kan beproef onder die sekuriteit van bestaande strategiese benaderings.

Dit is waarskynlik dat enige organisasie sou wens om hulle mededingende prestasie te verhoog om meer effektief te wees. Hoër onderwys instellings moet aandag gee aan hulle prestasie om voort te bestaan. Dit is dan nodig vir die hoër onderwys instellings om kennis te neem van potensiële hindernisse vir kreatiwiteit binne hulle organisasieklimaat wat deur die studie uitgelig is, en om dit pro-aktief te verwyder om te verseker dat hulle mededingend bly in die toekoms. Verder moet hierdie instansies die strategiese bestuurs benaderings wat hulle huidiglik gebruik heroorweeg en verbeter om die mededingende voordeel vas te sement. Dit word voorgestel dat Suid-Afrikaanse hoër onderwys instellings formele strategiese bestuurs benaderings aanneem in hierdie verband.

ABSTRACT

CREATIVITY BARRIERS IN SOUTH AFRICAN HIGHER EDUCATION INSTITUTIONS

KEY WORDS: Creativity, Prescriptive and Emergent Strategic Management; Sustainable Competitive Advantage, Higher Education, Organisational Climate.

Many organisations use strategic management as an imperative to gain competitive advantages. Theorists have not been able to ascertain whether prescriptive or emergent strategic approaches will be most suitable within an organisational climate for sustaining these competitive advantages. The notion of creativity has been identified as a source of competitive advantage that organisations may make use of within their strategic frameworks. However, within the organisational climate, there may be various barriers to creativity that will impede performance outcomes, efficiency and potential competitive advantage for an organisation.

The study concerns itself mainly with an investigation into the strategic and organisational climates within selected higher education institutions in South Africa, as these institutions are in need of an assessment regarding potential sources of competitive advantage, in order to survive. The imperative to remain competitive is primarily due to the turbulent and changeable environments that these institutions find themselves in. This instability has occurred as a result of various changes in higher education due to the merging of several higher education institutions and the changes in the configuration of others.

The study has shown that creativity is a source of competitive advantage. This was done by determining which barriers to creativity were present within the organisational climates of the selected institutions, as well as which strategic management approaches were being employed by the said institutions. The information obtained from the data gathered was compared to two competitive advantage measures (throughput and research output rates) of those higher education

institutions. Three pivotal questions were asked and answered by the study in this regard.

- What are the prevalent prescriptive strategy dimensions and processes being employed by selected South African public higher education institutions?

- What are the prevalent creativity barrier dimensions that exist within selected public higher education institutions in South Africa?

- What relationships can be observed between the prescriptive strategy dimensions, the creativity barrier dimensions and the organisational competitive advantage performance output dimensions of throughput rate and research output in selected public South African higher education institutions?

A non-probability, judgement sample was obtained from four selected higher education institutions located in the Gauteng province in South Africa during the latter half of 2004. The survey requested certain biographical information on respondents (who had to fulfil the criteria of being full-time academic employees working for the institution in question), information on the strategic climate and barriers to creativity within the organisational climate. The last section of the questionnaire contained open-ended questions. Data on the throughput and research output rates of the institutions was obtained separately from the South African Department of Education (DOE), and correlated against the data obtained from the questionnaire.

The questionnaire was testing for eight pre-determined creativity factors within the organisational climate (identified from the literature review and previous studies), and a separate dimension of prescriptive strategic planning. Overall only five of the creativity barriers were found to be most predominant within the selected higher education institutions, namely: Insufficient Resources; Lack of Team Unity; Lack of Organisational Support; Organisational Hindrances and Workload pressure. The factors were compared to the measures of competitive advantage and it was determined that there was a positive correlation between a higher prevalence of barriers and a lower performance output, which indicated that creativity could be

identified as a source of competitive advantage within those institutions. This lent evidence to support the initial, first hypothesis of the study.

Furthermore, it was discovered that those institutions that were utilising prescriptive strategic management approaches were more inclined to achieve higher performance in terms of their throughput rates. This refuted the second hypothesis of the study that was advocating that emergent strategy was more likely to result in competitive advantage. Higher education institutions, known for their typically bureaucratic approaches might be more able to utilise formal procedures to obtain increased competitive advantage than utilising a more informal, emergent approach, as academic employees might more freely be able to explore creative alternatives under the security of prescriptive strategic approaches.

It is likely that any organisation would wish to improve their competitive performance in order to be more effective. Higher education institutions also need to be concerned about their performance in order to continue operating effectively. It is necessary, then for those higher education institutions, to take note of these potential barriers to creativity within their organisational climates, which were highlighted by the study and to proactively remove them to ensure they remain competitive into the future. In addition, these institutions should consider which strategic management approaches they are currently utilising and streamline them to cement the competitive advantage. It was advocated that South African higher education institutions should be adopting formalised strategic management approaches in this regard.

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CHAPTER 1

INTRODUCTION AND PROBLEM STATEMENT

1.1 INTRODUCTION

In any organisation, the strategic focus may be on gaining and sustaining competitive advantages in order to achieve above market performance (Narver & Slater, 1990:21). It is vital to examine strategic imperatives in order to outperform competitors (Lynch, 1997:16). In most instances strategic management procedures are used to gain these competitive advantages (Pearce & Robinson, 2000:3) primarily through differentiation or low-cost provision to customers (Porter, 1985:17-28).

Strategy formulation processes are concepts that have been used to describe the fundamental base level at which many business organisations begin their operations. According to Pearce and Robinson (2000:4), strategy provides a framework for managerial decisions. The concept of strategy formulation was envisaged roughly thirty years ago (Dickson, 2000:7). During the last three decades, the concepts have been elaborated upon to a large degree and are currently, for the most part, a core part of organisational structures and planning.

The high-risk challenges that define organisational environments today, such as incessant uncertainty place a larger emphasis than ever on organisational strategy. An organisational strategy should be devised in order to add value to customers, improve operations and ultimately remain competitive in environments characterised by change.

However, the prescriptive strategic planning approaches that many organisations devise for such times are ineffective (Foster, 2002:37). The pace of organisational change has thrown into question the contemporary validity of organisational models based purely on control, stability and bureaucracy (Beeson & Davis, 2000:179). Conventional strategic

approaches may also prove inadequate; as in times of uncertainty, traditional approaches to formulating and implementing strategy are not sufficient (Mansfield & Fourie, 2004:35).

Lampikoski and Emden (1996:96) advocate that an organisation under the guidance of its management should be able to envisage, anticipate and shape the organisation to the changing environment: technologically, politically, economically and socially, which is not the imperative of a prescriptive strategy. Organisations operating throughout the world in every sphere, must create and implement innovative competitive strategies. These planners should envision clearly how the future should be, rather than merely verbalising it.

In order to achieve this, strategy planners will need to become more imaginative and creative. Lumsdaine and Lumsdaine (1995:3) state that an organisation exists in a world, which is constantly evolving and in these times of change, creativity is the key that will allow an organisation to adapt and succeed. During such times, prescriptive strategic planning approaches and routines are not sufficient for how organisations operate in practice (Mintzberg, 1990:177).

In times of change and turbulent environments, which are characteristic of the conditions faced by most modern organisations (Schumpeter, 1942:22), it becomes increasingly difficult to sustain an advantage and remain ahead of competitors. According to Beinhocker and Kaplan (2002:12), senior managers usually agree that creating strategies is an integral part of their work and most organisations invest considerable time and effort in formal strategic planning processes. But the reality is that few managers think that this time-consuming process delivers returns, and many complain that their strategic planning processes actually yield few new ideas and are often very politically orientated.

One cannot deny that strategic management is an important part of an organisation's functioning. As Koch (1995:1) points out, strategy can assist in defining and understanding the functioning and processes of an organisation. However, Beinhocker

and Kaplan (2002:12) argue that the process of developing strategies in an organisation needs to be reformed to result in significant returns. In the case of an organisation in the United States of America (USA), there was a realisation that their strategy-driven approaches were ineffective. These processes were intended to be redesigned to achieve dramatic improvements in performance and competitive advantage (*e.g.* quality, cost, service and speed). Data collection over a five-year period showed that the introduction of creativity into their strategy driven reformulation processes produced numerous quantifiable and non-quantifiable benefits (Paper,1997:218-229).

The study aims to show that creativity can result in a sustainable competitive advantage within a strategic framework for an institution. Organisations need to be advised on how to incorporate creativity into their strategies and strategic formulation processes, as creativity is the driver which can reform their operations and result in a competitive advantage for organisations that cannot be imitated by competitors (Schoemaker, 1990:1178; Cook, 1998:179; Kajanus, 2000:711; McFadzean, 2002a:463; Conradie, 2003:14). The prescriptive strategic management process may be too static to accommodate creativity in achieving these sustainable competitive advantages (SCA), so the study will argue the case for incorporating creativity into an emergent strategic process, which according to Lynch (2000:54) allows the strategic process in an organisation to unfold, rather than following a formalised structure.

Whilst organisations may consider utilising prescriptive strategic management to gain a competitive advantage, in many instances creativity methods are often omitted as part of the process. Organisations may make an attempt to mention creative outcomes, as part of their strategic plan, but more often than not this can become a paper exercise, adding little value to the organisation's actual functioning (Chalmers, 1999:147).

Stacey (1996:2), states that the key to the success of an organisation has to do with the processes of strategic decision-making and action. However, he also maintains that the strategic process of discovery, choice and action, is not a deliberate or intentional one, but that discovery is attained through intuition rather than analytical perspectives. Stacey

(1996:8) further elaborates by stating that managers make unconscious choices rather than intentional ones.

Creativity also involves largely intuitive processes (Couger, 1995:393). In 1973, Mintzberg challenged accepted thought processes concerning the nature of managerial work in strategy, pointing out that successful managers were intuitive in nature and were not concerned with reflective planning. These executives preferred soft information, such as anecdotes, face-to-face communication and intuitive decision-making rather than hard facts and figures. Mintzberg has since developed the idea of "crafting strategy" which advocates using the creative, right-hand side of the brain, rather than the logical left side (Mintzberg & Waters, 1985:259). Due to the intuitive nature of creativity, it may be incorporated into emergent strategic formulation processes, which is a more suitable strategic approach to follow in times of extreme turbulence or organisational change characteristically present in the competitive environment that organisations face today.

The viewpoint of the study is that creativity, when incorporated into an emergent strategy formulation process, can create more numerous opportunities for SCA for organisations than "conventional" strategic management, as creativity is the main source of competitive advantage in terms of differentiation as advocated by (Fabian, 1990:17; Goldenberg & Mazursky, 2002:29; Kajanus, 2000:711; McFadzean, 2002b:463), who indicate that creativity is the supposition of a new, unique or different property or process. These distinctive advantages are only sustainable when they are unable to be imitated by competitors. This study presents a case for the incorporation of creativity into strategy formulation processes in order to obtain these sustainable, inimitable advantages.

However, in the light of adopting a strategic climate that incorporates creativity, there is likely to be an array of organisational barriers, within a working environment, which may prevent creativity from occurring or developing (Berlyn, 1960:3; Amabile & Gryskiewicz, 1989:248; Couger & Higgins, 1993:378) and therefore also inhibit a SCA. These barriers will need to be identified and addressed in order to allow a creative climate to flourish that will facilitate SCA.

Organisations or institutions that in recent years have had a great need for obtaining competitive advantages in turbulent environments are South African higher education institutions. Higher education institutions are organisations that engage in strategy and experience the dynamics of competition. Katz (1999:1) denotes that higher education institutions are, in fact, businesses in the ordinary sense. This statement is reiterated by Kotler and Fox (1995:3), who claim that higher education institutions have learned a great deal about operating in a businesslike manner. This is important in what is increasingly becoming a knowledge-economy – an economy in which information is used in all areas to improve productivity and seek competitive advantage.

This need to operate as a business has had an underlying impact on the survival of public higher education institutions. These institutions not only need to keep abreast of changes in their environments, but also to find an appropriate position for themselves to thrive in these environments (SAUVCA, 2002:6). Breier (2001:3) states that educational institutions are trapped in static competition and need to move into dynamic competition – '*into an institutional scenario of moving and ever changing networks rather than a semi-stable institutional mode*'.

Especially in recent years these South African academic institutions, namely the public comprehensive universities and universities of technology (formerly technikons), have been finding it difficult to sustain advantages in certain academic success or performance areas, namely in measures of output, such as failing to put students through the system and obtain the qualifications that they are registered for. This phenomenon is known as the throughput rate and is a strategic measure of the competitive advantage of the tertiary sector, namely because it allows a significant portion of subsidy to be granted from the South African government for each student that graduates in a certain time period.

Higher education is still publicly subsidised (Breier, 2001:6) and conventional government-funded undergraduate education remains a significant, and for many institutions, a dominant proportion of income (Price *et al.*, 2001:213). Attractive throughput rates are crucial in attracting new students to the organisation (Anon,

2003b:1). Without this competitive advantage, these academic institutions may face the problem of becoming obsolete.

The previous South African Minister of Education, Kader Asmal stated that eighty-five percent of the students who enrol at tertiary institutions in South Africa do not graduate. He went on to say that the throughput rate of only fifteen percent in these institutions was too low and it needed to be increased. There needs to be a much more systematic study of this phenomenon (Anon, 2003a:1).

In one institution it was noted that more and more students in the educational system are not completing their qualifications within the defined period (VTT, 2003:126). The decline in student pass rates and the subsequent cut in government subsidy, make it necessary for these institutions to examine the strategies it should follow to protect their survival and profits (Nkopodi, 2002:74).

Faced also with the current certainty of the forthcoming institutional mergers of higher education in South Africa (Kotecha, 2002:1; Maher, 2003:1), as well as the restructuring of higher education and the future of higher institutions worldwide (Breier, 2001:4), the academic arena is volatile and turbulent. These institutions are in need of an examination of the factors affecting the throughput rate (Anon, 2003a: 1), as well as how to strategically overcome the barriers to creativity that could affect that competitive advantage measure of throughput rate. Performance measures need to be constructed so as to support the academic development initiatives of higher education institutions (SAUVCA, 2002:4).

Research outputs are also a concrete measure of organisational performance, also subsidised and will thus be used as a second, confirmatory measure, along with throughput rates for the purpose of the study as Jinabhai (2003:55) affirms that research forms a fundamental component of the higher education system, as a significant performance indicator. The funding for this category is also of principal concern to the higher education sector, especially since the subsidies given in earlier years to the higher

education institutions which were based on "blind research funding", have fallen away and have become output driven.

1.2 PROBLEM STATEMENT

Prescriptive strategy formulation processes can be imitated by competitors and therefore organisations, such as the higher education institutions referred to in the study will be unable to sustain competitive advantages. Existing strategy formulation processes are potentially too cumbersome to meet the needs of the dynamic and intense competitive environment faced by South African public higher education institutions today.

Creativity should be utilised within a strategy formulation framework because of the inefficiencies that exist within current strategy formulation processes in obtaining sustainable competitive advantages. According to Goffee and Jones (1998:141), in today's organisational environment, creativity is becoming a competitive imperative. However, within the prescriptive strategic processes utilised by many institutions, there may be obstacles or barriers to creativity, which may prevent competitive advantages from being realised.

In other words, the main problem to be addressed in the study is that prescriptive strategy formulation processes omit creativity, and academic organisations will be inefficient in obtaining sustainable competitive advantages (such as increased throughput and research output rates); unless that element is incorporated and the barriers to creativity are overcome.

From this problem statement, a few research questions can be formulated:

1. What are the prevalent prescriptive strategy dimensions and processes being employed by selected South African public higher education institutions?

2. What are the prevalent creativity barrier dimensions that exist within selected public higher education institutions in South Africa?

3. What relationships can be observed between the prescriptive strategy dimensions, the creativity barrier dimensions, and the organisational competitive advantage performance output dimensions of throughput rate and research output in selected South African public higher education institutions?

The assumption is made here that other mitigating factors which can have an influence on those performance measures of throughput and research output rates, will be considered invariable. In other words, all HE institutions will experience those variables and they will therefore be taken as constants.

Specified hypotheses can be made with regard to the abovementioned research questions, namely:

H1: There will be a significant observable relationship between the barriers to creativity and the performance output measures.

H2: Lower performance rates will be associated with those institutions that are using prescriptive strategic management processes.

1.3 STUDY OBJECTIVES

1.3.1 Primary objective

To determine the likelihood of incorporating creativity into strategy formulation processes within selected higher education organisations in South Africa in order to yield sustainable competitive advantages, through the investigation of strategy dimensions, barriers to creativity and their relationship to the throughput rate and research output rates. The aim is to develop a framework for strategically facilitating creativity, which

could be used by academic institutions to improve their performance outputs in this regard.

1.3.2 Secondary objectives

1. To define creativity.

2. To define strategy formulation and distinguish between prescriptive and emergent strategy

3. To define sustainable competitive advantage and sources thereof.

4. To investigate the appropriateness of creativity as an element of strategy.

5. To define the barriers to creativity within organisations.

6. To determine which barriers to creativity are present within selected South African higher education institutions.

7. To explore the relationship between creative barriers and performance output in selected South African higher education institutions.

1.4 RESEARCH METHODOLOGY

1.4.1 Literature study

In the study; creativity, strategic frameworks (emergent and prescriptive), strategy formulation processes, barriers to creativity, competitive advantages, South African higher education and its performance outputs, which were mentioned in the formulation of the problem, have been analysed more profoundly, evaluated, integrated and used in the line of argument.

More specifically, objectives 1 to 5 of the study have been achieved by focusing on the literature review. The rationale identified in objectives 6 and 7 is substantiated and refined through the research design for the empirical phase of the study.

1.4.2 Empirical study

For the study, questionnaires were disseminated to full-time academic staff members in selected public higher education sectors in South Africa. The focus was on higher education institutions only within the Gauteng region, in order to make the study more manageable. Within this region, only institutions that at the time of the survey were not affected by mergers (refer to Section 5.6.2) were included in the sample. These questionnaires were addressed to the full-time academic employees of the institutions (at varying levels) and were distributed throughout different departments, such as Engineering, Applied Sciences and Management Sciences. Judgement sampling was used for the respondents who ultimately answered the questionnaire.

A quota of approximately 50 questionnaires was deemed necessary from each institution to make the survey representative and to undertake the statistical analysis (refer to Section 5.6.4). The creativity barriers and strategy dimensions were pre-determined and analysis was undertaken on the final total of nine of them, including descriptive statistics, analysis of variance and, statistical and practical significance testing. The data surrounding these organisational dimensions was then compared to organisational performance (using the throughput rate and research output rates). This allowed for an exploration of the relationships that existed between the strategy and barrier dimensions and sustainable competitive advantage (throughput rate) in higher education institutions.

1.4.3 Data requirements

The following types of data was gathered for the study:

1. Certain biographical and organisational data.

2. Strategy formulation process data.
3. Data on creativity barriers dimensions.
4. Throughput rate indicators.
5. Research output rate indicators.

Structured questionnaires were used for the gathering of data in this regard. Competitive advantage statistics were obtained from the Department of Education (DOE) South Africa, tabulated and refined for their use in the study.

1.5 DEMARCATION OF THE STUDY

The study area comprised four selected higher education institutions in the Gauteng province of South Africa. Figure 1.1 indicates the demarcation of the study area.

FIGURE 1.1 Demarcation of the study area

Institutions were selected from this geographic region

1.6 LIMITATIONS OF THE STUDY

In order to keep the scope of the study within a manageable range, it was necessary to constrain the problem. One limitation that may be detected in the study is that the focus of the study was primarily on organisational barriers to creativity within the work climate, rather than on intrinsic barriers that may be present within respondent's themselves. Further, the study was confined to the Gauteng province of South Africa within four public higher education institutions. The study was also not a longitudinal study due to the fact that the survey was taken at only one time (data was collected in 2004, therefore the results are representative of that period of time) and no longitudinal comparisons could be done in that respect.

1.7 CLARIFICATION OF TERMINOLOGY

- **Competitive Advantage.** A distinct advantage one competitor may have over another as a result of a superior skill or resource.

- **Creativity.** Concerned with the supposition of all that is new, unique or inimitable.

- **Homogenous.** Refers to a sample group whose characteristics are more or less similar.

- **KEYS.** A survey instrument used to measure the dimensions of a creative climate.

- **Line manager.** The direct chain of command. The person to whom an employee is directly responsible for reporting to. In higher education institutions, this generally refers to a Head of Department.

- **Organisation.** Refers to a company, business organisation or higher education institution. Any profit oriented or non-profit orientated firm can be regarded as an organisation, with an organisational environment and organisational capabilities.

- **Strategic Management.** The actions taken to obtain a competitive advantage by matching external forces and internal characteristics of the organisation.

- **Sustainable Competitive Advantage.** An advantage that one competitor has over another that can be sustained because it cannot be imitated.

- **Top management.** Top executives within an organisation. Refers to the board of directors in a business organisation and to members of the Rectorate in a higher education institution, such as the Rector and Vice-rectors.

1.8 ACRONYMS USED IN THE STUDY

ANOVA	-	Analysis of Variance
CA	-	Competitive Advantage
CCQ	-	Creative Climate Questionnaire
CEO	-	Chief Executive Officer
CHE	-	Council for Higher Education
CPS	-	Creative Problem Solving
DOE	-	Department of Education
FTE	-	Full-time Enrolments
HE	-	Higher Education
HEI	-	Higher Education Institution
HOD	-	Head of Department
MANOVA	-	Multiple analysis of variance
R & D	-	Research and Development
SBU	-	Strategic Business Unit
SCA	-	Sustainable Competitive Advantage
SOQ	-	Situational Outlook Questionnaire
SWOT	-	Strengths, Weaknesses, Opportunities, Threats
USA	-	United States of America
WEI	-	Work Environment Inventory

1.9 GENERAL

- Annexures are placed at the back of the dissertation.
- Tables and figures are placed on the relevant pages in the dissertation.
- Where no sources are mentioned for figures and tables, it refers to own research.

1.10 CLASSIFICATION OF CHAPTERS

Chapter Two of this study presents the portion of the literature review that deals with strategic management, its basic elements, historical background and the process around which it revolves. The distinction between prescriptive and emergent strategic elements is also made in this chapter.

Chapter Three concerns itself with outlining the background and characteristics of higher education in South Africa, as well as a discussion on competitive advantage, sustainable competitive advantage and the related competitive performance measures which can be used within the higher education system in South Africa.

Chapter Four continues with a literature review on creativity, its function and usefulness, as well as the organisational barriers, which may serve as hindrances to the creative process. This is placed in context to the higher education system in South Africa. Previous empirical work on the subject is also reviewed in this chapter.

Chapter Five describes the research methodology used in the study. This includes survey design, sampling procedures and an overview of data gathering and analysis. The statistical methods used to analyse the related data are also discussed in this chapter. Measurement reliability, validity, pilot testing and refinement of the measuring instrument is included in this section.

Chapter Six gives an outline of the results of the primary data that were gathered for the study. The coding, analysis, interpretation and evaluation of the research is presented, including the statistical methods utilised to explore the data.

Chapter Seven gives a final review of the information obtained from the data analysis, as well as the entire study. This includes the conclusions and recommendations that can be made concerning the study. A framework for strategically managing barriers in higher education is presented in this chapter.

1.11 SYNOPSIS

Any organisation, a higher education institution, notwithstanding, needs to stay competitive to survive. However, due to turbulent, changeable environments, organisations may find that the familiar strategic management processes that they may previously have considered effective, may be too cumbersome to adapt speedily to environmental change. Coupled with that, organisations (or HE Institutions as addressed in the study) may experience numerous barriers within their organisational climates that impede the functioning of the organisation creatively, strategically and with regard to performance output and thus also competitive advantage. The study aims to outline the prescriptive strategic management processes employed by selected HE institutions in South Africa, as well as the barriers to creativity which are present within their organisational climates. This information is to be compared to the performance output of these institutions to determine whether or not there are any significant relationships between them.

It is intended from this information to prove that there is a link between creativity and competitive advantage (namely through the use of the performance measures and the barriers to creativity). From this information, a more accurate representation of the environment in HE can be obtained, and a framework will be developed to mitigate barriers in the organisational climates, which can arguably be implemented by HEIs to improve their overall performance and competitive advantage.

CHAPTER 2

STRATEGIC MANAGEMENT AS A PROCESS

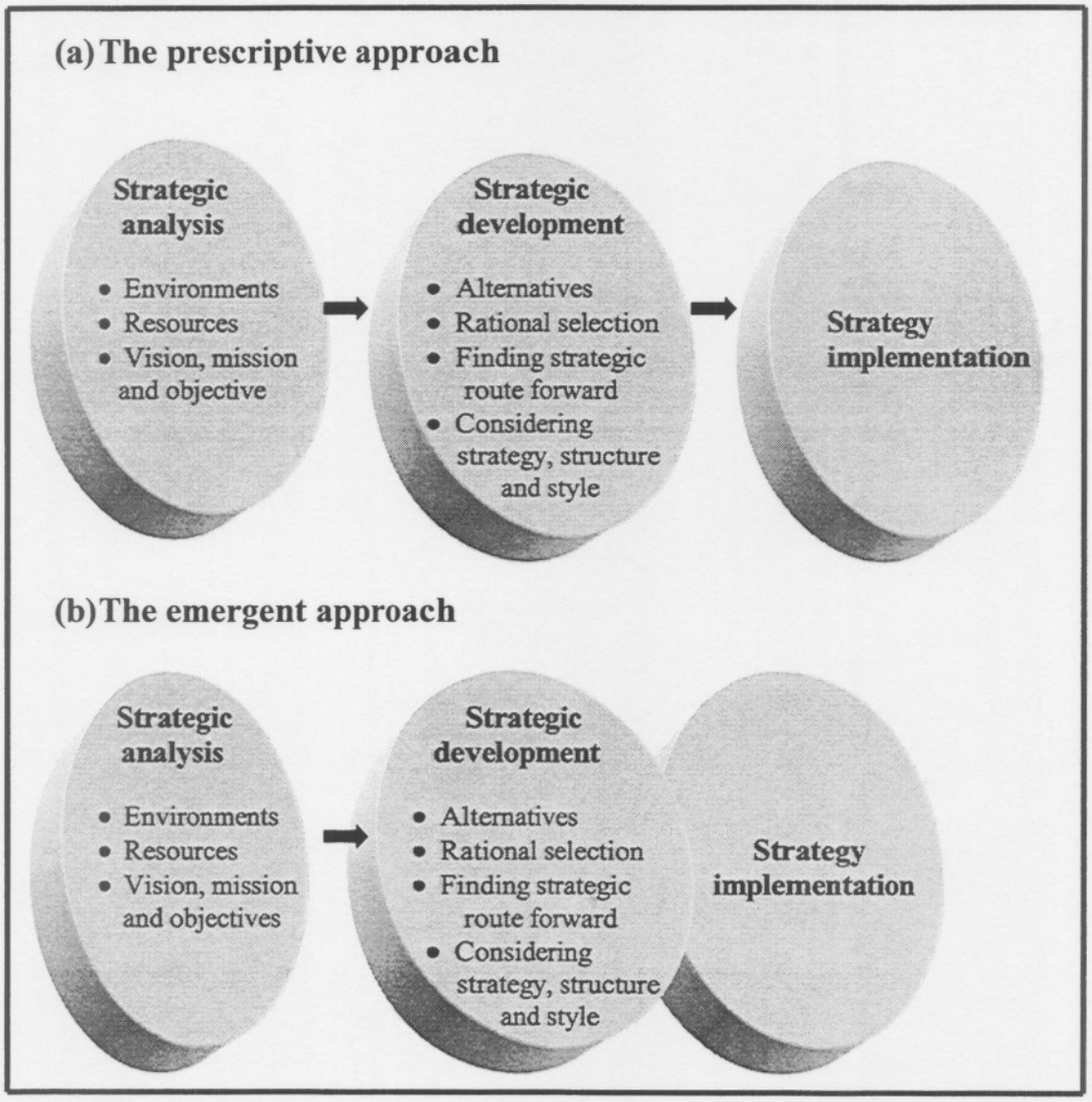
2.1 INTRODUCTION

In over fifty years since the end of World War II, a concourse of managerial intervention techniques have been developed and aimed primarily at organisations, to influence those organisations ostensibly to improve their performance (Stevens, 1997:2). Amongst these organisational interventions is the approach known as strategic management. Strategic management has been hailed as the *game plan management has for positioning the organisation in its chosen market arena, competing successfully, pleasing customers and achieving good performance* (Thompson & Strickland, 1999:2). In essence, strategic management was intended for use as a mechanism to achieve competitive advantages. Mansfield and Fourie (2004:35) state that strategy is the management behaviour concerned with the organisation's creation of sustainable competitive advantage.

Notably, this is an important task at any time. The question arises of whether strategic management is sufficient to achieve these outcomes, in particular the issue of "competing successfully". What does it mean in today's organisational environment to "compete successfully"? Pearce and Robinson (2000:119) and Dess and Miller (1993:200) advocate that organisations need to extend their operations and gain competitive advantages. Competitive advantages make sense as a corporate weapon, but organisations attempting to attain these competitive advantages face multiple economic, social, cultural, legal and political environments, which contribute to the increase in the complexity of the competitive arena. It is evident that the nature of gaining and more importantly, sustaining competitive advantages within the environments that an organisation faces is a complex and multi-faceted issue.

over time. It is embryonic, incremental and unremitting, and therefore cannot merely be summarised in a plan that is then supposed to be implemented. Emergent corporate strategy is a strategy whose final objective is unclear and whose elements are developed during the course of its life, as the strategy proceeds. The theorists of this approach often argue that long-term prescriptive strategies are of limited value (Lynch, 1997:22). An outline of the differences between the two processes is presented in Figure 2.1.

FIGURE 2.1 Prescriptive and emergent elements of strategy



Source: Lynch (2000:25).

2.5 PRESCRIPTIVE STRATEGIC PROCESSES AND MODELS

Authors and theorists advocate certain formal strategic models that indoctrinate the essence of the activities of strategic management. These models in the past have served to give a guideline as to how one would approach strategic planning in an organisation. In the prescriptive strategic management model developed by Byars *et al.* (1996:22), the strategic process is twofold, divided into strategy formulation and strategy evaluation. This model can be seen in Figure 2.2.

Many authors (Robinson, 1986:5; David, 2001:13; Pearce & Robinson, 2003:12) concur with the abovementioned process, but utilise strategy implementation as the second stage in the process, forming the middle ground between strategy formulation and strategy evaluation, known as feedback control (Dess & Miller, 1993:292). Other minor alterations with regard to terminology occur, but consensus is usually reached on the main elements. The derivation of the models from these current literature sources is also integrated into Figure 2.2.

Genus (1995:11) goes a step further, by including the stages of objective setting, gap analysis and strategic appraisal in a linear model for approaching strategic management. This is shown in Table 2.2. These models and processes are generally seen to be prescriptive in nature, based on the reasoning that change can be predicted and managed.

From these models, deductions concerning the processes can be made. Beinhocker and Kaplan (2002:2) note that most annual strategy processes of organisations are little more than rehashed versions of the previous year's presentations. They pose the question of how organisations can reform the process in order to get the results they require. They advocate that the answer lies in rethinking the process by which strategy is made. This study aims to examine the process by drawing a comparison with emergent strategic processes, attempting to determine whether prescriptive or emergent strategic approaches will be most constructively employed within those higher education institutions selected for the study.

In today's turbulent environments, the competition amongst organisations has gone beyond the superficial level, that is, traditional competition at the level of ultimate products. It has become increasingly obvious that competition is multi-layered, which implies a hierarchy of competition. The various layers of competition can all be attributed to the level of strategic intent or company vision. However, there are large gaps within this strategic intent that can impede an organisation from achieving competitive advantages.

An organisation, which wants to build advantages at an operating level of strategic intent, has to predict accurately the strategic assets needed as well as the core competences required in the future (Yonggui & Lo, 2002:39-40). Competition has increased for many reasons, one being due to the constantly changing and uncertain environment. In order to survive in this competitive market, higher education institutions (the focus of the study), must improve and sustain their competitiveness. Other public organisations and government departments have attempted to do this and those involved in higher education should follow suit (Nkopodi, 2002:74).

This multi-faced level of competition within the organisational environment is linked to the unpredictable nature thereof. The competitive environment invariably changes. According to Hamel and Prahalad (1994:5), the painful upheavals in so many organisations in recent years reflect the failure of leaders to keep up with the accelerating pace of change. Few organisations that began the 1980s as market leaders ended the decade with their leadership intact and undiminished. Organisations experienced the erosion or destruction of their success, brought about by the magnitude of technological, demographic and regulatory changes and, productivity and quality gains made by non-traditional competitors, that is, those competitors who were gaining competitive advantages through alternative means.

From the abovementioned, it can be inferred that organisations using conventional strategies are not necessarily able to sustain the advantage they have over competitors. The question can be asked in the face of this competitive pressure and inability to sustain

strategy: "What can be done differently in an organisation's strategic management process which will result in an improvement in sustaining competitive advantages?" This chapter will serve to shed some light on this premise, by providing a literature study about the nature and perspectives of strategic management and the schools of thought that surround its development, whilst also giving a historical overview on the progression of strategic management theory, which contributes to the formulation of the concept of strategic management. It is necessary to gain some insight into the elements of strategy, so the sections concerning formalised and emergent strategic processes will highlight various strategic models in this regard. Synonymous elements of the models will be extracted and integrated, primarily to indicate which differences exist amongst the varying schools of thought regarding strategy formulation processes.

2.2 APPROACHES TO STRATEGIC MANAGEMENT

Many contradictory arguments exist over what corporate strategy consists of, mainly due to the complexity of the subject matter. An overall distinction can be made between two main approaches concerning corporate strategy development (Lynch, 1997:22). These approaches can be summarised as follows:

- **The prescriptive approach**

Some commentators have assessed corporate strategy in terms of it being a linear and rational process, starting with "where-we-are-now" and then developing new strategies for the future. A prescriptive strategy is one whose objective has been developed before the strategy commences (Lynch, 1997:22).

- **The emergent approach**

Processes cannot generally be fully controlled or planned (Beeson & Davis, 2000:181), and in such cases an emergent approach is often required. This approach emphasises the view that corporate strategy emerges, adapting to human needs and continuing to develop

The prescriptive approach views the three stages as sequential and prescribed in advance, whereas the emergent approach views the areas as being inter-related. Corporate strategy is then developed through an experimental process, involving trial and errors (Lynch, 1997:24). It is clear that one cannot follow the other. They will overlap. The more intuitive, emergent approach centres on developing a strategy that interacts with the external environment and the internal competence of an organisation (Marlow, 2000:138). Emergent organisational systems are different from planning and control systems. They rely on different world views, imply different theories of organisational change, suggest different means of organising, require different tasks of management and emphasise different dimensions of strategy (Hench, 1999:373).

Both schools of thought require a process; emergent strategy merely involves changing an organisational philosophy from attempting to adapt to a predictable future, to flexible and speedy responses to a changing present (Smit, 1999:6). The process of strategic management will thus be laid out with regard to the prescriptive strategic management process, which is still the focus of most authors on the subject. An assumption is to be made here, that emergent strategy still follows elements of the abovementioned process. A discussion regarding the differences and uses of emergent strategy will be continued in Section 2.6.

2.3 DEFINITIONS OF STRATEGIC MANAGEMENT

A variety of characteristics may reflect the concept of strategy and the main elements of strategic management theory and practice. It may be useful to consider these characteristics alongside definitions of strategy and strategic management. These definitions will be given to broadly illustrate the concept of strategy, rather than to provide a concise, concrete or complete statement of what strategy and strategic management is.

Thompson and Strickland (1999:25) define strategy as *the actions and approaches organisational leaders employ to please customers, build an attractive market position,*

and attain organisational objectives. When used in the context of the organisation as a whole, strategy describes the way in which an organisation can pursue its goals, taking into account the threats and opportunities in the environment and the resources and capabilities of the organisation. As suggested by this definition, three factors that have a notable influence on strategy are the external environment, the internal resources available and the goals that are being pursued (Byars *et al.*, 1996:4-5).

To encapsulate this: an organisation's strategy provides a rudimentary understanding of how the organisation will compete. Strategic management is the process by which the top management structure will attempt to determine the long-term direction and performance of the organisation by ensuring that meticulous formulation, effective implementation and continuous evaluation of the strategy takes place (Byars *et al.*, 1996:5). This is also true for higher education, with institutions functioning largely like other business enterprises (Levy, 2002:29).

Strategy can be seen as the matching of the activities of an organisation to the environment in which it operates. Johnson and Scholes (1999:5) describe this as the search for "strategic fit". They also further expand on the concept of what a strategic decision is likely to entail, namely that the long-term direction of the organisation will be affected by such a decision. Strategic decisions are concerned with trying to achieve an advantage for the organisation, whatever that advantage may be and strategic decisions are likely to be concerned with the scope of an organisation's activities.

The original definition for strategy created by the McKinsey consulting firm is *an integrated set of actions designed to create a sustainable advantage over competitors* (Anon, 2000).

Strategic management can be defined as the set of determinations and actions that result in the development and implementation of plans designed to achieve the objectives of the organisation (Pearce & Robinson, 2000:3).

Strategy is derived from the Greek word *strategos,* which means "generalship". The word is used in the military sense as the plan of a general to overpower the enemy (Kroon, 1997:135). In other words, traditionally organisations use strategies to overcome "the enemy", namely their competitors, taking their own capabilities and situation into consideration.

From the above definitions, the following characteristics with respect to what strategy is can be derived:

- Strategy is a plan of action
- Strategy is a decision-making tool
- Strategy is a positioning indicator
- Strategy is a competitive weapon
- Strategy is a method for achieving organisational objectives
- Strategy is an evaluative mechanism

Although there may be some debate amongst authors about what constitutes prescriptive strategy and strategic management, it seems inarguable that the concept concerns itself with obtaining a match between the internal capabilities and processes of an organisation and its external environment in order to achieve the objectives of the organisation. For this study, the definition concerned with the actions taken to obtain a competitive advantage is best suited to the purpose at hand and will be the definition used as the yardstick for the duration of the study.

An examination of where strategy has come from to where it is presently, may shed some light on the subject at hand.

2.4 HISTORICAL PERSPECTIVES

Prior to the 1960s, in the first half of the twentieth century, the strategic response of many organisations was evolutionary and incremental. The only difference adopted in the

strategic planning done by organisations was to extend the usual one-year budgeting process to include five-year operating plans and perhaps a long-term forecast (Genus, 1995:38). Koch (1995:4) claims that the study of strategy and the intellectual foundations of strategic thinking can be traced back to Chandler, who was influential in the late 1950s by indicating in his work that organisations should develop their strategy before deciding their structure. An argument can be made that Drucker (1946) began the process much earlier in his book, *Concepts of the Corporation*, which concluded that successful organisations were centralised and goal-oriented. The acceleration of growth in most industries made it attractive for the management of organisations rather to minimize investment in innovation and concentrate on making profits from the strategic positions they established at the start of the century.

2.4.1 1960s: Production-orientation

In the 1960s, industrial economics continued to be dominated by the structure-conduct-performance paradigm (Kay, 2000:7) and evolved with a new focus on strategy in the academic arena (Koch, 1995:4). This gave emphasis to the concept of market structure, the number of competitors and the degree of rivalry between them being the main influences on an organisation's behaviour. Kay (2000:7) states that there needed to be a metamorphosis of thought regarding this outlook at the time, as it was correctly seen as having little relevance to the primary issues of business strategy. The only elementary strategic requirement of the time appeared to be efficient production of the volumes demanded. This led to mass production and internal expansion in order to capitalise on economies of scale.

Organisational growth through diversification or acquisition became favoured, a trend which may have contributed to the growing divisiveness of organisations during this period (Genus, 1995:38). Some of the organisational sociology of the 1960s did address strategic issues. Chandler's *Strategy and Structure* (1962) and the empirical work of Burns and Stalker (1961), directly addressed the relationships between organisational form and the dependencies on the external technological and market environments. The

work of Ansoff (1965:25-48) became a significant guide for strategic planning; outlining planning for a firm's objectives, expansion plans, product-market positions and resource allocation. But perhaps the most important development in the history of strategy was the founding of the Boston Consulting Group in 1964. The operation started off modestly, but by the end of the decade, the firm became cogent, combining intellectual innovation and boardroom consulting. This heralded the invention of the *experience curve* and the *growth/share matrix* (Koch, 1995:4). These developments are still utilised today in various circles.

2.4.2 1970s: Increased competition

Thirty years ago, when the content of strategy was first realised, industrial economics was dominated by the structure-conduct-performance paradigm, which emphasised how market structure – the number of competitors and the degree of rivalry between them – was the principal influence on an organisation's behaviour. Market structure was determined partially by external conditions of supply and demand and partly by the action of organisations, which attempted to influence the intensity of the said competition (Kay, 2000:7).

The oil crisis of 1973/74 effectively ended the period of general economic stability and growth of the previous two decades. This produced a period of very high inflation in many Western economies during the 1970s. Organisations were now faced with a lower level of consumer demand and possible recession. New competitors were emerging, particularly from South East Asia and Japan, having greater attention to customer needs and product quality. Overall, the response to these changing circumstances was one of increased analysis concerning future strategy, based on a number of strategic planning concepts and techniques that had recently been developed (Genus, 1995:38-39). Further intellectual development in management theory continued in this period with the contribution of *The nature of managerial work* by Mintzberg (1973) and *Strategic Management* (originally printed in 1979) again by Ansoff (1982:125-150), which followed primarily prescriptive approaches to strategic management.

2.4.3 1980s: Competitive strategy

A publication by Ohmae (1982:7), *The Mind of the Strategist,* described how Japanese companies had benefited by using strategy. He further explained how strategy is the most effective when it combines analysis, intuition and willpower. This decade also saw the publication of Porter's *Competitive Strategy,* which provided a useful description of industry structure and the competitive forces at work within them. Porter (1980:3) explains that the structural determinants of industry competition control the intensity and complexity of the competitive situation.

2.4.4 1990s: Capabilities of organisations

Kay (2000:7) explains that *The Strategic Management Journal* – today the leading journal in the field was established. The currently dominant view of strategy – resource-based theory – was principally set out in its pages. It delineates the determination of economic rent, and the view of the company as an assemblage of capabilities. Economic rent is what an organisation earns over and above the cost of the capital employed in an organisation, in other words, it is a measure of profitability. Economic rent is the measure of the competitive advantage that an effective established company enjoys. This is surely the goal of any organisation manned for profit today. Prahalad and Hamel's work (1990) entitled *Core competence of the corporation* reiterates the above notion of maintaining resource competencies to allow for opportunities for increased profitability and sustainable competitive advantage (SCA).

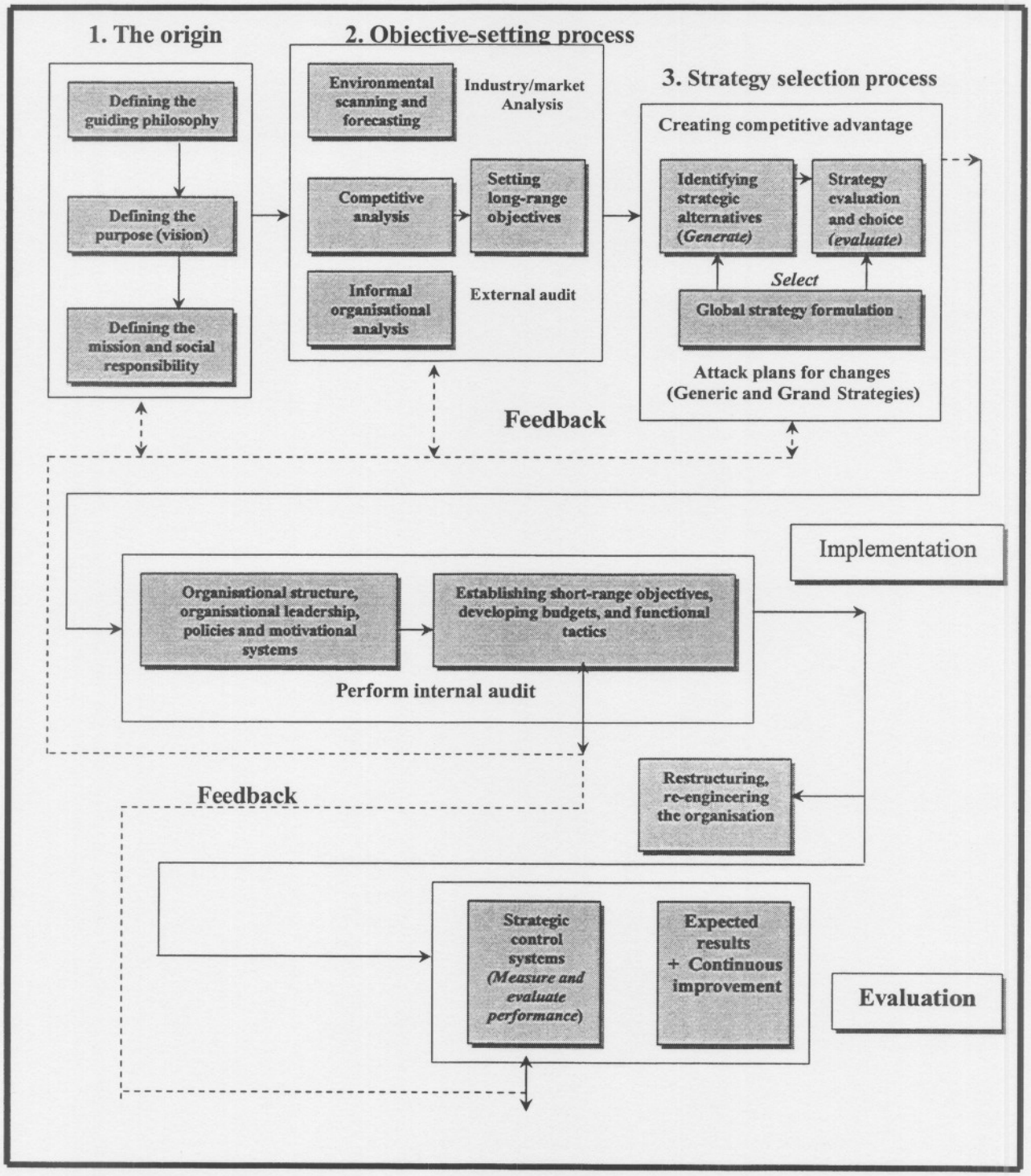
The typology of the abovementioned selected strategic contributions is summarised in Table 2.1. When following the historical events as summarised below, it can be seen that common to each of the historical perspectives is the change factor. Many organisations had to react to circumstances that changed, which were not originally planned for in their prescriptive strategic approaches (Lynch, 1997:22). This approach was originally pointed out in the work of Schumpeter (1942:83), who lays a foundation for this viewpoint, particularly regarding his view of the organisation and the phrase that he coined of

"creative destruction". He maintained that the process that drives a capitalistic system comes from the proponent of newness, in terms of new consumer goods, new methods of production or new markets. This process revolutionises the economic structure from within, demolishing the old one and creating a new one. This system was constantly seen to be in a process of flux and change, rather than tending towards a perfectly competitive equilibrium state (Phillimore, 2001:24). These historical perspectives are outlined in Table 2.1

TABLE 2.1 A selection of the contributions to the development of the concept of strategy

Author(s)	Contribution
Drucker (1946)	❑ Centralised, goal-oriented organisations
Chandler (1962) Burns & Stalker (1961)	❑ First concentrate on strategy then structure ❑ Relationships of organisation to its environment (technological and market)
Ansoff (1965)	❑ Strategic planning, expansion, resource allocation
Boston Consulting Group founded (1964)	❑ Innovation, experience curve, growth-share matrix
Mintzberg (1973) Ansoff (1979)	❑ Organisational functioning and development in light of extreme competition
Ohmae (1982)	❑ Benefits of strategies using analysis, intuition and willpower
Porter (1980)	❑ Competitive forces and controlling intensity of industry competition
Strategic Management Journal (1990)	❑ Ricardian approach to economic rent and profitability, organisational capabilities
Hamel & Prahalad (1990)	❑ Focus on resource competencies to obtain SCA

FIGURE 2.2 A model of strategic management



Source: Robinson (1986:5); Byars *et al.* (1996:22); David (2001:13); Pearce & Robinson (2003:12)

TABLE 2.2 A linear model of strategic management

STAGE	*ACTION*
Objective setting	Decide on objectives; define performance targets; Use forecasts to estimate gap between performance on existing strategy and targets set above
⬇	
Gap analysis	Perform external/internal analysis to evaluate current competitive standing. Alter targets/objectives if necessary.
⬇	
Strategic appraisal	Generate alternative options
⬇	
Strategic formulation	Evaluate the options and select a strategy
⬇	
Strategic implementation	Detail action plans and resource requirements; monitor and control strategy

Source (Genus:1995:11)

Each of these components of the strategic management process will now further be discussed and explained with regard to their relevance to the study. It should be noted that when referring to the prescriptive process below, it is assumed that the emergent approach, whilst more intuitive and adaptive in nature, still utilises the core principles of a prescriptive process. The final objective is unclear and the prescriptive elements are utilised, but developed during the course of events as the strategy unfolds (Lynch, 1997:52).

2.5.1 An organisation's core philosophy and purpose

From beginning to end, strategic planning should always be done with the "big picture" in mind *i.e.* a strategy map and vision of the business (Herholdt, 2002:117). In other words, with regard to the final outcome of strategic planning, organisations should not lose sight of their original philosophy and purpose. The term refers to the basic

philosophies of an organisation that people are expected to adhere to (Bower, 2003). Robert (1993:25) proposes that the original vision of the top management of an organisation is the driver for strategy, but that the vision needs to be formulated and articulated by means of a process of *strategic thinking,* which should enable the vision to be communicated to the other key managers within the organisation.

Strategic thinking is not a replacement for strategic planning. Strategic thinking is the process, which takes place in the minds of the top management of an organisation and of the key employees around them, which helps them to determine the direction of the organisation at a future point. There will need to be a clear indication of what the organisation should look like in the future.

This philosophy or vision can usually be summed up in the mission statement of an organisation. Powers (1992:249) defines a mission statement as a mechanism for defining an organisation's purpose or reason for existence. An event is recalled in which a vice-president of a large financial group wanted to change the way in which the organisation operated. He brought his thirty-six top-level managers together to indicate what type of organisation they wanted. He asked each manager to define the organisation's purpose and at the end of the exercise he received thirty-six different purposes, as each manger had defined the purpose of the organisation in terms of their own positions and interests. If organisations have lost sight of the real purpose of the organisation, that organisation is unlikely to fulfil that purpose. Organisations should also develop a unique statement of intent. Having a mission that is the same as every other organisation's mission, does not allow the organisation to see any long-term advantages for itself as opposed to its competitors (Lynch, 1997:415).

Robert (2000:90) expounds on this statement by highlighting the ineffectuality of irrelevant mission statements. He states that for over twenty years, organisations have published mission statements as instruments to give themselves a sense of direction and as tools to empower employees to make intelligent decisions on their behalf. However, many of these statements are exceedingly vague, without indicating what their primary

purpose is. The organisation that cannot formulate its unique purpose or business concept will be unlikely to achieve satisfactory performance results from their strategies (Tay, 2003:26).

Without a clear mission statement, it is virtually impossible for an organisation to develop objectives and strategies (Byars *et al.*, 1996:13). In reality, according to Robert (2000: 90) very few organisations manage to formulate a meaningful mission statement.

Without this statement of purpose, an organisation may find itself without any sense of direction. Defining the guiding philosophy of an organisation is the first step in the strategic management process of an organisation. The fact that many organisations fall short at this juncture, further compounds the inefficiency of prescriptive strategic management processes.

2.5.2 The objective-setting process

Before objectives can be set a thorough analysis of the environments an organisation faces, would have to be obtained. If this is not done, organisations may have no meaningful outlook of the environmental forces that may have an impact on the future functioning of the organisation (Johnson & Scholes, 1999:97). Organisations following an emergent strategy have an idea of the problem or objective, but will try various scenarios without a final objective in mind (Lynch, 1997:53).

2.5.2.1 Environmental scanning and forecasting

Environmental scanning involves studying and interpreting the sweep of environmental forces and events in an effort to spot emerging trends and conditions that could become strategic drivers (Thompson & Strickland, 1999:89).

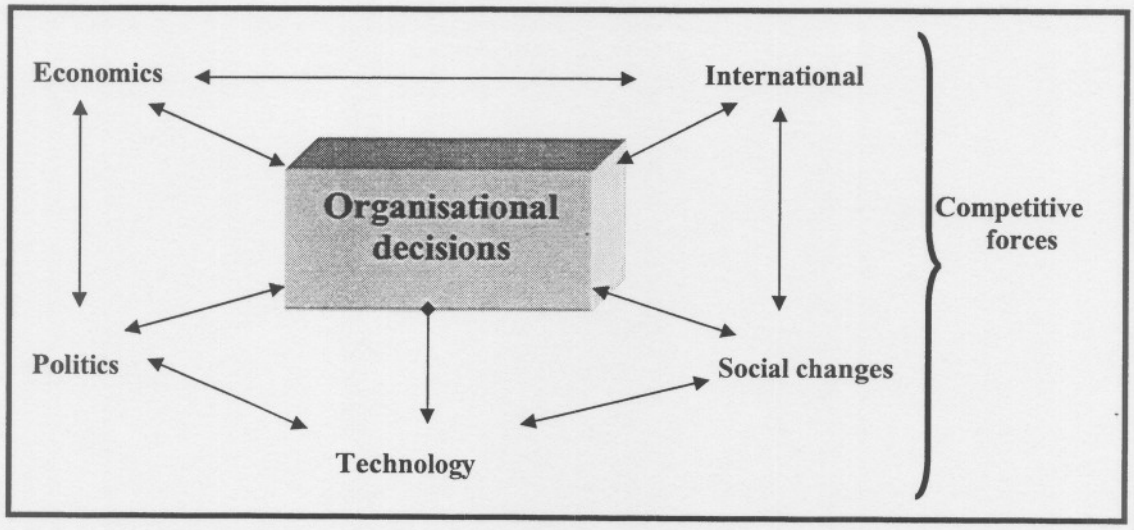
There are various forces in the environment that are examined within the strategic management process, as a means to effective planning. Both prescriptive and emergent

approaches to corporate strategy consider an organisation's ability to understand its environment (Lynch, 1997: 87).

The external forces can be divided into five broad categories, namely: economic forces, social forces, political forces, technological forces, and international forces. Guth (1985:35) portrays the forces in the business environment as parts of an integrated whole, being impacted by competitive forces as outlined in Figure 2.3. This depiction of external events and trends is generally accepted as being accurate for all products, services, markets and organisations in the world (David, 2001:76).

Due to the volatile nature of the external environment, it becomes essential for organisations to equip themselves to cope with the challenges precipitated by external environmental forces. This may involve intense scrutiny of the strategic approaches being employed by an organisation to ascertain whether they will be sufficient to navigate the consequences brought about by environmental events. The nature of these events will be discussed in detail, to give further insight into the convolutions faced by organisations.

FIGURE 2.3 Interconnections in an organisational environment



Source: Adapted from Guth (1985:35)

2.5.2.2 The economic environment

A wide variety of economic forces in the external environment can significantly influence organisations. These economic factors are concerned with the nature and direction of the economy in which a firm operates. Because consumption patterns are affected by the relative affluence of various market segments, in its strategic planning process each organisation should consider economic trends in the segments that affect its industry (Pearce & Robinson, 2003:71).

Not all economic forces affect all organisations equally. The exact nature of the organisation and industry determines the specific factors that influence an organisation. These forces can be grouped into three broad categories: current conditions, economic cycles and structural changes. These categories will affect all organisations. Current economic conditions are important in determining how prices may rise due to inflation, for example. Current conditions are not static and will not necessarily predict what future economic conditions will look like. Perhaps the most difficult but critical thing to understand about economic conditions is, how to determine whether structural changes are taking place. Structural changes are those changes that significantly affect the dynamics of economic activity now and into the future (Black & Porter, 2000:74).

This understanding of structural changes is potentially the most important and most difficult aspect of the economic environment, which a strategy maker might have to deal with. Within the context of continuous change, it may well be impossible to predict such changes, leaving the strategy maker with the unenviable task of trying to navigate the way through an environmental minefield. In today's competitive climate, organisations need to pre-empt environmental events proactively (Rafii & Kampas, 2002:123).

2.5.2.3 The social environment

Although organisational managers may have a natural inclination to concentrate on economic forces, socio-cultural forces are also important, for example in the categories of

demographics and values. Demographics are the descriptive elements concerning people in a market segment, such as age, level of education and literacy. These simplified demographics can significantly affect both an organisations inputs and outputs, in terms of the standard of employees an organisation can procure to the opportunities presented by changing demographics of a market segment of an organisation.

The social environment also includes culture as a facet, which influences an organisation's operating practices. Culture consists of specific learned norms based on attitudes, values and beliefs, all of which exist in every society. (Thompson & Strickland, 1999:335). Although it is not easy to isolate culture from other factors such as economic and political conditions, considerable evidence exists to show that some aspects of culture differ significantly amongst various population groups and has a substantial impact on how organisational affairs should be conducted (Hough & Neuland, 2001:73).

Along with culture, diversity of people, whether in an organisation's workforce or within their target market will also have an impact. Benlabbah (2002:414) defines diversity as differences in race, ethnicity, gender, religious beliefs, sexual orientation, disability, veteran status, age, national origin and personal perspectives. These factors also contribute to the complexity of the changing environment that organisations find themselves in today.

2.5.2.4 The political environment

There are often external conditions that influence organisations; government regulations, employee groups' demands, environmental controls and community standards, for example. Some influences are industry specific – for example airline deregulation, others may be worldwide and far-reaching for all organisations (Dormant, 1992:174). The local, national or foreign governments are key regulators, deregulators, subsidisers, employers and customers of organisations. Political, governmental and legal factors can therefore represent major opportunities or threats for both small and large organisations. For industries that depend mainly on government contracts or subsidies, such as higher

education institutions (Price *et al.*, 2001:213), political forecasts can be the most important part of environmental scanning for that organisation. Changes in laws, tax rates and lobbying activities can affect organisations significantly.

Furthermore, the increasing global interdependence amongst economies, markets, governments and organisations makes it imperative that firms consider the possible impact of political variables on the formulation and implementation of competitive strategies (David, 2001:85).

Due to the changing nature of the political spectrum, organisations have to spend more time considering political forces and turbulence for the impact that this has or potentially may have on the organisation's future operating capacity. David (2001:85-86) is of the opinion that strategists today must possess skills to deal more legalistically and politically with such matters than previous strategists, whose attention was focused more on other environmental forces, such as economic matters or technical capabilities of the organisation. He also states that strategists today are spending more and more time anticipating and attempting to influence public policy actions. In addition, they spend more time meeting with government officials, attending hearings and government-sponsored conferences, giving public speeches and meeting with trade groups, industry associations and government officials.

2.5.2.5 The technological environment

Technological forces can have superior or devastating effects on organisations. A specific technological innovation can spell the growth of one firm and the decline of another (Black & Porter, 2000:78). The technological environment may be quite complex, but strategists and business leaders need to continually be aware of technological changes. Unfortunately, business leaders often do not understand how technology can be made to work (Whateley, 2001:77). According to Dess and Miller (1993:39), firms in the United States of America are often slow in becoming aware of significant technological advances, such as important inventions, improvements in

manufacturing processes, and innovations in fabricating or assembling products. By contrast, many Japanese firms consider global scanning for technological insights to be a critical means for improving their technological expertise.

All organisations feel the effects of technological progress, but the dramatic shifts in technology that render whole sectors of the economy almost obsolete are rare. Foreseeing technological change is probably not as critical a skill for the strategist as choosing the proper time frame for reacting to and determining the implications of changes. It is less important to monitor every potential change that may affect the organisation than to consider only several of the most important changes. Most often, technology can be an enabler, rather than a strategic driver (Byars *et al.*, 1996:37-38).

As suggested, technology may not be a strategic driver, but rather a secondary facet of environmental scanning. It may be more important for strategists to focus on technology merely as a means to an end, rather than as the sole intention of an organisation.

2.5.2.6 International environment and globalisation

Globalisation is eliminating those market and industry structures which have defined the nature of competition in the past (Bryan, 2002:3) and shifted the power base for organisations (Nauman, 1995:11). It can be viewed as a state of affairs where political borders become increasingly more irrelevant, economic interdependencies are heightened and national differences due to dissimilarities in societal cultures are central themes that dominate business (Kedia & Mukherji, 1999:232).

This heightens the complexity of the situations that strategists face within organisations. Pooe (2000:128) advocates that the debate is not whether globablisation and international considerations are good or bad, but that rather than denouncing it, intelligent critics would be wise to seek to shape its future economic and political direction.

2.5.3 Organisational analysis

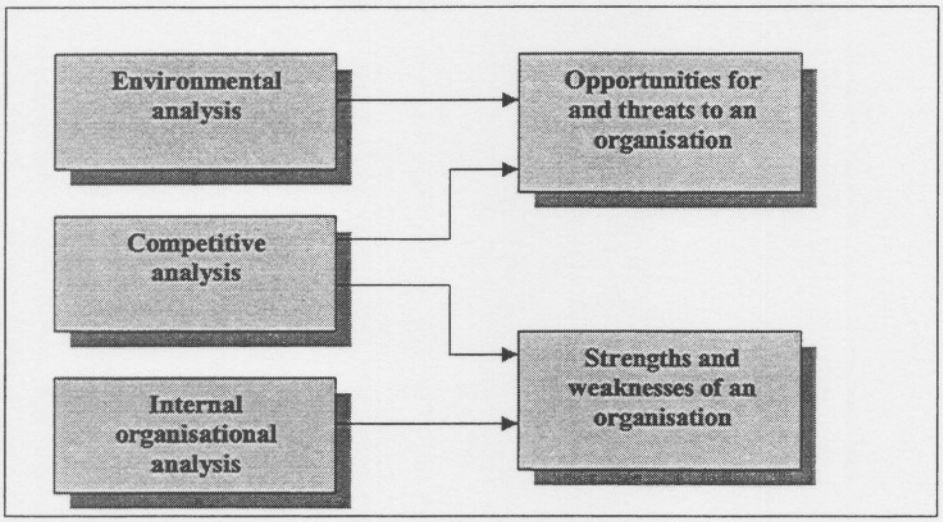
Within the prescriptive strategic management model, environmental forces are considered important due to the insight and knowledge that is offered to strategists through analysing them. It is advocated that within this environmental scanning mechanism, apart from a thorough resource analysis, organisations should also do a SWOT analysis, which is a dissection of the organisation's strengths, weaknesses, opportunities and threats within the organisation's environment.

Thompson and Strickland (1999:104) and Pearce and Robinson (2000:204) state that conducting a SWOT analysis provides a good portrayal of whether an organisation's position is fundamentally healthy or unhealthy. A SWOT analysis follows the basic principle of producing a good fit with an organisation's resource capabilities and its external situation through strategy-making efforts. Johnson and Scholes (1999:190) add that a SWOT analysis should provide useful strategic insights. Figure 2.4 outlines a SWOT analysis in relation to an analysis of market forces.

As part of a strategic process, a SWOT analysis is prescriptive in terms of laying out strengths, weaknesses, opportunities and threats. However, in times of turbulence, merely listing the attributes of an organisation may not be sufficient. In a case study article done on E-Lifts, an Australian subsidiary of a leading global elevator manufacturer, an analysis of strategy formulation methodology was done. It was found in the face of globalisation, industry consolidation, increasing customer expectations and excess manufacturing capacity, that the organisation was finding it increasingly difficult to deliver shareholder value. It was found that a new strategy was required and that new opportunities and threats would be found within a changing economy (Xavier & Hunt, 2002:56).

In other words, due to the changeable nature of environmental conditions pointed out previously, a traditional SWOT analysis will be constantly changing and new strengths, weaknesses, opportunities and threats will continually be coming to the fore.

FIGURE 2.4 Relationship between market forces and SWOT analysis



Source: Byars *et al.*, (1996:34)

2.5.4 Establishing long-range objectives

Strategists should not overlook the necessity of maintaining the long-run viability of their organisations, whilst being aware of the short-run consequences of the decisions they make (Dess & Miller, 1993:5). It is important for an organisation to establish where they would like to be in the future by establishing long-range objectives.

The concept of long-term objectives is defined by David (2001:11) as the definite outcomes an organisation seeks to achieve in pursuing its basic mission. These objectives are fundamental to the success of the organisation by giving direction, aiding in evaluation, creating synergy, revealing priorities, focusing co-ordination and controlling activities. Strategic managers recognise that short-run profit maximisation is rarely the best approach to achieving sustained corporate growth and profitability (Pearce & Robinson, 2003: 155). The setting of long-term objectives is an important fundamental of the prescriptive strategic management process (Cronje *et al.*, 1998:112).

2.5.5 Identifying strategic alternatives

In theory, an organisation utilising the prescriptive process will have a given set of alternative strategies to choose from, whether growth intensive or focused on withdrawal. These may subsequently be utilised in achieving certain basic objectives such as growth or disinvestments for an organisation, as advocated by theorists depending on the stage of the industry life cycle they might find themselves in (Porter, 1980; Dess & Miller, 1993: 112-136; Hitt *et al.*, 1997:12; Greiner, 1998:3-11; David, 2001:164-184; Pearce & Robinson, 2003: 162-176). An organisation may choose from a set of generic strategies. They are namely: differentiation, low cost and focus strategies.

- **Differentiation.** The concept of differentiation is an important strategic concept and cannot be overlooked as the basis for competitive advantage. Porter (1997:50) points out that a fundamental mistake made frequently by organisations is an attempt to apply a universal strategy. He maintains that it is not merely a question of an organisation being better at what it does, but a matter of being different at what it does.

- **Low cost strategy.** Should usually be pursued in conjunction with differentiation and striving to be the cost leader in an industry can be effective when the buyers in the market are especially price-sensitive (David, 2001:181).

- **Focus strategy.** Organisations are rarely able to pursue more than one strategy as their primary basis of advantage, although a focus strategy may consist of either cost leadership or differentiation (Genus, 1995:90) and when applied to a small market niche implies a focus strategy of either of the first two generic strategies (Hough & Neuland, 2001:275).

- **Hybrid strategy.** A further deduction regarding the three strategies is highlighted by Johnson and Scholes (1999:281), who indicate that a hybrid strategy seeks to achieve differentiation, but also to offer it at a price lower than competitors can. It should be

ensured that an organisation has a cost base that allows for low prices and should not be confused with merely attempting to keep costs down in general.

Additional sub-strategies, often referred to as grand strategies, may be used at various stages in an industry life cycle to expand, disinvest or as cautionary strategies. There are fifteen primary grand strategies that are generally identifiable by theorists. The first eight are considered to be growth or expansion strategies in the prescriptive process. They can also be utilised in the emergent strategic approach, being more adaptive in nature, might try several of the strategies before finding one that works (Lynch, 1997:86).

- **Concentrated growth.** Focuses on a single product or service and involves increasing market share more fittingly than in the past (Byars *et al.*, 1996:110-111).

- **Product development.** A core competence for organisations is the ability to analyse and understand the changing needs of a particular group of customers or clients. Strategic product development can be built around such a core competence. It involves the adaptation of a product or an addition to a product line. In the long run, product development is unlikely to be sustainable without the acquisition of new competences (Johnson & Scholes, 1999:318-319). With reference to the Sizzler chain of restaurants, after difficulties they experienced, it was noted, that a new concept is only superior for two or three years before it must be revitalised in some manner (Collins, 1996:2).

- **Market development.** This strategy concentrates on marketing present products, often only with minor modifications, to clients in related market areas by adding channels of distribution or changing advertising or promotion mechanism. It is the least risky of the grand strategies (Pearce & Robinson, 2003:165-166).

- **Innovation.** Innovation may involve rewriting the rules of the game, innovating technologically, higher service levels or even partnerships and may represent a viable option for firms in some industries (Lynch, 2000:170-171).

- **Horizontal integration.** Refers to the strategy of seeking increased control over an organisation's competitors. The increased use of horizontal integration as a growth strategy is one of the most significant trends in strategic management today. These may take the form of mergers, acquisitions and takeovers (David, 2001:168). An observation regarding this scenario was made by Davidson (1987:45), who stated that the trend of leaning towards horizontal integration seemed to reflect the concerns strategists have about their ability to manage many unrelated businesses. Mergers between direct competitors are more likely to create efficiencies than mergers between unrelated businesses, because there is less chance for duplication and more chance for synergy.

- **Vertical integration.** May be used to describe either backwards or forwards integration into adjacent activities in the value chain (Johnson & Scholes, 1999:326). For example, a timber merchant may decide to acquire a furniture retailer as a means of forward integration in the value chain.

- **Concentric diversification.** This involves diversifying into a business which is related to the organisation's core activities where a profitable use for existing knowledge-based assets can be found, such as technology, business intelligence, marketing knowledge, brand names, and the like (Dickson, 2000:131).

- **Conglomerate diversification.** Conglomerate diversification involves the extension of an organisation's activities into entirely unrelated activities in its extreme form, in which there is little or no discernable synergy with current organisational activities. This activity is often linked with growth through acquisition and the risks that this might involve (Genus, 1995:94).

- **Turnaround.** A turnaround strategy is designed to reverse a negative trend and get the organisation back on the track to profitability. Turnaround strategies generally attempt to obtain a reduction in operating costs, either by cutting excess or reducing the size of operation (Byars *et al.*, 1996:122).

- **Divestiture.** Divestiture involves selling off a division or part of an organisation. This method is often used to raise capital for further strategic acquisitions or investments (David, 2001:175).

- **Liquidation.** When liquidation is the grand strategy, the organisation is typically sold in parts, only occasionally as a whole – but for its material asset value and not as a going concern. Liquidation may be seen as admitting failure and on this premise, it is the least attractive of the grand strategies (Pearce & Robinson, 2003:176).

- **Bankruptcy.** In some cases, bankruptcy can be an effective type of retrenchment strategy, which allows an organisation to avoid major debt obligations and to void certain contracts (David, 2001:174).

- **Joint ventures.** Joint ventures are a useful way to gain access to a new business, in that it is a profitable way to do something that is uneconomical or risky for a firm to attempt alone. Secondly, it enables organisations to pool their resources or competences and create synergy. Thirdly, joint ventures are often the only way to surmount obstacles such as import quotas, tariffs and cultural hindrances (Thompson & Strickland, 1999:221).

- **Strategic alliances.** An organisation may undertake to share resources and activities to pursue a strategy. These may be more readily available through co-operation than through ownership. The extent of the alliance may differ, occasionally being informal or very formalised inter-organisational relationships at the other extreme. The reasons may be varied, but they are likely to be concerned with the assets sought in the alliance (Johnson & Scholes, 1999:340).

- **Consortia, keiretsus and chaebols.** Consortia are defined as large interlocking relationships between businesses of an industry. In Japan such consortia are known as keiretsus, in South Korea as chaebols (Pearce & Robinson, 2003:182). Samsung

Electronics is an example of a company within a chaebol, one of Korea's industrial conglomerates (Gibney, 2002).

2.5.6 Strategy evaluation and choice

From the abovementioned strategies, organisations utilising the prescriptive process will consider their point of departure concerning which strategy or strategies will be best suited to their needs to obtain the best fit with the external environment. There are various criteria that can be used for weighing up the alternatives when it comes to strategic decision-making. Higher education institutions (HEIs) may also utilise many of the abovementioned grand strategies to achieve their strategic imperatives too.

Johnson and Scholes (1999:353) identified three types of evaluation criterion that can be used to assess strategies, namely: suitability, acceptability and feasibility. Suitability concerns itself with whether or not a strategy addresses the circumstances in which the organisation is operating. Acceptability is concerned with expected performance outcomes (such as risk or return). Feasibility is an indication of whether the strategy could work in practice. Feasibility often requires a quantitative assessment of practicalities of strategic capability. An organisation utilising this formal process may consider which strategy or selection of strategies is likely to bring about the most effective achievement of the original objectives that were set.

2.5.7 Organisational structure and implementation

Organisational structure lays out the design and function of who is responsible for developing strategy. Whether strategy comes before or after structure, every organisation needs to build and maintain the optimal organisation structure to generate and develop its strategies (Lynch, 1997:702). This is involved in the implementation phase of strategy, and just as the correct structure is required for successful implementation, at this phase, allocating appropriate resources in each area of strategic intent is also imperative (Thompson & Strickland, 1999:15).

2.5.7.1 The strategy makers

The process of strategic management, as formally outlined by academics and theorists has been outlined and reviewed. For the purposes of the study, it is also necessary to provide an overview of the "strategy makers", *i.e.* those persons within an organisation who are responsible for strategy formulation in the prescriptive process

Pearce and Robinson (2003:6) outline three hierarchical levels of strategic functioning within an organisation:

- **Corporate level.** Comprising the board of directors, top managers and CEOs, they are generally responsible for the organisation's financial performance and other goals such as; enhancing the organisation's image and social responsibilities. In higher education this may take the form of top management, board of directors, rectors and vice-rectors.

- **Business level.** Made up of business and corporate managers, who need to translate organisational intent into concrete objectives and strategies for individual business divisions, also known as SBUs. It should be noted that many strategic models that have been developed, focus mainly on the business unit level, which may mean they are less relevant in developing an overall strategy (Goold & Luchs, 1993:10). These are not so prevalent in higher education institutions, but may assume the outward appearance of individual project teams, or units for teaching development or life-long learning.

- **Functional level.** Composed primarily of managers in the functional areas of marketing, finance, production, etc. Johnson and Scholes (1999:13) explain that these managers are expected to turn strategic corporate direction into operational reality. In higher education, this may take the form of line managers, such as heads of department (HODs) or marketing or financial managers.

The formal strategic management process analysed previously in the chapter may affect and be affected by all levels of management. When analysing the three basic stages in a strategic management process, namely: strategy formulation, strategy implementation and strategy evaluation (refer to Section 2.5), it can be concluded that mainly the corporate level of strategists are responsible for the strategy formulation stage (perhaps making use of feedback from business level managers for objective-setting) and strategy implementation, as well as strategy evaluation would be the responsibility of the functional level managers.

Pearce and Robinson (2003:1) highlight the problem of formulators of strategy who are not intimately involved in the implementation thereof, may shirk their individual responsibilities for decisions that may be reached. Strategic managers should therefore be trained to limit any assurances of performance that the implementers and their subordinates can deliver.

2.5.8 Short-range objectives and functional tactics

Short-range objectives or operational objectives are a subset of the long-term objectives of an organisation. They indicate how activities will be performed and may be different in nature to strategic objectives. Lynch (1997:19) defines them as a statement of precisely what is to be achieved and when the results are to be accomplished. Often quantifiable; Robert (1993:84) explains that in a prescriptive strategic management process of an organisation, these goals are usually set in the functional areas and in that process, these objectives will have been developed before the strategy commences (Lynch, 2000:22).

2.5.9 Restructuring

Restructuring and re-engineering are becoming commonplace on the forefront of corporate undertakings. Restructuring may involve reducing the size of the organisation in terms of the number of employees, division, units or hierarchical levels. This reduction

in size is intended to improve both efficiency and effectiveness (David, 2001:249). In the face of rapid acceleration and change, it is recognisable that leaders of organisations will constantly have to keep restructuring and reinventing the organisation (Bennis, 1997:150). The prescriptive strategic management process may use restructuring as a mechanism for improving efficiency.

2.5.10 Strategic control

Strategic control is the clear allocation of responsibility for carrying out predetermined tasks having reasonably predictable results to which rewards are tied (Stacey, 1996:462). Control will involve the testing of whether original objectives have been successful, which is the approach advocated by the prescriptive strategic management process.

Robinson (1986:483) advocates using two approaches to test whether the strategies chosen are consistent with the objectives, namely working from the bottom of the hierarchical structure to the top or working from the corporate level downward. He goes on to say that a mixed approach of the abovementioned methods will be most effective in determining whether the strategic plans of the organisation were effective.

When the strategic plan has been implemented it is necessary to measure and evaluate actual performance to determine whether the expectations have been fulfilled. When the constituents of the plan have been made explicit, the plan provides a point of reference against which actual outcomes can be compared, so that when variations between expected and actual outcomes occur their causes can be investigated (Scott, 1997:8-10).

Donaldson (1995:99-108) advocates making use of a strategic audit (or a formal strategic review process) to maintain control at the end of the prescriptive strategic management process. This audit should impose its own discipline on both the board of directors and management, similar to a financial audit process. The process would centre the leadership of strategic oversight into the hands of independent directors and provide them with the authority to establish both the criteria for and the methods of review. However, it would

require the board of directors to provide management with the authority to establish both the criteria for and the methods of review.

Strategic control is the final step in the prescriptive strategic management process and implies that in this scenario, it would be a conclusive end to a static process. However, Dolan and Garcia (2002:101) explain that this model for organisations of the twentieth century may not be appropriate for all organisations today. In order for an organisation to function effectively and compete lucratively in markets that are increasingly more global, complex, professionally demanding and constantly changing; possible investigation into the utilisation of an innovative archetype is needed. This may potentially be more of an emergent, adaptive approach to strategic management. Control in an emergent approach should also be mentioned in this regard to clarify the conceptualisation of the process.

2.5.11 Control within the emergent strategic process

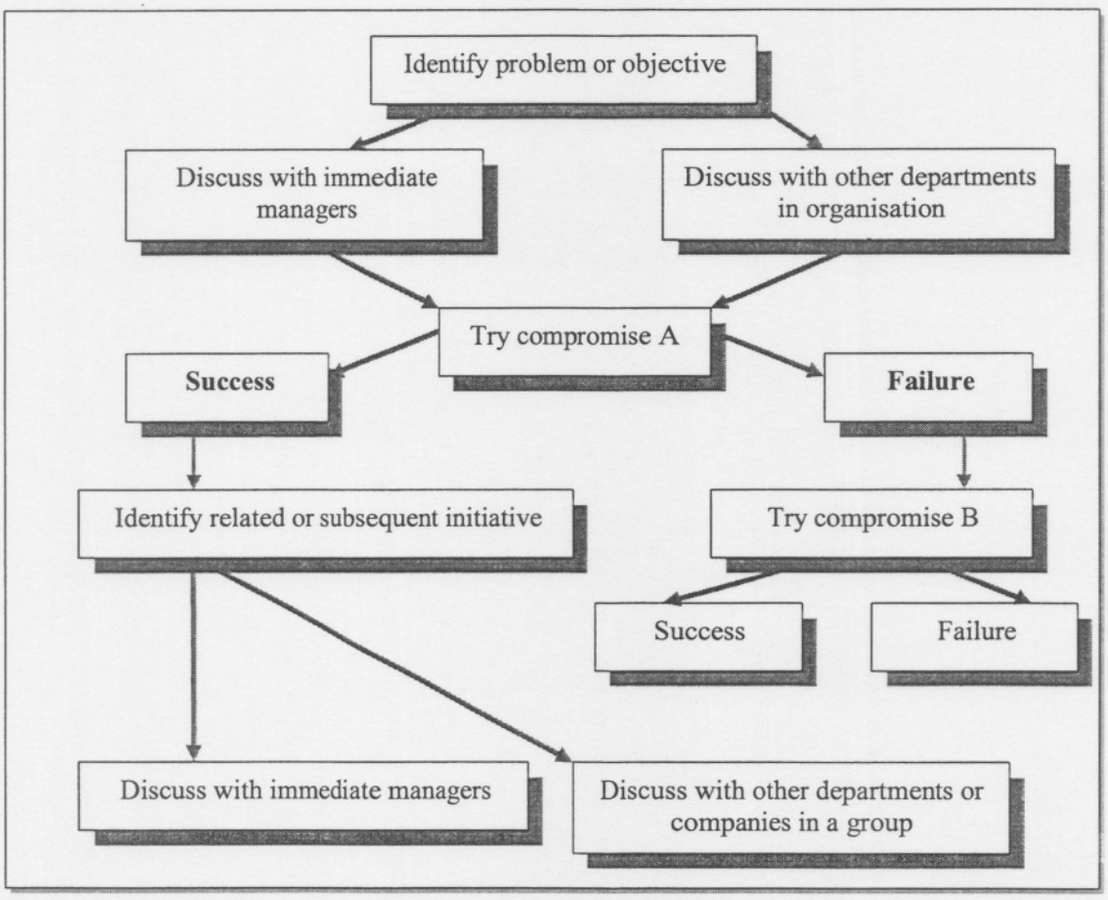
Establishing the situation in which managers at different levels can create and discover emergent strategy does not necessarily amount to an invitation for people to do whatever they wish, provided that there are no boundary conditions. In the condition where power is unequally distributed provides a boundary condition. Managers will then not do whatever they like because they know that they will need to build appropriate levels of support before they embark on any new direction. They will know that their proposals will have to be legitimised, and resources allocated to carrying them out, according to the standard procedures in the organisation (Stacey, 1996: 465).

2.6 EMERGENT STRATEGY FORMULATION THEORY

The process outlined above, mainly identifies strategic formulation as a formal, intentional process, although some elements of this prescriptive process can be extracted and utilised in an emergent perspective. The question arises of whether executives and strategy makers in organisations make use of this formal process when developing

strategy and alternatives. Stacey (1996: 205) contends that it is possible that business schools are teaching the wrong things by advocating the dominant view of strategy as an intentional process. In reality, it is possible that strategy is an emergent process and differs from organisation to organisation. Broadhurst *et al.* (2001:63) contend that emergent strategies, which are characterised by trial and error adaptation, are more appropriate to smaller organisations for example, than are prescriptive strategies that assume environmental certainty. Figure 2.5 gives an outline of the emergent strategic management process.

FIGURE 2.5 The emergent strategic process



Source: Lynch (1997:53)

The point of examining strategic management is to find out what managers need to do to develop an organisational posture and position that will yield successful performance at some point in the future. They are looking for the recipe for success, or the general prescription, which can be applied to many different strategic situations. However, in matters as complex as strategic management there may be no reliable general recipe for success that managers can use in a wide variety of strategic situations.

To the extent that strategic situations are unique and extraordinary, managers will have to develop a unique way to handle each strategic situation as it occurs. In such circumstances, general sets of prescriptions will be misleading and far more useful will be explanations of how things work, patterns of the kinds of general things that tend to happen, that can be used in a non-prescriptive way to design custom-made responses to unique situations as they crop up (Stacey, 1996:13). Lynch (1997:53) gives a concise explanation of how the emergent strategic process works and Broadhurst *et al.* (2001:64) note that "trial-and-error" approaches are more indicative of emergent strategies than of classical prescriptive corporate strategies. Jain (1999:40) contents that formality in strategy formulation that restricts flexibility and inhibits creativity should be avoided. However he further proposes that prescriptive strategy formulation mechanisms should not be disrupted by intuitive, contradictory decisions.

Other common errors that organisation make in strategic planning include the following, according to McGrath and MacMillan (1995:46):

- Organisations do not have concrete information, but once a few key decisions are made, continue as if their assumptions were facts.
- Organisations have the concrete information they require to verify assumptions, but fail to see the implications of the assumptions.
- Organisations have all the information available to determine that an authentic opportunity exists, but make implicit and inappropriate assumptions about their capabilities to implement the plan.

- Organisations begin with the necessary data, but assume that the environment is static and fail to timeously notice that a key variable has changed.

Although prescriptive strategic management might be criticised for not being sufficiently flexible, it merits noting that the concept of having a formalised process, however static, has numerous benefits for an organisation.

2.6.1 Benefits of prescriptive strategic management processes

It would appear that organisations that do make use of a strategic approach, however informal, are more likely to survive (Marlow, 2000:135).

In studies done on the utilisation of strategic management processes, the clients using the processes were asked to list the beneficial results they had obtained from making use of the formal approaches. Apparently without exception, six items are always mentioned, namely clarity, focus, consensus, cohesion, commitment and filter (Robert, 1993:202).

- **Clarity.** All clients said that the process brought clarity to their strategic thinking. As a group, the management team begins the process with slightly different perceptions of the company's strategy, or in some instances, with a non-articulated strategy. At the end of the process, however, the team produced a clear strategic profile for one vision of the organisation's future.

- **Focus.** The strategic process produces a better scenario for allocating resources and managing the time and effort of others. It enables a team to direct their efforts toward activities that complement the desired direction of the company and to avoid wasted effort on irrelevant issues.

- **Consensus.** Debates and discussion are managed in such a way that agreement is achieved systematically on each key issue before moving onto the next one.

- **Cohesion.** Without a clear strategy, the organisation rebounds from one seemingly good idea to another. Management is often enticed by the financial aspects of an opportunity, but find that there is no fit with the rest of the organisation's activities. A strategic approach results in co-ordination of resources instead of fragmentation.

- **Commitment.** At the end of the process there is absolute commitment from all management team members to the new direction, because they have participated at every step and feel as if the strategy belongs to them.

- **Filter.** The best use of the strategic profile is as a filter for the operational plans and new product or market opportunities. It clearly identifies the areas that need more emphasis and those which need less emphasis in the future.

2.6.2 Benefits of emergent strategic management

Lynch (1997:55) outlines the following advantages of emergent strategic processes:

- It concurs with actual practice in many organisations.
- It takes issues of people – such as motivation - into account that make the prescriptive process unrealistic in some circumstances.
- It allows the strategy to develop as more is learnt about the strategic situation.
- The role of implementation is redefined so that it becomes an integral part of the strategy development process.
- It provides the opportunity for the culture and politics of an organisation to be included in the process.
- It delivers the flexibility to respond to changes, especially in times of turbulence.

In times of continuous change, the principles of emergence provide a "better" means for organisations than do more traditional, planning and control strategic approaches to change (Hench, 1999:362). However, Lynch (1997:55) counters this argument by also identifying concerns about the emergent strategic process, which include the following:

- Executive managers usually have a unified vision for an organisation, and will require that there should be visible progress in an organisation.
- Resources need to be allocated properly within an organisation, which will require a formal, prescriptive plan.
- Emergent strategy may allow an renunciation of responsibility for the outcomes of the organisation

Therefore, it is imperative for executives in an organisation to examine the manner in which strategy is formulated within its organisational climate to determine which strategic approach will be most appropriate to achieve sustainable competitive advantage.

2.7 SYNOPSIS

There are varying schools of thought on what constitutes a strategic management process, especially with regard to the concepts of prescriptive and emergent strategy. The chapter focused on the differences of the two schools of thought, as well as the uses, processes and benefits of each one. In the light of the fact that organisations face increasingly more complex environments and circumstances than ever before, the prescriptive strategic management model which was highlighted in this chapter may be an inefficient, static method of managing matters which are dynamic and far from static. However, it is accepted that each model will have certain benefits for certain organisations, and it cannot be prescribed that all organisations will be able to use one specific approach. The study intends to investigate whether the prescriptive approach to strategic management will result in a competitive advantage, conducive to creativity.

Chapter Three will focus on South African higher education as an industry that is characterised by turbulence and change. The characteristics that constitute this industry will be discussed, as well as the concept of obtaining a sustainable competitive advantage. Performance measures of competitive advantage in the higher education will be outlined in conjunction with their relevance to the study.

CHAPTER 3

HIGHER EDUCATION AND COMPETITIVE ADVANTAGE MEASURES

3.1 INTRODUCTION

The previous chapter has laid the foundation for the study by highlighting the concept of prescriptive strategic management and emergent strategic management, as well as discussing the related characteristics of the concepts.

This chapter will outline the concept of competitive advantage (CA) and sustainable competitive advantage (SCA), as an essential element of strategic management. It will contend that creativity can result in a competitive advantage for organisations that should be sustainable, as creativity is concerned with the supposition of newness, uniqueness and change.

For the purpose of this chapter, a discussion of higher education as the focal point of the study, and an examination of the performance measures of competitive advantage in higher education will also be introduced. The measures being disseminated, are namely the throughput and research output rates for the higher education institutions.

The concept of SCA will be further explained and a discussion into the competitive, changing and potentially turbulent environments in higher education organisations will be specified. This will be used to give an indication of whether prescriptive strategic management is sufficient to navigate the complex, changeable environment faced by higher education institutions in South Africa today in order to achieve sustainable competitive advantages.

3.2 CHANGES IN HIGHER EDUCATION IN SOUTH AFRICA

Public higher education institutions are the focus of the study, notwithstanding the fact that, characteristic of a business operating environment, higher education has also undergone radical transformation in South Africa over the past decade. Changes that have taken place in higher education over the past few years include the merging of higher education institutions. The White Paper indicated that to achieve sustainability in higher education in South Africa, the number of higher education institutions should be reduced wherever possible, so that the human and financial resources available in the system could be concentrated, managed and utilised more effectively (DOE, 2003:8).

South Africa's thirty-six higher education institutions are to be amalgamated into twenty-two merged universities, withstanding a few, which adds to the complications and problems in an already complex transformation process (Naidoo, 2003:2). Faced also with the current certainty of the still forthcoming institutional mergers of higher education in South Africa (Kotecha, 2002:1; Maher, 2003:1), as well as the restructuring of higher education and the future of higher institutions worldwide (Breier, 2001:4), the academic arena is constantly changing.

Katz (1999:1) denotes that higher education institutions are, in fact, businesses in the ordinary sense. This statement is reiterated by Kotler and Fox (1995:3), who claim that higher education institutions have learned a great deal about operating in a businesslike manner. This is important in what is increasingly becoming an economy in which information is used in all areas to improve productivity and seek competitive advantage, better known as a knowledge-economy.

This need to operate as a business has had an underlying impact on the survival of higher education institutions. Levy (2002:29) states that international tendencies in higher education centre on commercialism and that commercial higher education focuses on a business orientation, with higher education institutions functioning like other enterprises. He says that South Africa shows surprisingly few exceptions to this tendency.

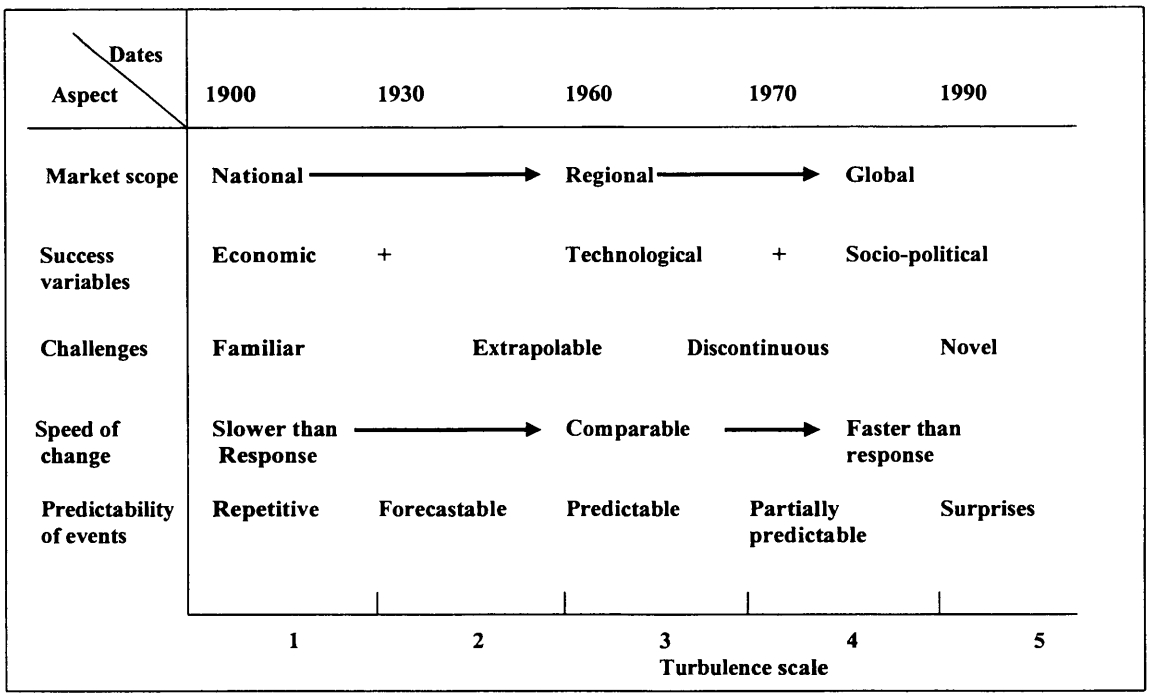
These institutions not only need to keep abreast of changes in their environments, but also to find an appropriate position for themselves to thrive in these environments (SAUVCA, 2002:6). Breier (2001:3) states that educational institutions are trapped in static competition and need to move into dynamic competition – '*into an institutional scenario of moving and ever changing networks rather than a semi-stable institutional mode*'. It is evident from these propositions that higher education institutions face intense competition at present.

Katz (1999:3) concurs with this statement by indicating that the advantages that higher education enjoys both in accreditation and reputation may be questionable when private industry suppliers weigh in with bigger budgets, better technology and more competitive institutional cultures. Nkopodi (2002:76) goes on to say that the increase in private institutions of higher learning has given the average South African student a wider choice of institutions where they can enrol. This means that fewer students are available in the market to register at each institution. This has resulted in more intense competition.

The concept of competition and evolving turbulence is an underpinning element of what higher education institutions are contending with at present. Speed of change and predictability of events has altered over the last several decades, but the underlying principle of change being the only constant variable, remains unchanged. Organisations then and organisations today will be faced with turbulent environments and will have to be adaptive and proactive in their approaches.

Katz (1999:7) says that that a primary concern for educational leadership should be to develop strategic frameworks for addressing the changing environment that they experience at present. It appears that organisations have become increasingly more exposed to turbulence and change, which ensures that competing under such conditions becomes exceedingly more difficult as time passes. Guth (1985:44) proposes, that in the last 80 years events have become increasingly more difficult to predict. Guth's model is outlined in Figure 3.1.

FIGURE 3.1 Evolving turbulence



Source: Guth (1985:44)

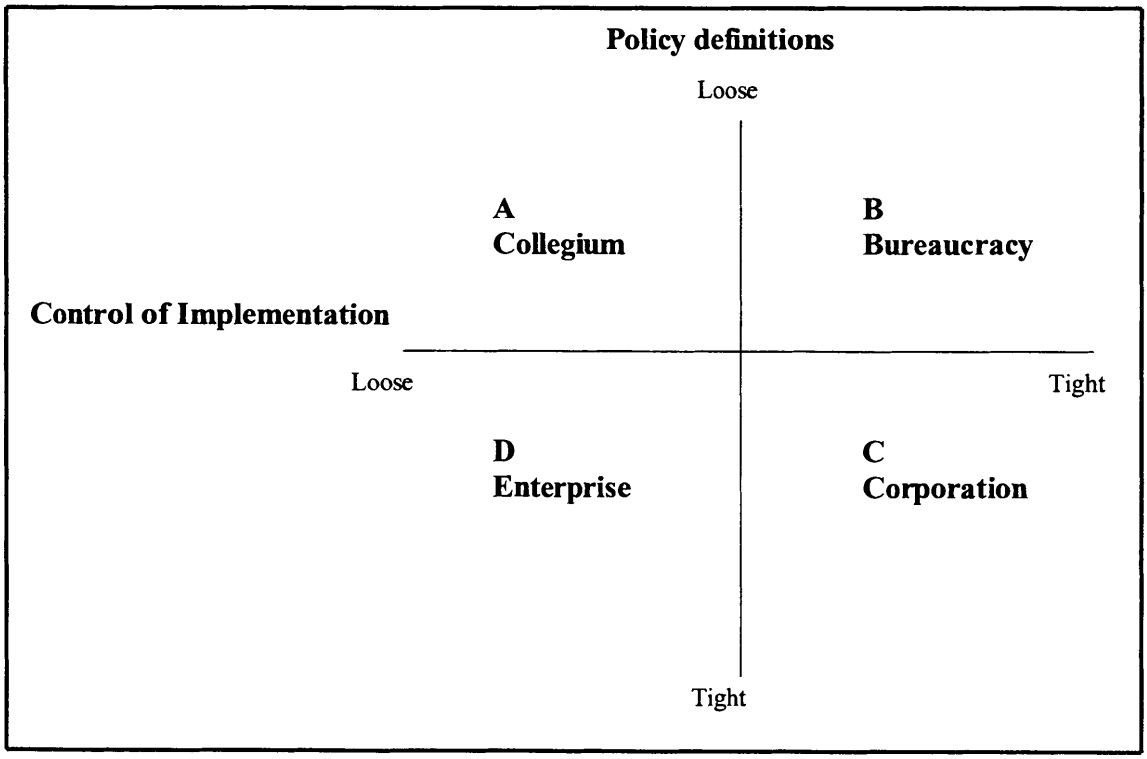
From the above it can be seen that environments have become increasingly more complex as years have passed, and Moore (1993:6) states that the pace of organisational change itself is not likely to decrease. The scope of the markets for organisations has changed and more success variables are needed. Organisations can no longer depend on familiar situations or challenges, as most situations now are new and unpredictable. This situation holds true for higher education institutions as well, as Nkopodi (2002:76) points out, higher education institutions may have to take a look at themselves and ask whether or not they are still capable of pursuing their missions in their current form.

Many historical studies have been made of forced strategic responses. Most of them show that the typical response was unplanned and reactive, that firms persisted in their historical strategic behaviour long past the time when it was effective. Some firms procrastinated so long they permanently lost their historical competitive dominance (Guth, 1985:42-43). This historical trend has reappeared where firms are attempting to

adopt formal strategic planning approaches, but having to act reactively when circumstances inevitably change. The question is still whether organisations, especially higher education organisations as identified for the study, use formal or reactive approaches and how this impacts on their competitive advantage. The concept of competitive advantage will be discussed in Section 3.3 in relation to its significance in the study.

Much of how an organisation reacts to circumstances depends on the type of culture, which is prevalent within the organisation. Warner and Palfreyman (1996:25) developed a model for the culture of a university, based on the empirical work that they had done. The model outlines corporate policy, based on the degree of collective tightness or looseness of policy, indicating what type of institution it is. This model is outlined in Figure 3.2.

FIGURE 3.2 Models of universities as organisations



Source: Warner & Palfreyman (1996:25)

The collegial institution is the ideal of a past golden age of self-regulating academics working in the same place, but independently and autonomously. In the bureaucracy, the consent processes are formalised in committees and procedural power becomes dominant. There may be no clear policy framework, but there are precedents against which to judge proposals and regulatory frames of 'general principles' of operation to condition behaviour. This system rarely generates innovation within itself (Warner & Palfreyman, 1996: 25).

In the corporation, the academics recapture the control that they may have lost in a surplus of committees. The working group, the team – also much more flexible – replaces the committee. Remaining committees are rationalised and dominated by the senior management. On the other hand, the enterprise culture may keep awareness of the market at the forefront of their operations and re-emphasise the tasks of the institution, namely to serve its clients and communities (Warner & Palfreyman, 1996: 25).

Whichever culture is intrinsic in the institution will affect how adaptive they are able to be in times of change, and is therefore necessary for inclusion in the study. For instance, Kotler and Fox (1995:36) explain that a bureaucratic higher education institution will be especially unresponsive and not concerned at all with innovation or creativity. This is not a desirable state, and should be avoided if an institution is to maintain a competitive advantage, which will be discussed in the next section.

3.3 Competitive analysis and competitive advantage

A competitive advantage (CA) indicates the distinctive differences between an organisation and its competitors. A competitive advantage provides financial and economic benefits to an organisation. Ideally, competitors should not be able to duplicate this unique advantage (Oosthuizen, 2002:122).

This statement brings up the question of how an organisation will manage to create a sustainable competitive advantage (SCA), one that cannot be replicated by competitors.

Narver and Slater (1990:21) state that for an organisation to achieve consistently above normal market performance, it must create a sustainable competitive advantage, that is, it must create sustainable superior value for its customers.

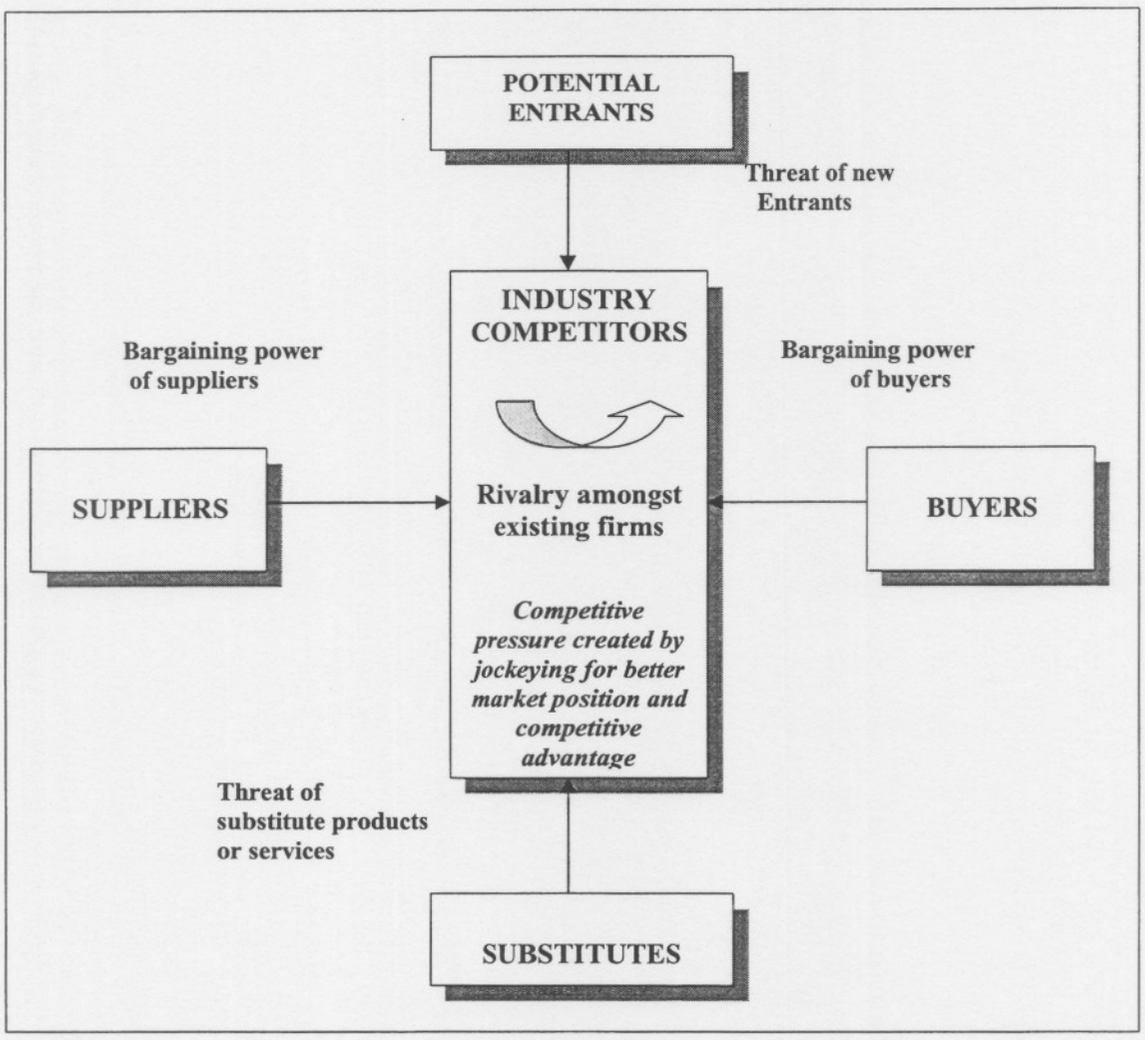
Yonggui and Lo (2002:39) state that only when competitive advantages are deployed externally towards targeted customers, can their value be realised and contribute ultimately to superior performance.

Leavy (2003:29) explains that two main perspectives have evolved to explain how SCA can be created and maintained. He notes that creating SCA stresses an organisation's market position and maintaining SCA stresses core competence. To understand SCA as a holistic concept, an understanding of competitive forces in the market environment should be gained. In the competitive theory of Porter (1980:4), the state of competition in an industry was shown to be dependent on five basic competitive forces, which are outlined in Figure 3.3. Nkopodi (2002:79) notes that Porter's model is as relevant to institutions of higher learning as to other sectors.

The theory of competitive forces has subsequently been used as the basis for competitive behaviour by many authors since the theory was first conceptualised (Kroon, 1997:149; Smit & de J Cronjè, 1999:73; Thompson & Strickland, 1999:73; Pearce & Robinson, 2000:86; David, 2001:99) and has generally in the past been considered to be an accurate measure of portraying the competitive situation within a given industry.

McGrath and MacMillan (1995:22) insist that no competent manager should attempt to escape the competitive discipline that is captured and measured in industry standards. Nkopodi (2002:79) also notes that institutions of higher learning need to identify their related industries and determine whether they fittingly support or impede their competitive advantage. The competitive determinants shall be discussed as follows (refer to Figure 3.3).

FIGURE 3.3 Forces driving industry competition



Sources: Porter (1980:4)

- **Threat of new entrants**

New entrants to an industry bring new capacity, the desire to gain market share, and often substantial resources. The strength of the competitive force of potential competitors to gain access to the market depends largely on the barriers to entry. The greater the cost to enter an industry, the greater the barriers to entry (Pooe, 2000:42; Pearce & Robinson, 2000:87).

Higher education institutions are threatened primarily by the high growth of new entrants in private higher education, as Levy (2002:30) notes growth in higher education is occurring due to the increase of new private education providers.

- **Threat of substitute products**

In many industries, organisations compete with producers of substitute products from other industries. The presence of substitute products puts a ceiling on the price that can be charged before the consumers will change to the substitute product. The competitive pressure that arises from a price increase in the relative price of a substitute product declines and vice versa. The competitive strength of substitute products is best measured by the encroachments into market share those products obtain, as well as those organisations' plans for increased capacity and market penetration (David, 2001:101).

Distance learning and short courses, in-house training or even retraining might be considered as potential substitutes or alternatives to traditional higher education (Holroyd & Loveridge, 1978:68-69).

- **Bargaining power of suppliers**

Suppliers to an organisation can have an influence over an industry to the extent that the suppliers are able to lower the quality of goods offered, raise prices charged, or both. This usually happens when there are only a few suppliers or substitutes for the product. A large bargaining power of suppliers can also lower profits (Kroon, 1997:149). Suppliers will not have significant effect in the case of higher learning.

- **Bargaining power of buyers/customers**

Generally, a buyer is viewed as a competitive threat when in a position to demand lower prices by force or better service from an organisation. The ability of a buyer to make

demands on an organisation, depends on their power relative to that of the organisation (Kroon, 1997: 149, Pooe, 2000:42, Pearce & Robinson, 2000:90).

In the case of higher education, the bargaining power of customers may show more prevalence as customers are becoming increasingly aware of their rights in this market. Nkopodi (2002:75) maintains that due to the increase of competition in the educational marketplace, consumers (students) will start expecting more from their local institutions, placing pressure on education institutions to meet these expectations in order to survive.

- **Rivalry amongst existing competitors**

A factor which makes competitive strategy difficult, is that other forces in the environment are not dormant – they can change their strategies at any time. A strategist has to map a course for an organisation avoiding confrontation with other organisations. Before making decisions, it is necessary for an organisation to understand how a competitor will respond to an action. Advertising may be answered with more advertising; expanding capacity may result in a rival building less capacity. The advantages of a particular strategic choice will partially depend on the reaction by competitors. The essence of the competitive scenario is to anticipate a competitor's moves. Knowledge of a competitor's reaction, or likely reaction, increases an organisation's ability to be successful (Morton, 2000:57).

Within the public higher education sector, institutions need to be aware of how to sustain competitive advantage in order to compete with one another, along more or less the same set of structural determinants. This may require doing things differently than the other higher education institutions of sustaining a unique advantage that cannot be imitated.

Due to the changeable nature of an organisation's competitive forces, it becomes more crucial for an organisation to learn how to adapt to changing conditions, than to follow fixed procedures and formulas. Robert (1993:95) is of the opinion that an inaccuracy enforced by competitive consultants is in advocating that all competitors in a given

industry behave in the same manner, and therefore, that the factors of success are the same for all role-players. In his research, he has never found this to be true.

This is contradictory to the forces of industry competition outlined by Porter. Porter (1980:3) explains that the structural determinants of industry competition control the intensity and complexity of the competitive situation. However, according to Kay (2000:7), this fails to shed any light on the central strategic issue of why different organisations that face the same environment, perform differently.

Instead, Robert (1993:95) points out that industry concepts for organisations will be different enough for each organisation to behave in a slightly different manner given the same circumstances. He maintains that this behaviour can be anticipated if one can understand a competitor's driving force and business concept and if one can manage that competitor's strategy to one's advantage.

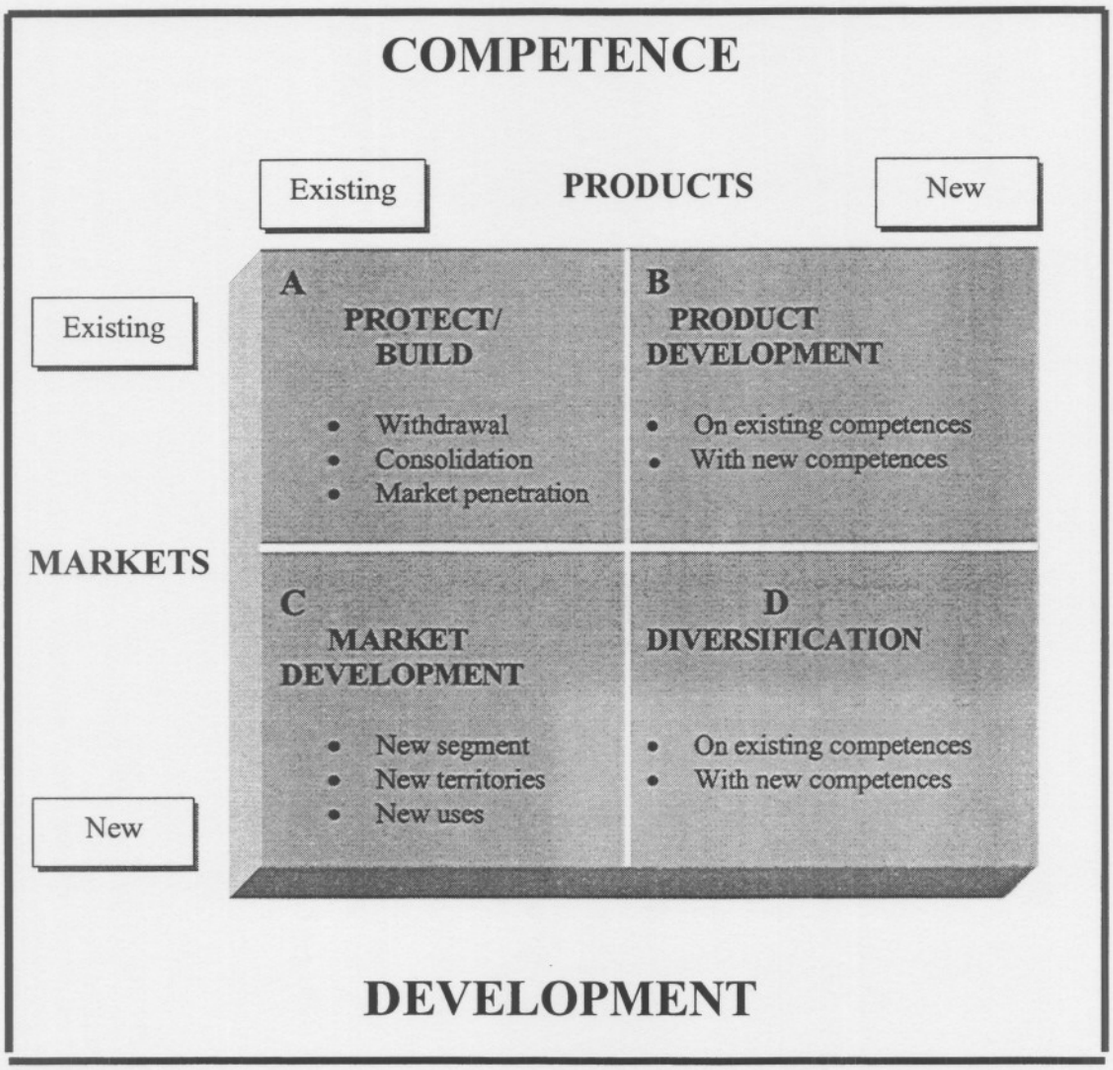
At the heart of this statement lies the question central to the theme of the study: How can higher education organisations create a competitive advantage, which is sustainable and inimitable, when facing the same set of structural determinants? A competitive advantage is only as useful as the length of time it remains the sole "property" of an organisation. If and when, a competitor has replicated an initial competitive advantage, it ceases to exist as an advantage and becomes merely a "we did it first" scenario, without adding any further value in terms of becoming a better, stronger competitor in the arena.

Raynor (2001:96) supports this notion, by stating that competitive success for an organisation can only be achieved by attaining real advantages, not superficial ones that can be duplicated. Figure 3.4 indicates potential competitive areas of strategy that can be explored in an organisational context, based on competencies.

To expound on the argument: whilst the theory of competitive forces might provide insight into a competitive situation for a certain industry, it does not answer the question

of why organisations faced with the same set of competitive forces and prescriptions, perform differently.

FIGURE 3.4 Directions for strategy development



Source: Johnson and Scholes (1999:308)

According to Stacey (1996:205), if a reliable set of prescriptions for strategic success could be identified, then there would be an expectation that at least a small sample of organisations would have mastered those prescriptions. One would expect to find

samples of excellent organisations that remain successful for long periods of time. In fact, it seems that no sooner does anyone identify a sample of excellent organisations then most of them fall from their imminent position. He goes on to explain that in the early 1980s, 43 organisations were identified in the USA whose performance was superior to others, but within five years, two-thirds could no longer be included in the sample.

Hamel and Prahalad (1994:24) maintain that competing for the future is more challenging for an organisation than simply trying to catch up to their competitors, but that organisations should be striving to create their own road map. The goal should not be simply to benchmark a competitor's products and processes and imitate its methods, but to develop an independent point of view about future opportunities.

An organisation should be crafting the competitive situation instead of merely reacting to it. An adaptable organisation that has the capacity for timely change might be more useful than a prescriptive strategy-making organisation. For example, the competitive forces prescribed by Michael Porter should not affect an organisation, but should be affected by an organisation. In effect, Hamel (1996:71) argues that a standard five forces analysis cannot be done at the broadest level of industry today. However, in a narrowly focused perspective, the competitive forces are referred to herein as a basis for industry competition and competitive advantage. This study proposes that an adaptive approach to strategic management is of the essence when considering a SCA. This approach should principally be the focal point of an adaptive higher education organisation.

3.3.1 The competitive environment

The competitive environment is also an important consideration for an organisation to examine. Competitive advantage comes in the form of progress an organisation makes while its competitors, paralysed by confusion, complexity and uncertainty, sit on the sidelines (Bryan, 2002:3). Organisations should be seeking competitive advantages as a means of survival and long-term success (Hoffman, 2000:2). The following may be

considered as potential sources of competitive advantage that an organisation could consider.

3.3.2 Sources of competitive advantage (CA)

Potential sources of competitive advantage have been theorised by various authors. Although, Lynch (2000:154) cautions that when seeking advantages that competitors cannot easily imitate, it is essential to examine the organisation itself and its resources, not merely its competitors. Potential sources might include:

3.3.2.1 Differentiation

The maturation of unique characteristics in a product or service that can be placed in a certain position which may appeal to a segment of the market (Lynch, 1997:167) and there are various opportunities for strategic differentiation in virtually every industry (Hammonds, 2001:152). It is about deliberately choosing a different set of activities to deliver a unique mix of value. It is the essence of strategy and the only true competitive advantage (Porter, 1996:63,64). HEIs would be able to consider new courses, course material or even the manner in which courses can be presented as a source of differentiation.

3.3.2.2 Low costs

To be able to produce and deliver the product or service at a lower cost than the competition. Cost leadership is usually obtained through a combination of experience and efficiency (Byars *et al.*, 1996:126). HE institutions may utilise this strategy when considering the fee structure it imposes on the students, by offering a low cost alternative, as opposed to other higher education providers.

3.3.2.3 Niche marketing

When doing niche marketing an organisation may select a small market segment and concentrate all its efforts on achieving advantages in this segment. Such a niche will need to be recognisable by customer needs (Lynch, 2000:154). HEIs may choose to focus on a specific section of the market in relation to the type of education or courses they are offering.

3.3.2.4 High performance or technology

Organisations may share common technology or exploit the full range of business opportunities associated with a particular technology to achieve a competitive advantage (Thompson & Strickland, 1999:224). If a HEI has the technological capability for this, they can segment the market with regard to students that might consider technologically advance education an imperative, for example, virtual learning.

3.3.2.5 Quality

Quality is the totality of features and characteristics of a produce, service or process, which stands on its ability to satisfy a given need, from the customer's viewpoint. The concept of superior quality in relation to quality a competitor may offer can serve as a competitive advantage (Flood, 1994:42). The education being offered would have to be considered quality if a HEI is to have whichever kind of competitive advantage.

3.3.2.6 Service

An organisation may attempt to offer impeccable customer service as a means to obtain a competitive advantage (Nauman, 1995:24). For HEIs, this may involve giving extra attention to the needs of their students, as well as providing above average facilities and services for them to make use of.

3.3.2.7 Synergy

Sheer size, scale and scope may not bring about an unassailable competitive advantage. Organisations may think that diversification by adding activities is a method of obtaining synergy, but the benefits are difficult to encapsulate (Morck & Yeung, 2000:129). HEIs that are being faced with the forthcoming mergers in higher education should consider the synergistic advantages that can be gained from this and avoid duplication of activities.

3.3.2.8 Culture, leadership and style of an organisation

Social psychologists define leadership as the process through which one member of a group, the leader, influences other group members toward the attainment of specific group goals (Baron & Byrne, 1997:463) and culture as all things which have been learned by a person and shared with members of a society, including ideas, norms, morals, values, knowledge, skills, technology and behaviour (Sheth *et al*, 1999:4). HEIs will have to reform their bureaucratic styles and traditions if they wish to be adaptable and competitive.

3.3.2.9 Strategic assets

These may be strategic barriers to entry and take the form of relative size of the market, sunken costs, control by legislation, economies of scale and experience effects (Scott, 1997:641). HEIs that have specific experience or competencies in the form of a strong research background or above average throughput rates, should take full advantage of exploiting that to their advantage to gain competitive advantage.

The first three of the abovementioned strategies were first outlined as generic strategies (Porter,1980), and these are the most widely utilised descriptors of competitive advantage advocated by strategists (Lynch, 2000:155).

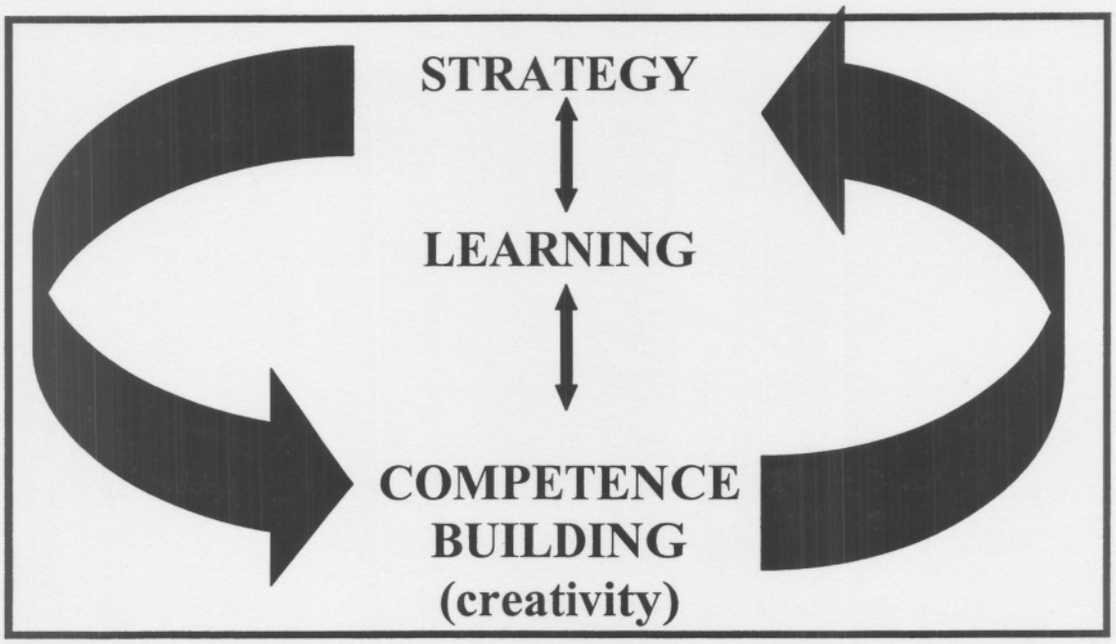
However, in essence, there is no indication of how an organisation will sustain any of the abovementioned sources of CA, so that competitors will not be able to replicate them. Kay (1993:367) points out that competitive advantage is also based on the continuity and stability in the relationships between different parts of an organisation. He argues that substantial advantages are not achieved at a rapid pace or by any providential strategy. Real advantages may take some time to establish and will require the whole culture and style of an organisation. Porter (1996:68) argues that a variety of differentiated, interlocked activities should be utilised, as these will be far more difficult to replicate by competitors than merely one particular activity.

A summative assessment of the sources of competitive advantage is also provided by Fleury and Fleury (2003:17), who indicate that the debate regarding competitive advantage may be typified into three distinct schools of thought, namely the strategic positioning approach, identified by Porter, which emphasised understanding the competitive position of the firm in its industry. The second stream view considers that every organisation is in possession of a portfolio of resources, whether tangible or intangible.

This view has been popularised by the work of Prahalad and Hamel (1990:80). Fleury and Fleury (2003:19) advocate adapting the second stream, which could be seen as a *form of corporate learning and experience on how to cope more efficiently with complexity and change.* The authors furthermore adapted the idea of dynamism, which supports the concept of reacting before a competitor decides to act, rather than waiting. This approach considers that a process of competence building in an organisation must be formulated to strengthen and improve the competitive strategies of an organisation.

As organisational competencies are a fundamental constituent of the strategy formulation process (Fleury & Fleury, 2003:19), organisations should be utilising core competencies as a base for strategic formulation. The study proposes that an organisation can use creativity as a core competence upon which to base their strategies and learning as advocated in Figure 3.5. This concept will further be explored in Chapter Four.

FIGURE 3.5 The strategy-competence cycle



Source: Adapted from Fleury and Fleury (2003:23)

Collis and Montgomery (1995:11) are in agreement regarding the concept that the opportunity for organisations to sustain competitive advantages is determined by their resources and capabilities. A distinction can be made between distinctive capabilities and reproducible capabilities. Distinctive capabilities are those characteristics of a company that cannot be replicated by competitors, or can only be replicated with great difficulty, even after these competitors realise the benefits they yield for the originating company (Kay, 2000:8).

These can be numerous: licences, statutory monopolies or effective patents and copyrights are particularly austere examples. However, organisations in competitive markets have built equally powerful characteristics. These include strong brands, patterns of supplier or customer relationships, and skills, knowledge and routines embedded in teams. HEIs competing in the business sense can also build up their brand name upon which to base their competitive advantage.

Reproducible capabilities can be bought or created by any organisation with reasonable management skills, diligence and financial resources. Most technical capabilities are of this kind. Marketing capabilities are sometimes distinctive, sometimes reproducible. (Kay, 2000:9).

In order to sustain, inimitable competitive advantages, organisations need to foster these *distinctive* capabilities. These may also be referred to as core competencies. However, the question arises as to how an organisation will consistently manage to produce distinctive capabilities, as these are scarce commodities, which every organisation is surely seeking to procure. It is proposed that the formalised process of strategic planning may not be sufficient to produce these distinctive capabilities.

Brandenburger and Nalebuff (1995:69) advocate that when likening strategy to a game with rules, it is beneficial to change the rules. The changing of these rules may involve searching for a new source of competitive advantage, but Brandenburger and Nalebuff (1995:70) further caution that as an organisation can write new rules, so too, can other competitors. Organisations should be aware that their actions could well be imitated.

According to Hoffman (2000:3), it can be said that an organisation will have a sustained competitive advantage when implementing a value creating strategy that is not concurrently being implemented by any current or future competitors and when the other competitors are not able to imitate the benefits of this strategy. Porter (1985) was the first to hint at the term SCA when outlining the basic types of competitive strategies organisations may utilise to achieve SCA. These are a low-cost or differentiation strategy. A focus strategy was further outlined by Pearce and Robinson (2000:248), which is a combination of both of the above to achieve SCA.

Interestingly, according to Hoffman (2000:10), no formal, conceptual definition was presented by Porter in his discussion. Also although these strategies are meant to elicit a SCA, no specification is given of how to sustain the advantage if competitors are able to ultimately imitate it.

Research, conducted by Collis and Montgomery (1995:118-129) concurs with this view by indicating that an approach to obtain an advantage in a dynamic competitive environment is anchored in which inimitable resources an organisation possesses, whether these resources are in the form of assets or capabilities to create value. This argument derives its strength from its ability to explain why certain competitors may be more profitable than others. These assets and capabilities are the determinants for how quickly and effectively an organisation will be able to perform its functional, value-creating activities. For obtaining SCA, organisations seeking superior performance will need to focus on developing a competitively distinct set of resources and utilising them effectively in a well-planned strategy.

As Collis and Montgomery (1995:21) point out, even inimitability will not continue forever. Competitors will eventually find ways to duplicate an organisation's most valuable resources. Moore (1993:2) suggests that for most organisations today, the only truly sustainable advantage comes from being more creative and innovative than competitors. Katz (1999:3) explains that higher education, as a major supplier and consumer of information resources, cannot afford to be inactive, allowing new and traditional educators to compete for students. Possible loss of students and subsidies will place new pressures on these institutions.

It can be suggested, in light of the discussion, that organisations should develop their distinctive capabilities or core competences as a resource upon which a SCA can be based. This should make an organisation distinctive, otherwise they may become merely followers attempting to compete in various directions, without being successful in any one area, as in the case of Sony cited by Kunii *et al.* (2002:1-8).

In the process of creating competitive advantages, an organisation should strive for the correct alignment of the competitive strategy and its core competence (Fleury & Fleury, 2003:20). Porter (1980:39) suggests that competitive advantage will accrue to those institutions that are able to offer education cheaper, or in a better, more targeted fashion.

Although colleges and universities rarely express their policies, intentions and practices in competitive terms, the pressure on traditional resources, combined with the emergence of technology-based education delivery systems, will force these institutions to focus on thinking competitively (Katz, 1999:3).

As previously identified (Refer to Section 2.5.6), there are three generic strategies, which may be used to gain a competitive advantage for an organisation, namely low-cost provision, differentiation and a focus strategy. Many of the sources of CA contain elements of differentiation and it can be argued that all strategies for CA hinge on differentiation, which is the base quality an organisation should thus seek in any source of competitive advantage.

Nonetheless, there are certain skills and resources an organisation will need to possess in order to follow a specific generic strategy (Refer to Table 3.1). As seen in the table, creative flair is a necessary resource for differentiation. It is proposed that creativity can be used as a resource or competence, which supports the basis for differentiation within a firm to achieve SCA and hence its necessity within an organisation. Coupled with this line of reasoning, various authors have proposed that creativity is a source of competitive advantage (Schoemaker, 1990:1178; Kao, 1991:13; Cook, 1998:179; Cooper, 1998:493; Coutu, 2000:144; Kajanus, 2000:711; McFadzean, 2002a:463; Conradie, 2003:14), which is sustainable because it is flexible and adaptable.

Furthermore, when considering the choice of grand strategies (refer to Section 2.5.6), it should be noted that many of the growth directions for strategic development involve the necessity for something new or unique (Table 3.1), which further supports the argument for creativity as a basis for sustainable competitive advantage, when referring to the definition of creativity which proposes that creativity should be based on the presupposition of some new or unique quality (a more comprehensive definition of creativity will be outlined in the following chapter in Section 4.2).

TABLE 3.1 Skills and resources required for generic strategies

Generic strategy	*Commonly required skills and resources*	*Common organisational requirements*
Overall cost leadership	❑ Sustained capital investment and access to capital ❑ Process engineering skills ❑ Intense supervision of labour ❑ Products designed for ease in manufacturing ❑ Low cost distribution system	❑ Tight cost control ❑ Frequent, detailed control reports ❑ Structured organisation and responsibilities ❑ Incentives based on meeting strict quantitative targets.
Differentiation	❑ Strong marketing abilities ❑ Product engineering ❑ Creative flair ❑ Strong capability for basic research ❑ Corporate reputation for quality or technological leadership ❑ Long tradition in the industry or unique combination of skills drawn from other businesses ❑ Strong co-operation from channels	❑ Strong co-ordination among functions in R & D, product development and marketing ❑ Subjective measurement and incentives instead of quantitative measures ❑ Amenities to attract highly skilled labour, scientists or creative people
Focus	❑ Combination of the above policies directed at the particular strategic target	❑ Combination of the above policies directed at the particular strategic target

Source: Porter (1980:40-41)

Porter (1980:68) advocated that organisations should develop a set of interlocked activities that could not be duplicated by competitors. A question that can be asked in this regard is: how could such an array of activities be developed as a source of differentiation, so as not to be imitated by competitors? It is proposed that this can be done by utilising creativity in all sectors of an organisation, in light of the benefits and results that can be obtained from it (Refer to Section 4.3).

Organisations faced with competitive pressures are likely to find current routines unsatisfactory and should search for innovations via creativity that may enhance performance (Ford, 2002: 637). Creative knowledge may be used to develop new products or services, generate new strategies and opportunities or be used to solve complex organisational problems (McFadzean, 2002b:463).

Creative abilities can be used to find new answers, solutions or ideas (Von Oech, 1983:5). Creativity enables management to disaffiliate from common and known concepts and create a new and unique vision (Conradie, 2003:17).

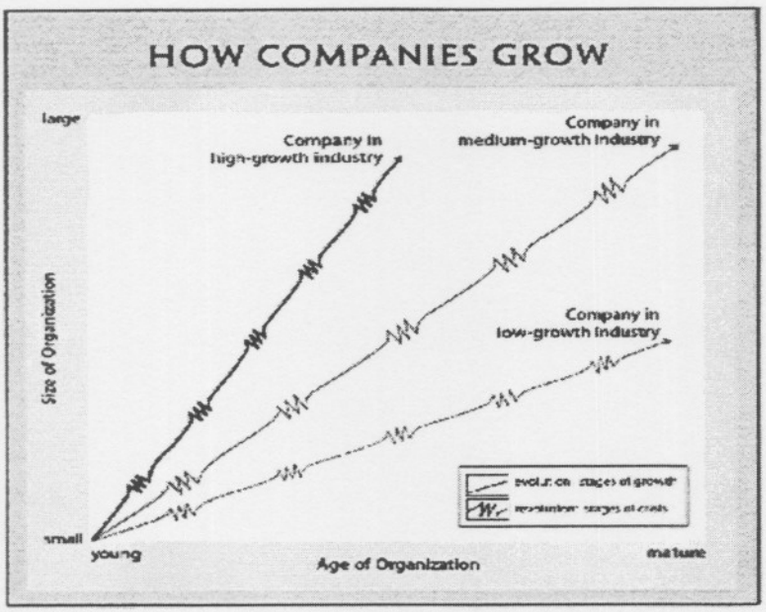
3.3.3 Competitive advantage measures in higher education

Growth is an important supposition of any organisation, higher education notwithstanding. Within the concept of competitive advantage, most organisations advocate growth of some performance measure as a yardstick to measure the performance. Figure 3.6 indicates corporate positions, which can be transmitted back to higher education institutions.

When examining Figure 3.6, it can be rationalised that the South African higher education industry cannot be considered to be in the stage of high growth, but rather in low growth industry, as Levy (2002:30) points out, there is much growth in the tertiary education sector of South Africa, but this growth is only attributable to the private higher education institutions, and occurs outside traditional higher education forms. Therefore the public higher education institutions in South Africa, are not able to achieve growth in

a traditional sense, and need to pursue other measures of competitive advantage to stay ahead of private institutions, which are dominating on market share.

FIGURE 3.6 Growth as a measure of competitive advantage



Source: Yonggui & Lo (2002:45)

Competitive advantage is usually measured by some unit of performance as mentioned in Section 3.3.2. Performance measures need to be constructed so as to support the academic development initiatives of higher education institutions (SAUVCA, 2002:4).

3.3.3.1 Throughput rates in South African higher education

Historically both universities and universities of technology (formerly referred to as technikons) were funded using the old Sapse formula, which was based on the head count of enrolled students. In 1988, the formula was refined and renamed the Refined Sapse Subsidy Formula, which was computed on fifty percent full time enrolments (FTEs) and fifty percent full time equivalent pass norms as set by the Ministry of Education. The

latter had a detrimental impact on historically disadvantaged institutions that had opened their doors in the name of access to students. It created a turnstile effect, where under-prepared students entered and exited because of their inability to cope with the demands of the tertiary nature of education. The attrition or wastage factor was more pronounced in disadvantaged institutions, creating distorted subsidy inputs (Jinabhai, 2003:54).

Especially in recent years, these South African academic institutions, namely the public technikons/universities of technology and mainstream universities have been finding it difficult to sustain advantages in certain academic success or performance areas, namely in measures of output, such as failing to put students through the system and obtain the qualifications that they are registered for. Naidoo (2003:1) notes that poor throughput rates from dropouts cost the average taxpayer in South Africa about R1,3 billion per year. This phenomenon is known as the *throughput rate* and is a strategic measure of the competitive advantage of the tertiary sector, namely because it allows a significant portion of subsidy to be granted from the South African government for each student that passes in a certain time period. Higher education is still publicly subsidised (Breier, 2001:6) and conventional government-funded undergraduate education remains a significant, and for many institutions, a dominant proportion of income (Price *et al.*, 2001:213).

Performance in higher education may be quantified by measures, such as throughput rates and research output rates, but these are also measures of competitive advantage, which are essential in ensuring the survival of higher education institutions. Attractive throughput rates are crucial in attracting new students to the organisation (Anon, 2003b:1). Without this competitive advantage, these academic institutions may face the problem of becoming obsolete.

The previous South African Minister of Education, Kader Asmal stated that eighty-five percent of the students who enrol at tertiary institutions in South Africa do not graduate. He went on to say that the throughput rate of only fifteen percent in these institutions was too low and it needed to be increased. There needs to be a much more systematic study of

this phenomenon (Anon, 2003a:1). Anstey (2003:4) indicates that South Africa has the highest number of tertiary students in Sub-Saharan Africa, but fewer than two in every ten students graduate.

Naidoo (2003:2) notes that South Africa has poor throughput rate due mainly to poor teaching. She goes on to say that a fair number of South Africa's student failures are a direct result of lecturers not being educated properly or skilled in evaluation and teaching methods.

In one institution it was noted that more and more students in the educational system are not completing their qualifications within the defined period (VTT, 2003:126). The decline in student pass rates and the subsequent cut in government subsidy, make it necessary for these institutions to examine the strategies it should follow to protect their survival and profits (Nkopodi, 2002:74). Subsidies are granted both on the basis of throughput rates, as well as research outputs, and institutions are dependent on both for their survival, as with any competitive advantage measure in a business organisation.

If higher education institutions are dependent on these performance outputs for survival and to obtain more funding than another higher education institution, it can be concluded that throughput rates and research output rates are a reasonable measure of competitive advantage within these organisations

3.3.3.2 Research outputs in higher education institutions

The White Paper, disseminated by the South African Department of Education (DOE) indicates that every effort should be made to ensure the financial viability and stability of higher education institutions. It further goes on to say that the following measures should be taken to facilitate this:

- "Measures should be taken to increase the participation rate, as well as the success rates (throughput rate, retention rate, graduation rate) of institutions."

- "High-level research capacity should be secured and advanced in order to ensure both the continuation of self-initiated, open-ended intellectual inquiry and scholarship; and the sustained application of research activities to technological improvement and social development" (DOE, 2003:8).

Naidoo (2003:2) notes that the education department can measure an institution's research performance through its outputs and publications. This data will be used to determine funding in terms of the new formula for higher education. The government proposed in the new funding framework (2001) for public higher education institutions to pay subsidies on the basis of their full time FTEs in different fields of study. An important determinant is that the subsidy will depend on graduate output rates rather than pass rates (Jinabhai, 2003:5). It is well documented that academics are constantly driven to do research and research was, even in the past, rated as a more important activity than teaching itself (Ruth, 2001:157). It is an important output in any public higher education institution.

Jinabhai (2003:55) states that research forms a vital component of the higher education system as a key performance indicator and that the funding for this category is of paramount concern for the higher education sector, especially since the subsidies given in earlier years to the higher education institutions, which were based on "blind research funding", have fallen away and has become output driven.

Public higher education institutions can compete on research outputs, as Levy (2002:32) notes that private research institutions are rare outside the United States. Therefore these two performance measures of competitive advantage (throughput and research output rates) are being used in the study. These measures will be correlated with the barriers to creativity (which will be discussed in the next chapter). These barriers may be considered a representation of organisational climate. Watkin and Hubbard (2003:380) indicate that research has consistently shown that organisational climate can account for up to thirty percent of the variance in key business performance measures.

3.4 SYNOPSIS

This chapter primarily concerned itself with the identification of competitive advantage and sustainable competitive advantage, as well as the place thereof in higher education. Historical perspectives on higher education, as well as the changing nature of education in South Africa presently were outlined. The measures of competitive advantage in higher education, which are to be used in the study, were discussed (throughput rates and research output rates). This chapter forms the basis for the target group that will be sampled in the empirical portion of the study and specifically highlights the bases for obtaining competitive advantage in higher education, which is a pivotal element of the study in question.

The following chapter will deal with creativity as a key source of competitive advantage, as a continuation of this chapter, as well as highlighting potential barriers to creativity in higher education and methods to overcome those barriers. The benefits and advantages of creativity, along with a comprehensive definition thereof are outlined in Section 4.2 and Section 4.3. The following chapter will also document selected previous empirical research that has been carried out to date, regarding organisational climates and barriers to creativity, in other international organisations.

CHAPTER 4

CREATIVITY IN AN ORGANISATIONAL CONTEXT

4.1 INTRODUCTION

The focus for organisations in environments characterised by rapid change is to gain and sustain competitive advantages that cannot be imitated by competitors. The focus is often on innovation as a differentiator to obtain these advantages within the strategic management process. Creativity as a facet of innovation (as well as in other organisational contexts, such as strategy) is downplayed in many instances.

Many studies have been conducted into creativity and there is a collection of literature dedicated mainly to the characteristics of creative individuals and managing innovation, although Conradie (2003:14) notes that very little attention has been given to organisational and managerial issues that pertain to creativity. Creativity is the basis for innovation. The focus of this chapter is to highlight the role of and need for creativity in the strategic processes of an organisation, based on Chapter Three where creativity was cited as a source of competitive advantage.

However, there may be significant individual and organisational barriers, which hamper creativity and the creative process in this regard. According to Amabile (1998a:77), creativity gets eradicated much more often than it gets supported. For the most part, this is not because managers have a vendetta against creativity. Most managers do believe in the value of new and useful ideas. However, creativity is stifled unintentionally every day in vocational environments (Burleson & Selker, 2002:89) that were established to maximise business imperatives such as co-ordination, productivity and control. Managers cannot be expected to ignore business imperatives, but in working towards these imperatives, they may be inadvertently designing organisations that systematically suppress creativity.

An in-depth discussion concerning these barriers, which is of prodigious importance within the study, will also be given; as well as guidelines and approaches for eliminating or managing these barriers.

4.2 DEFINITIONS OF CREATIVITY

Numerous definitions exist for creativity. Neethling and Rutherford (1996:28) propose that over four hundred definitions can be found for creativity, but not one can really encapsulate the concept or put boundaries around it. However, there has been a growing consensus among creativity researchers that regard it appropriate to define creativity in terms of an outcome, such as an idea or product (Tierney *et al.*, 1999:593). This is reiterated by Goldenberg and Mazursky (2002:29) who indicate that creativity can be expressed in terms of a product idea, which may include attributes such as novel, interesting, elegant, unique, surprising and qualitatively different.

However, creativity need not only be represented as an outcome in the form of a product, but can be utilised in any sphere within a business organisation. Smolensky and Kleiner (1995:28) concur with this by stating that although the area of creativity is most commonly concerned with the creation of new ideas and products, it may also be present when things that already exist are altered or combined in new ways.

According to Vandeleur *et al.*, (2001:268), in many cases creativity may be less concerned with the solutions generated than with insights gained from the process. Creativity may also be referred to as a function of the dynamic interaction of the person, process, environment and product (Amabile, 1990:76; Runco, 1990:234; West & Farr, 1990:10).

Organisations may also use the concept of creative thinking to apply new methods or procedures. The essence of creative thinking is a deliberate and systematic search for a new pattern, a new combination, formed from pre-existing component parts, rather than an attempt to make something out of nothing (Sherwood, 2001:95). Creative thinking, is

to think differently, which is sometimes also referred to as lateral thinking (Jude, 1998:36). For higher education institutions this may involve new methods of teaching and conducting research.

Fabian (1990:17) attempts to describe creativity in two facets: inventiveness and the ability to create something new or imaginative. Newell *et al.* (1962:65) state that the end result of the thinking must have novelty or value. It should be also be unconventional, requiring modification of ideas. Couger and Higgins (1993:375) go on to say that the objectives of newness and fruitful recombination are meaningless if they do not provide value-added results.

Kao (1996:17) defines creativity as the entire process by which ideas are generated, developed and transformed into value. In other words, the basic tenet of creativity is to develop something possessing a distinctive, new or unique property, which adds value for an organisation. This definition, concerned with the proponent of newness or uniqueness, combined with usefulness, will be used as the primary basis for the study. This is contended, as it is indicative of the requirements for SCA, which necessitates that an organisation differentiates itself from its competitors in order to maintain a competitive advantage (refer to section 2.5.6 and 3.3.2).

This is one of the main objectives of the strategic process within an organisation, and supports the notion that strategic processes may have to be reformed (or 'made new') to sustain competitive advantages.

4.2.1 Creativity and innovation

According to CEOs, consultants and academics, innovation is the key to achieving competitive strategic advantages, now and in the future (Higgins, 1996:370). Various other authors also cite creativity and innovation as a source of competitive advantage (Kao, 1991:13; Cooper, 1998:493; Kajanus, 2000:711; McFadzean, 2002a:463; Conradie, 2003:14).

Couger (1995:16-18) states that innovation comes 'directly from creativity' and creativity is the underlying driver behind all improvements and innovation (Mojaro, 1992:4). According to Fraser-Moleketsi (2002:14) creative behaviour fosters innovation and Cook (1998:179) observes, "*Creativity is at the heart of structural flexibility and innovative power*".

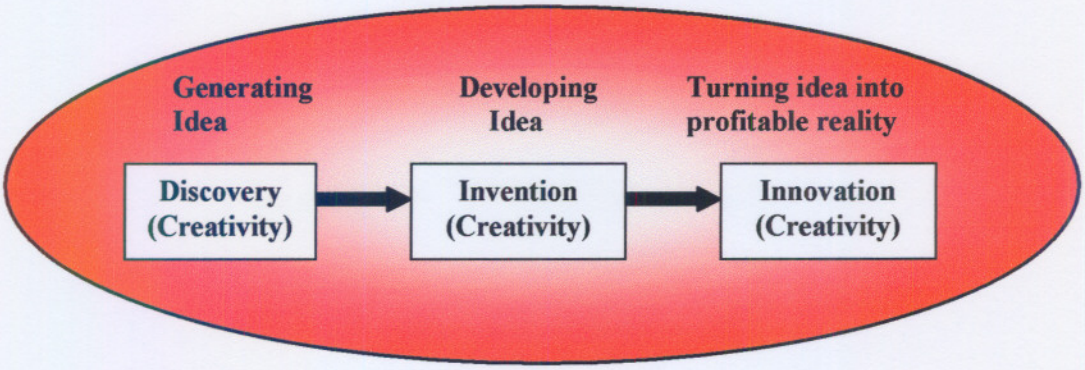
Creativity as a facet of innovation is the basis of sustainable competitive advantage and is a distinctive competency that should be developed in order to improve the strategic functioning of an organisation (refer to Figure 3.5). Gaining a competitive advantage based on distinctive competencies is the ultimate objective of any strategy (Kajanus, 2000:711).

Sherwood (2001:7) and Rosenveld and Servo (1991:29) state that creativity and innovation is not the same thing, although often used interchangeably. Creativity is about having ideas and innovation involves bringing ideas into commercial completion. The value of innovation is rarely questioned, but it would not exist without the basis of creativity.

Kuhn (1988:38) says that there is a marked difference between creativity and innovation. Creativity works to disrupt habitual ways of thinking, while innovation still uses habit, tradition and culture to arrive at new ways of doing things. Tierney *et al.* (1999:591) states that individual creativity is the building block for organisational innovation.

Couger (1995:17) further explains this concept by indicating that creativity is of vital importance in discovery and invention, which leads to innovation. Creativity is a far broader concept than innovation because it is implicated in all the abovementioned factors, which ultimately lead to innovation. Creativity is a fundamental principle as a basis for the other elements. The relationship between these elements is displayed in Figure 4.1:

FIGURE 4.1 The role of creativity in the facets of innovation



Source: Couger (1995:18)

4.2.2 Creative problem solving (CPS)

When organisations are involved in the planning and enactment of strategies and general day-to-day functioning within the organisational framework, they are likely to encounter problems or difficulties that naturally occur in the course of events. Creative problem solving (CPS) can be useful in dealing with organisational problems. CPS focuses on assessing the nature of the problem and identifying a set of relevant goals before attempting to address the problem (Chalmers, 1999:78).

Problems should be clearly defined before any attempt can be made to address them. Proctor (1995:58) states that consideration should be given to problem definition in order to find a solution. If the problem is stated vaguely or at a general level, no progress can be made in finding a workable solution. Creativity is then applied to generate ideas and find methods of implementing the ideas that have been generated (Couger, 1995:111).

A creative problem-solving model was developed by Osborn (1953:42) and Parnes (1967:97). Osborn's model for CPS consisted of three phases: fact-finding, idea finding and solution finding. Parnes expanded this model to include the phases of problem finding (in-between fact finding and idea finding). He also highlighted implementation as an important factor in the process, so added it as the fifth phase in the CPS model.

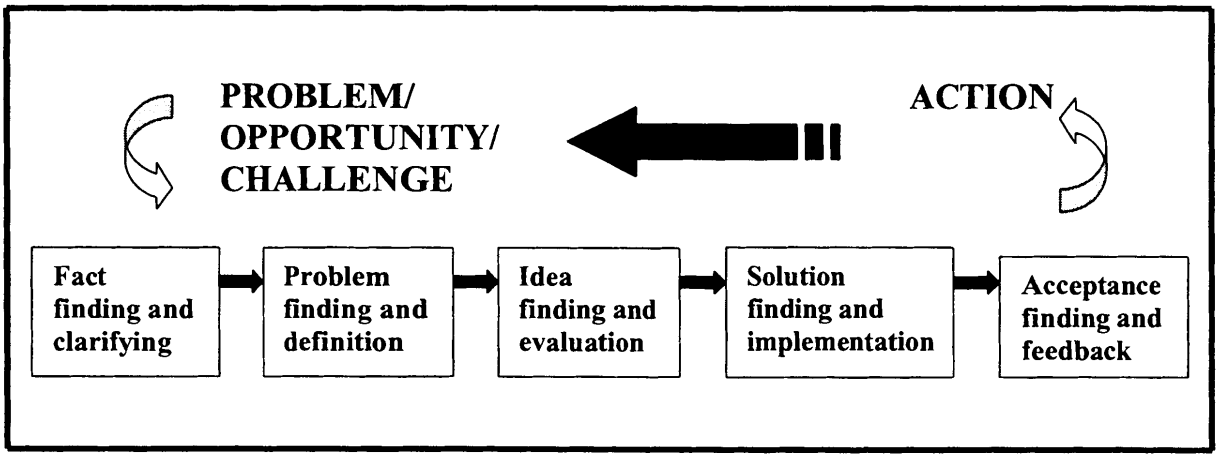
This is the final model that is most widely used today in creative problem solving literature. It is fundamentally founded on creativity and is encapsulated in Figure 4.2.

4.2.2.1 Benefits of CPS

Creative problem solving has many benefits, such as enabling employees to produce numerous ideas and alternatives, which could lead to a desired solution. Pokras (1989:2) outlines certain advantages that can be obtained from applying creative problem solving within an organisation:

- CPS allows an individual or an organisation to define the actual problem rather than attempting to solve symptoms.
- Permanent solutions can be implemented, rather than temporary, ineffective solutions.
- The decisions that are made within the parameters of CPS are decisions that can be implemented and that should function effectively.
- Learning can take place between team members whilst defining problems, reaching decisions, clarifying solutions and implementing action plans. CPS assists in promoting effective teamwork between participants of a group within an organisation

FIGURE 4.2 The Osborn/Parnes creative problem solving model



Source: Adapted from Osborn (1953:42) and Parnes (1967:97)

4.2.3 Organisational creativity

Amabile (1998a:77) states that in many cases people tend to associate creativity with the arts and to think of it as the expression of highly original ideas. In business organisations, originality is not enough. To be creative, an idea must also be appropriate, useful and actionable. It must somehow influence the way things get done in an organisation – by improving a product for instance - or by opening up a new way to approach a process. Kuhn (1988:4) is of the opinion that creativity in organisations and management is not a concept that exists in isolation. The role of creativity must be tailored to fit in with other intellectual disciplines required for managing an organisation.

De Bono (1993:63) points out that creativity is necessary in all thinking that involves perceptions and concepts. In finance, engineering and science, there is as much a need for creative thinking as in product design. This concept is reiterated by Fryer (2003:1) who indicates that creativity is needed throughout the organisation to ensure that activities are conducted in the most relevant and productive way possible.

It is a fallacy to assume that creative thinking should be confined to the arts and is not part of the analytical sciences. It can therefore be assumed that creativity should also be utilised in strategy development and implementation within higher education institutions, as Katz (1999:3) notes that higher education institutions are businesses in the ordinary sense of the word and have to follow strategies like commercial enterprises do.

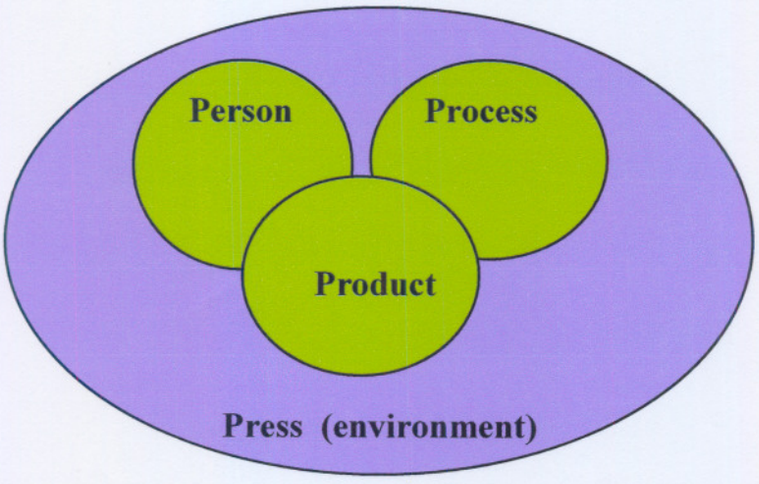
Amabile (1983:30) suggested three preconditions for creativity, which are: domain-relevant skills, creativity-relevant skills and task motivation. Domain-relevant skills and factual knowledge are required for performance in a given area. Creativity-relevant skills are those that allow the individual or team to be creative by using innate creativity. The third precondition of task-motivation includes a motivational variable that will determine an individual or team's willingness to perform tasks or processes that are involved with creative thinking (Amabile, 1983:31). It is therefore a myth to assume that creativity is entirely unstructured and is not based on a formal process (Couger, 1995: 19).

Although the framework developed by Amabile explains the preconditions for creativity, according to Couger and Higgins (1993:376) it does not explain the application of creativity in an organisation. A model for creativity, developed by Couger and Higgins (1993:376-378) called the '4Ps' model represents four components, namely person, process, product and press. When discussing the person, the authors denote that research has shown that creativity is present in everyone.

The creative process allows individuals to enhance their creative abilities, and, according to Parnes (1987:156-188), creative abilities can be developed by deliberate programs and methods. Creativity can also be expressed as an outcome such as a creative product.

The fourth 'P' in the model is the press or creative environment. The work environment for encouraging/discouraging creativity is well substantiated in creativity research. Cooper (1998:494) points out that organisational structure, organisational determinants and organisational climate are directly correlated with the adoption of innovation and creativity. Optimum results will not occur, unless an organisation has a positive climate for creativity (Couger & Higgins, 1993:380). The 4Ps model of creative behaviour is shown in Figure 4.3

FIGURE 4.3 The 4Ps model of creative behaviour



Source: Couger (1995:4)

Creativity may occasionally be recognised as a useful commodity, but Wong and Pang (2003:29) mention that creativity is in short supply in today's executives and should be encouraged. Peddie (2002:26) goes on to say that in current intellectual culture, serious attention has not been paid to creative thinking. People may have acknowledged the value of it, but have treated it as a separate commodity that only some may possess. But Tierney *et al.* (1999:591) indicate that creativity is becoming a commodity of ever-increasing interest to organisational managers.

Whether creativity is overlooked within an organisation or whether a conscious effort is made to nurture it, the following section indicates potential reasons why creativity is necessary and needed in an organisational context. The benefits for utilising creativity within an organisation are also disclosed.

4.3 UTILISING CREATIVITY

4.3.1 The need for and benefits of creativity

De Bono (1992:19) states that when there is a problem and no standard way to solve the problem or the standard way is not satisfactory, then there is a practical need for creative thinking. As previously mentioned (refer to section 2.5.6), a standard way of competing within organisations will not result in SCA, therefore there is a need for creativity within organisations. It is also pointed out in section 3.3.2 that creativity is a source of competitive advantage, which makes it indispensable to an organisation's functioning, and forms the backdrop to the study.

Clegg and Birch (1998:75) advocate that creativity provides the single greatest prospect for any organisation to improve its business performance. The creative application of ideas is considered by many to be of critical importance. It is acknowledged that enhancing the creative abilities of employees is necessary for overall commercial success and competitive advantage (Burnside, 1990:11; Shalley, 1995:3).

All facets of the world are subject to constant change. Technological innovation has resulted in an increasing pace of change and new products/services emerge at a faster rate than ever before. To survive, organisations will have to become more responsive and flexible enough to react quickly to environmental changes and creative enough to add competitive value through constantly innovating (Henry, 2001:8).

There is a need for organisations to change and adapt in order to remain competitive. Creativity can be used in this regard because it is useful in improving communication, promoting learning and exploration of the problem and helps to develop new ideas, solutions and/or alternatives (McFadzean, 1998:309) and in an era of global competition, fresh ideas have become the most valuable raw materials (Cocks, 1990:48). In times of change, creative thinking is the key, which allows people to cope, adapt and succeed (Lumsdaine & Lumsdaine, 1995:3).

Organisations today are knowledge-based and their success will depend heavily on creativity, innovation, discovery and inventiveness (Martins & Martins, 2002:58).

In an article by Bennett (2000:1), it was indicated that creativity can result in a marked increase in productivity and that it was the type of thinking that was logical and systematic and could be taught to anyone.

Furthermore, there are many views regarding the practical benefits of utilising creative thinking. For example, Hamlyn (1997:32) claims that creative thinking is indispensable and forms a catalyst that allows individuals and organisations to repel mediocrity and facilitate success, based upon values and needs.

4.3.2 The cost effectiveness of creativity

Not only does utilising creative thinking provide numerous strategic advantages for organisations, a further benefit arises for an organisation in utilising it, as it is also cost effective. Organisations are ultimately concerned about the bottom line (Amabile,

1998a:77). However, as Morgan *et al.* (1997:205) point out, using creativity is the most inexpensive method of making use of existing assets and creative employees are considered to be prime business assets (Andriopoulos & Lowe, 2000:734). Increasing spending on the development of the creativity of employees is therefore an astute investment.

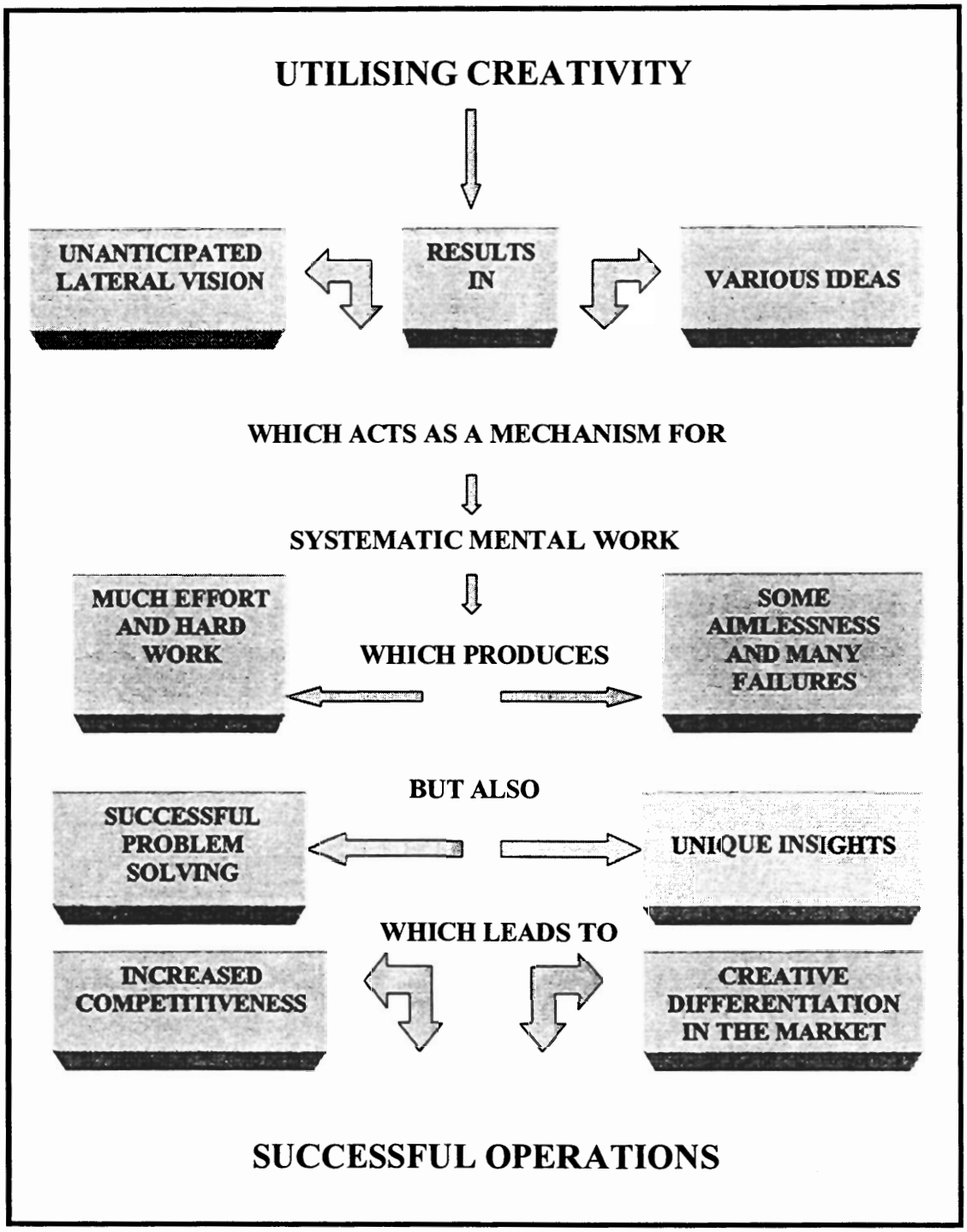
Making the most of organisational resources is essential to the success of any business. To be able to train employees to think creatively, maximises one of the most valuable assets available to any company (Smolensky & Kleiner, 1995:28). Human capital is an asset that can be cultivated to result in increased performance for an organisation and ultimately an enhanced likelihood for sustainable competitive advantage.

Many examples exist about the profitability of utilising creative thinking in organisations. Cocks (1990:48) refers to the example of a company who organised their staff into creative teams. The outcome was that their profits rose by two hundred and fifty percent in the five years that they had made use of this method.

In another example, an executive explained how by applying creativity, he achieved in twenty minutes what would usually take two days (Godfrey, 1998:16). This time-saving approach contributes to the cost-effectiveness of utilising creativity. Tyler (2001:42) also states that it is more costly not to develop creativity in an organisation. Ekvall and Rykhammer (1998:128) note that creative climate has a significantly positive effect on the financial performance of an organisation.

Lampikoski and Emden (1996:9) indicates that creative and imaginative thinking is profitable for a business as it results in successful business operations. Garcia (1989:10) reiterates this by stating that organisational activities cannot successfully be performed, unless the people concerned have the necessary skills to solve problems effectively, think creatively and be equipped to make timely and effectual decisions. The ability to make decisions and solve problems quickly and creatively will result in a more profitable organisation. This is represented in Figure 4.4.

FIGURE 4.4 Profitability of creativity in an organisation



Source: Adapted from Lampikoski & Emden (1996:9)

4.4 CREATIVE CLIMATES IN ORGANISATIONS

The focus of the study is on the barriers to creativity within organisations, but reference should be made to what constitutes a creative climate within an organisation, before the barriers to that climate can be discussed.

Creativity produces a competence motive, which is a need amongst all people, irrespective of race or gender, to demonstrate their competence, so that they might feel good about themselves. An organisation can harness this need to succeed and use it as a basis for a creative climate (White, 1994:4).

Walton (2003:150) and Harari (1998:23) state that in an organisational context, the development of an environment that is conducive to creativity can be achieved as easily by eliminating sources of demotivation or barriers, as it can by actively supporting creative thought. It is an important supposition that these barriers or hindrances should be addressed in order to allow a climate for creativity to flourish. Previous studies conducted into the concept of which dimensions constitute a creative climate will be discussed in Section 4.6. The barriers to creative climates will be delineated in the following section.

4.5 BARRIERS TO CREATIVITY

Amabile (1998a:78) indicates that managers hold a rather narrow view of the creative process. To them, creativity refers to the way people think – how inventively they approach problems, for instance. Thinking imaginatively is one part of creativity, but two others are also essential: expertise and motivation. Expertise encompasses everything that a person knows and can do in the broad domain of his or her work.

Creative thinking refers to how people approach problems and solutions – their capacity to put existing ideas together in new combinations. The skill itself depends moderately

on personality as well as on how a person thinks and works. Martensen and Dahlgaard (1999:879) also stress that the concept of a creative organisation is based on the people in the organisation.

According to Murrin (2001:1), nine out of ten people agree that innovation and creativity are vital to growth, however, the same nine do not know how to practice or inspire creativity in day-to-day organisational activities. In the same vein, employees often know exactly what their organisation's problems are and how to solve them, but they find that their managers are quite unable to see the obvious (Hiam, 1998:30).

According to Walton (2003:146) managers in principle, consider designing a work environment to support creativity to be of vital importance, but in practise, take very few steps to turn this goal into a reality. In recent empirical work, mentioned by the same author, it shows that in the USA some 80 percent of the managers surveyed, rated creativity as one of the most important elements for corporate success, yet less than 5 percent of organisations actually put this emphasis into practice. This inability to secure action may be one of the significant hindrances to creativity in an organisation.

4.5.1 Internal barriers to creativity

Couger (1995:72) discusses barriers to creative thinking, which were first illustrated by Adams (1986). These are categorised as perceptual, emotional, cultural, intellectual and environmental blocks. Mijburgh (1997:64) explains that the first four are considered to be internal barriers to creativity and only environmental blocks can be considered as an external barrier.

- **Perceptual barriers**

Couger (1995:75) mentions several perceptual blocks to creativity, such as: merely accepting data that is in actuality unsubstantiated; difficulty in seeing remote relationships and prematurely assuming the nature of the problem.

- **Emotional barriers**

Sherwood (2001:28) explains that personal fear may be a hindrance to how creative or innovative an organisation may be. As individuals ultimately drive idea generation, each individual's personal willingness to suggest ideas contributes to the organisational capability to innovate. This in turn drives organisational success.

- **Cultural barriers**

Conformity to norms may be a cultural barrier (Rothberg, 2000:218). Other factors such as unacceptable societal beliefs and stereotyping (assuming facts about situations and people, based on preconceived notions from previous experience or hearsay) can affect creativity in the way that people react or view situations (Couger, 1995:76).

- **Intellectual barriers**

According to Lumsdaine and Lumsdaine (1995:118), false assumptions can be an intellectual barrier to creativity. What people believe about creativity has a major impact on how creative they become, how much creative thinking they will do and how they will encourage others to express their creativity. Sticking to the same patterns of thinking can be an intellectual barrier (Rawlinson, 1981:12). A mindset, such as refusing to change one's viewpoint of a particular person or situation often undermines creativity within an organisation (Gurteen, 1998:5; Henry, 2001:59). Other barriers in this regard may include: failure to tolerate creative behaviour (Hiam, 1998:30-35); insight problems. (Henry, 2001:61); fear and lack of trust (Rothberg, 2000:218).

- **Environmental barriers**

Environmental barriers are those barriers imposed by an external influence or as Couger (1995:77) states: our immediate social and physical environment. They can be characterised as barriers that the organisation advertently or inadvertently enforces.

Whilst individual barriers may impede creativity, the organisational environment can be a significant hindrance to creativity in the workplace (Berlyn, 1960:3; Amabile & Gryskiewicz, 1989:248; Couger & Higgins, 1993:378). Although internal barriers may affect creative outcomes, they will not be included in the study. The barriers to creativity imposed by the organisational environment in higher education will be the focal point of this study. The significant barriers are explained as follows:

4.5.2 Organisational barriers to creativity

Whilst an individual employee may possess intrinsic barriers to creativity, such as personality, or experience social barriers, the working environment within which he/she operates, may more often be a deterrent to creativity (Amabile, 1997:39).

Albrecht (1987:16) mentions that organisational creativity can be hampered by the following three issues:

- **The larger the organisation, the less the creative possibilities**

This is due to the fact that the larger an organisation becomes, the more difficult it is to adapt to change, as well as adopting habits, traditions and rules.

- **A strong commitment to performance**

This indicates that there is a tendency not to tolerate any failures. There is always a certain degree of risk or chance of failure when utilising creativity.

- **Success may also hamper creativity**

People in the organisation may feel that they now have the correct formula for success due to their previously attained goals and are not inclined to accept new ideas very readily.

Other inhibiting factors, which have an impact on the individual employees within an organisation include:

- **The destruction of ideas**

Lampikoski and Emden (1996:151) maintains that whilst negative reactions to an idea may be a barrier, often the easiest and quickest method of dampening a person's creativity is to say nothing, *i.e.* giving no feedback when someone enthusiastically expresses his or her idea. Saying nothing in this situation may cause the speaker to feel foolish and to give endless explanations or become apologetic. This is a method in which many managers dull their employees' enthusiasm for new ideas.

- **Organisations place too much emphasis on the process**

Often the process becomes an end in itself, more important than the actual goal to be accomplished (Klein, 1990:65-66).

- **Restrictive controls**

Financial controls are essential in an organisation. Creativity cannot flourish and be rewarded if there is not adequate profit. However, there is a danger in allowing money to be the only criterion on which decisions are based. Focussing too heavily on costs can paralyse a department. Furthermore, creative people are unable to function effectively when time sheets are expected to account for every hour (Klein, 1990:65-66).

- **Creativity is not needed**

One of the largest barriers to creativity at both the individual and organisational level is the concept that creativity is only necessary in specialised disciplines such as research and development (R & D). Creativity is required at every level and within every dimension in an organisation. Creativity is the responsibility of each functional

discipline, each team, each manager and every individual. Creativity can be applied to any act (Gurteen, 1998:6).

Other organisational barriers, which have been identified by various authors (Andriopoulos, 2001; Henry, 2001; Amabile, 1998a ; Couger, 1995: Klein, 1990) can be summarised as follows:

- **Too much emphasis on the process rather than the final outcome**

Often employees might find that they are constrained by the goals or objectives that an organisation sets (Henry, 2001:61).

- **The top management structure makes the decisions**

There must be top management support for creativity and innovation. Often management will articulate their support, but will not carry it out (McFadzean, 1998:310).

- **Bureaucratic structures and systems**

The way in which an organisation is structured can have implications for the development of the creative process. As an organisation grows, processes are often set in place which are counterproductive to the creative process and to communication in general. For this reason, larger organisations have more complicated structures in place, and for the most part, less of a creative climate (Walton, 2003:152). A rigid organisational structure can inhibit creativity (Conradie, 2003:18).

Cooper (1998:494) indicates that organisational structure plays an important role in creativity, explaining sixty percent of the variation in the adoption of innovation in organisations.

4.6 PREVIOUS STUDIES

To further delineate the concept of what constitutes a creative climate and what the barriers to that climate might be, it is essential to deconstruct a selection of the previous empirical work that has been done in the field.

Various authors on the subject (Ekvall & Tångeberg-Andersson, 1986:215-225; Amabile & Gryskiewicz, 1989:231-254; Isaksen *et al.*, 1999:665-674; Henry, 2001:36) have conducted empirical research into the concept of what constitutes a creative climate within organisations. Ekvall and Tångeberg-Andersson's (1986:215-225) creative climate questionnaire (CCQ) was originally developed to measure those constructs.

Isaksen *et al.* (1999:665-674) developed the Situational Outlook Questionnaire (SOQ), which was constructed to assess how much any particular context will support creativity and change. The SOQ is a redefinition and revalidation of the work done by Ekvall. The measure is an English translation of the CCQ originally developed by Ekvall and Tångeberg-Andersson (1986:215-225). The summarised instrument dimensions and its explanation can be examined in Table 4.2.

In Amabile and Gryskiewicz's (1987) research on content analysis, they also reviewed nine qualities of environments that, when inverted, could be a hindrance to creativity, namely:

- **Inappropriate reward systems**

Managers in successful, creative organisations rarely offer specific extrinsic rewards for particular outcomes. However, they freely recognise creative work by individuals and teams, which is more of a motivator (Amabile, 1998a:84). The lack of rewards in the workplace is a barrier to creative thinking (Rothberg, 2000:218).

- **Lack of freedom**

Along with freedom, goes an environment that promotes enjoyment and fun. Creative thinking can be hindered if participants are not allowed to enjoy themselves in the process (Hall, 1996:115-116).

- **Organisational disinterest**

Not giving praise or encouragement for creative efforts dampens creativity and hampers intrinsic motivation. Creativity is truly enhanced when the entire organisation supports it (Amabile, 1998a:84-85).

- **Poor project management**

This can be classified under 'rigid rules and company style'. Corporate bureaucracies often become unbendingly formal and might greatly inhibit creativity. Although a manager would not choose to have his or her freedom reduced, it is an unusual manager who does not attempt to routinise the areas under his or her jurisdiction (Wong & Pang, 2003:33).

A manager who consistently attempts to force or manipulate projects to proceed in his or her own direction will be undermining the creative efforts of the subordinates reporting to him or her.

- **Threatening evaluation**

Employees may feel unable to express ideas for fear of being criticised or evaluated negatively. Destructive judgement is a problem (Gurteen, 1998:9) as well as critical scrutiny (Amabile, 1998a:87).

- **Insufficient resources**

The two main resources that affect creativity are time and money. Managers often do not allot these resources properly. Matching people with the right assignments or deciding how much time and money to give a team and a project is a sophisticated judgement call that can either support or kill creativity. Adding more resources above a 'threshold of sufficiency' does not boost creativity. However, below that threshold, restricted resources can dampen creativity (Amabile, 1998a:82).

- **Time pressure**

Extreme time pressures, unrealistic expectations for productivity and distractions from creative work all contribute to employees feeling unable to cope and unable to produce creative outcomes (Amabile, 1998a:6)

- **Overemphasis on the status quo**

This involves fear of change or risk aversion, maintaining the current situation, management repudiating ideas and/or no support from them (Wong & Pang, 2003:27).

- **Competition**

The fact that many industries and organisations are faced with extreme competitive pressure, contributes to the overall job-related pressure that employees have to face. Employees have to perform or face the consequences and this produces an environment rife with job-related anxiety and fear (Wong & Pang, 2003:33).

The dimensions discussed above which are contained in the Situational Outlook Questionnaire (SOQ) are summarised in Table 4.1.

TABLE 4.1 Dimensions of creative climate assessed by the SOQ

Dimension	Description	Sample item
Challenge/involvement	The degree of emotional involvement, commitment and motivation in the daily operations and goals of the organisation	The work atmosphere here is filled with energy
Freedom	The level of autonomy and initiative in behaviour exerted by individuals to acquire information and make decisions in the organisation	People here make choices about their own work
Trust/Openness	The degree of emotional safety, and openness found in professional and personal relationships	People here do not steal each other's ideas
Idea time	The amount of time people can use (and do) for elaborating new ideas	Time is available to explore new ideas
Playfulness/humour	The display of spontaneity, ease, good natured joking, and laughter that is displayed	People here exhibit a sense of humour
Conflict	The presence of personal and emotional tensions or hostilities	There are power and territory struggles here
Idea support	The degree to which new ideas and suggestions are attended to and treated in a kindly manner	People usually feel welcome when presenting new ideas here
Debate	The expressing and considering of many different view points, ideas and experiences	A wide variety of viewpoints are expressed here
Risk-taking	The tolerance of ambiguity and uncertainty	People here often venture into unknown territory

Source: Isaksen *et al.* (1999:665-674); Isaksen *et al.* (2001:175)

Henry (2001:36) summarises and characterises the dimensions originally used in the CCQ to measure creative climates in organisations. These are outlined in Table 4.2.

TABLE 4.2 Creative climate dimensions

Dimension	Characteristics More creative (+)	Characteristics Less creative (-)
Challenge	Enjoyable Energetic	Alienated Indifferent
Freedom	Independent Initiatives taken	Passive Rule-bound
Dynamism/Liveliness	Excitedly busy	Boringly slow
Trust/Openness	Trusting Failure accepted	Suspicious Failure punished
Idea time	Off-task play	Little off-task play
Mood (Playfulness/humour)	Happy/humorous	Serious/dull
Conflicts	Handled constructively	Handled destructively
Idea Support	People listen helpfully	People are negative and critical
Debates	Contentious ideas voiced	Little questioning
Risk-taking	Fast decisions Risk acting on new ideas	Cautious, safe decisions Detail and committee bound

Source: Henry (2001:36)

In the work environment inventory (WEI), Amabile and Gryskiewicz (1989:231-254) developed eight scales that depict environmental improvements for creativity and four scales that identify environmental obstacles to creativity, using certain of Ekvall's viewpoints as a basis upon which the measuring instrument is grounded. The four obstacles that they identified are the following:

- **Time pressure and heavy work load**

Organisations characteristically slay creativity with fake deadlines or impossibly tight ones. The former creates distrust and the latter causes burnout. In either case, employees feel over-controlled and unfulfilled, which invariably destroys motivation. Furthermore, creative exploration may take time and managers who do not grant time for this, are inadvertently impeding the creative process (Amabile, 1998a:82).

- **Threatening evaluation**

Sherwood (2001:30) also warns against premature evaluation, stating that many people or organisations become very enthusiastic when ideas are discussed. If it is their own idea, they are enthusiastic, optimistic and/or persuasive. If the idea is not their own, they are hypercritical or scathing. This condition is known as premature evaluation and is a hindrance to all concerned parties. Amabile (1998a:84) also states that reacting negatively to ideas creates a negativity bias, which in turn creates a climate of fear, which undermines intrinsic motivation.

- **Status quo**

When the boss gives out signals that his or her way is the best way, possible alternatives and better ways of doing things are stifled. Even the most creative people will not necessarily jeopardise their jobs by challenging an autocratic manager (Klein, 1990:65-66). Managers also tend to change goals frequently or fail to define them clearly (Amabile, 1998a:82).

The atmosphere in an organisation should be one that allows risk-taking (Mohamed & Rickards, 1996:111). An atmosphere conducive to creativity will require participation and freedom of expression, not one that attempts to stifle creativity by doing things the way they have always been done (Andriopoulos, 2001: 834).

- **Political problems**

Bureaucracy tends to lead to more bureaucracy, habitually forming task forces, project groups and review boards are the norm. Such groups tend to suffocate new ideas. The more people there are evaluating an idea, the more room there is for criticism and the more points of view have to be accommodated (Klein, 1990:65-66).

To measure the above, Amabile (1998b:6) expounds on her previous work, with the development of a scaled measuring instrument called KEYS. The instrument measures six specific stimulants to creativity and two obstacles to creativity. The KEYS scale descriptions are summarised in Table 4.3.

TABLE 4.3 KEYS scale descriptors

STIMULANTS TO CREATIVITY	*ITEM DESCRIPTOR*
Freedom	Deciding what work to do or how to do it; a sense of control over one's work
Challenging work	A sense of having to work hard on challenging tasks and important projects
Sufficient resources	Access to appropriate resources, including funds, materials, facilities and information
Supervisory encouragement	A supervisor who serves as a good work role model, sets goals appropriately, supports the work group, values individual contributions and shows confidence in the work group
Work group supports	A diversely skilled work group in which people communicate, are open to new ideas, constructively challenge each other's work, trust and help each other, and feel committed to the work they are doing
Organisational encouragement	An organisational culture that encourages creativity through the fair, constructive judgement of ideas; rewards and recognition for creative work; mechanisms for developing new ideas; an active flow of ideas; and a shared vision

TABLE 4.3 KEYS scale descriptors (continued...)

OBSTACLES TO CREATIVITY	*ITEM DESCRIPTOR*
Organisational impediments	An organisational culture that impedes creativity through internal political problems, harsh criticism of new ideas, destructive internal competition, an avoidance of risk, and an overemphasis on the status quo
Workload pressure	Extreme time pressures, unrealistic expectations for productivity and distractions from creative work

Source: Amabile (1998b:6)

A pivotal study conducted by Wong and Pang (2003:27-29) into barriers in the hotel industry in Hong Kong, highlights the following as some of the more specific potential barriers to creativity within an organisational context.

- **Low commitment to organisation and system**

Shows the structure of the company and the external environment from which employees were unable to get support or clear direction from the company. This contributes to low morale and employees not feeling involved or receiving any recognition.

- **Fear of change and criticism**

This involves risk aversion, fear of failure, maintaining the status quo, management turning down suggestions and not being supported by management.

- **Time and work pressure**

Items measuring this dimension have a direct relationship with job-related pressure, with a heavy workload and intensive competition. Staff had to finish work in a limited time.

- **Rigid rules and company style**

These statements encompass the rules and regulations of an organisation and a conservative management style. Management has a tendency to attempt to maintain established traditions, and many controls were set in place to regulate employees.

For the study, a selection of the abovementioned empirical work will be utilised to measure the barriers to creativity within the higher education sector within South Africa. Table 4.4 summarises the dimensions as discussed, which were derived empirically by the abovementioned authors, and which will be used as a basis of the study.

Many of the dimensions, empirically developed by these researchers, which are indicative of a creative climate or which, if reversed, can be considered as factors that may hamper a creative climate are summarised in Table 4.4. Many are repetitive and often coincide with one another. The study is based on elements of the abovementioned table, which will be extracted and integrated into the empirical study in Chapter Five.

TABLE 4.4 A selection of empirical work in the field

Researcher (s)	*Year*	*Instrument*	*Dimensions*
Ekvall & Tångeberg-Andersson	1986	CCQ	❑ Challenge ❑ Freedom ❑ Idea support ❑ Trust ❑ Dynamism ❑ Playfulness/humour ❑ Debates ❑ Conflicts ❑ Risk-taking ❑ Idea time
Isaksen *et al.*	1999	SOQ	❑ Challenge/involvement ❑ Freedom ❑ Trust/Openness ❑ Idea time ❑ Playfulness/humour ❑ Conflict ❑ Idea support ❑ Debates ❑ Risk-taking

TABLE 4.4 A selection of empirical work in the field (continued...)

Researcher (s)	*Year*	*Instrument*	*Dimensions*
Amabile & Gryskiewicz	1987	Research content analysis	❑ Inappropriate reward systems ❑ Lack of freedom ❑ Organisational disinterest ❑ Poor project management ❑ Evaluation ❑ Insufficient resources ❑ Time pressure ❑ Overemphasis on the status quo ❑ Competition
Amabile & Gryskiewicz	1989	WEI	❑ Time pressure ❑ Evaluation ❑ Status quo ❑ Political problems
Amabile	1998	KEYS	❑ Freedom ❑ Challenging work ❑ Sufficient resources ❑ Supervisory encouragement ❑ Work group supports ❑ Organisational encouragement ❑ Organisational impediments ❑ Workload pressure
Wong & Pang	2003	Independently developed	❑ Low commitment to organisation and system ❑ Fear of change and criticism ❑ Time and work pressure ❑ Rigid rules and company style

4.7 SURMOUNTING HINDRANCES TO CREATIVITY

Once the barriers to creativity have been identified within an organisation, researchers have certain ideas on how to overcome them. Many authors (Amabile, 1998a:81; Tierney *et al.*, 1999:600; Paper,1997:219) agree that overcoming organisational barriers will begin with the intrinsic motivation of individuals.

4.7.1 Motivation

Motivation is possibly the most important factor in creating an environment conducive to creativity. Extrinsic motivation involves an external influence that will affect the behaviour of an individual. Intrinsic motivation involves passion and interest- a person's internal desire to do something. This intrinsic motivation can be influenced by subtle changes in the organisation's environment (Amabile, 1998a:81). Tierney *et al.* (1999:600) explains that a manager's expression of enthusiasm or acceptance of an employee's idea is one of the eminent factors necessary to improve an employee's motivation to be creative. Paper (1997:219) admonishes that rewards are necessary to assist the prospect of (extrinsic) motivation.

Mohamed and Rickards (1996:111) note that organisational climate is linked to creativity. The following other guidelines for stimulating a creative climate are advised, which are categorised under the dimensions of challenge, freedom, resources, work-group features (teams), supervisory encouragement and organisational support (Mohamed & Rickards, 1996:111; Amabile, 1998a:79-83; McFadzean *et al.*, 1999:421). These thoughts are based on the work of Amabile (1998b:79-83), which involves recommendations based on the KEYS inventory (refer to Table 4.4).

4.7.2 Challenge

To challenge employees means matching them with the right assignments. This is an additional factor, which may also be linked to the abovementioned concept of intrinsic motivation (Mohamed & Rickards, 1996:111). Rothberg (2000:219) explains that matching people with the correct products and processes is also important. For example, at Sony Corporation, experienced engineers are assigned to find cost improvements for existing products, whilst more newly appointed employees are assigned to designing something new that is higher priced.

4.7.3 Freedom

This involves giving employees autonomy concerning the means (the process), but not necessarily the ends. Clearly specified goals often enhance people's creativity. It is also helpful to provide a climate that supports liveliness/dynamism and playfulness/humour (Mohamed & Rickards, 1996:111).

4.7.4 Resources

Time and money, can support or kill creativity. Time pressure can heighten creativity, but fake deadlines or impossibly tight ones kill creativity. More resources above what is sufficient, does not boost creativity, but on the other hand, a restriction of resources can dampen creativity. It is necessary to provide support in the form of sufficient time, authority and resources for creative efforts (Amabile, 1998a:80; Tan, 1998:28).

4.7.5 Supervisory encouragement

Managers should give praise (Amabile, 1998a:80) and idea support (Mohamed & Rickards, 1996:111). In an innovation study conducted by Scott and Bruce (1994:600), they found that leadership and support for innovation was significantly related to individual innovative behaviour. This study proved that creative/innovative behaviour was related to the quality of the supervisor-subordinate relationship.

4.7.6 Organisational support

Creativity is truly enhanced when the entire organisation supports it. Mandating information sharing and collaboration is useful in this regard (Amabile, 1998a:79-83). Managers should expect to see experimentation and take risks themselves (Sethi *et al.*, 2001:17).

There should be senior management support for creativity in the organisation (McFadzean, 1998:310). Employees should be involved in creative training advocated by the organisation (Paper, 1997:219).

4.7.7 Teams

Creativity is encouraged by the formulation of diverse teams, not homogenous teams (Amabile, 1998a:82; McFadzean, 1998:310; McFadzean, 2002:463). Employee creativity is fostered by membership in empowered teams and by regular brainstorming sessions (Paper, 1997:219). Although as Sethi *et al.* (2002:16) point out, teams should not be so diverse that they will continually engage in negative conflict.

4.7.8 Other methods for enhancing creativity

Andriopoulos (2001:834-841) advocates that there are specific areas within an organisation that should be addressed to enhance creativity. The areas are as follows:

- **Leadership style**

There is evidence that a democratic, participative leadership style in managers is effective in enhancing creativity in the organisation (Nyström, 1979:43) and at the same time they have to show concern for employees, recognise and praise creative work, as well as encouraging employees to voice concerns/provide feedback (Amabile, 1998a:82-83).

- **Culture**

Organisational culture is perceived to be a 'set of collective norms, which influences the behaviour of members' within the organisation (Andriopoulos, 2001:835). An important factor to be considered under organisational culture is ensuring the participative safety of employees. It is mentioned that employees will only attempt to think creatively if they are not afraid of criticism and punishment (Anderson *et al.*, 1992:19).

- **Resources and skills**

Senior management will need to provide sufficient resources and training, encouragement for new ideas, time to work on preferred projects and/or financial support (Anderson *et al.*, 1992:35). Amabile (1998a:80) explicitly emphasises the necessity of providing adequate time and money to employees for creative projects, as these two main resources can either support or impede creativity.

- **Structures and systems**

Appropriate systems and procedures that highlight creative effort as a top priority within the organisation, should be put into place (Andriopoulos, 2001:834). Furthermore, Brand (1998:17-22) points out two necessary components of organisational structures and systems, namely that senior management should encourage creative achievement with systems of rewards, recognition and career-orientation. Moreover, structures in creative organisations should be flexible, with few rules and regulations, loose job descriptions and high autonomy.

Murrin (2001:3) offers the following examples of behaviour that may be useful in supporting successful creativity:

- **Freshness**. Staff are encouraged to renew their curiosity and do things that could offer a fresh perspective on their business. McFadzean (2002:469) mentions that humour and fun are helpful too.
- **Greenhousing**. This involves showing red and yellow cards in meetings. If employees squash an idea without building on it, they are shown a yellow warning card. If they do it again, they will be shown a red card, which means they have to leave the meeting.
- **Realness**. Trying out new ideas to get the feel of them.
- **Momentum**. Working day and night on a project. This can result in doing in three days what could take up to a month to do.

- **Signalling**. Some organisations have "stand up" meeting rooms to signal that quick decisions are needed.

A two-fold strategy advocated by Fryer (2002:1), reiterates how to structure a work environment that will be conducive to creativity:

- **Ensuring that the organisational structures and processes optimise the creativity of one's workforce**

This may involve small or subtle changes within the organisation or the initiative could come from senior management and permeate the entire organisation. To ensure that the necessary changes are made, managers will have to have a good understanding of creativity, what sort of behaviour needs to be developed and what supports, as well as, hinders creativity in the organisation.

Walton (2003:155) also suggests that an organisation keep its structure to a minimum. He indicates that the plan-organise-direct-control management model which many managers have been instilled with from the 1960s until the 1980s is the antithesis of this and may have been responsible for obstructing overall organisational creativity.

- **Developing the creative capacity of employees through training**

This can take place during the course of a normal working day, as well as through deliberate training. Short-term one-off workshops are unlikely to be of lasting benefit. A series of regular two-hour sessions coupled with enlightened management practice would be of much more use. Personality factors and working style preferences should also be taken into account.

Andriopoulos and Lowe (2000:736) are of the opinion that it is the internal drive of an employee that needs to be challenged in order to stimulate creativity. Employees should

perceive every project as a new creative challenge so that their individual contribution is maximised and an innovative solution can arise.

Walton (2003:155) suggests some other ways in which organisations can establish and maintain creativity as a high priority:

- **Hire from varied backgrounds**

At the group level, accessing maximum information may involve interdisciplinary input to solve problems.

- **Legitimise creativity**

At all levels of the organisation, innovation and creativity should be encouraged. Eliminate any de-motivating influences on creativity and point out a positive role model for creativity at all organisational levels. McFadzean (1998:309) says that paradigms with regard to creativity should be broken to allow it to develop freely.

- **Creative people are often made to feel excluded**

This can lead to feelings of guilt about exercising creative actions and a general tendency to avoid them. This can be minimised by encouraging an "equal but different" relationship with particularly creative team members and also emphasising how their creativity will benefit the organisation overall.

- **Maximise communications across all departmental and hierarchical boundaries**

McFadzean (2002:540) stresses the importance of communication. This includes skills such as: active listening, clarifying, questioning, summarising, observing and giving feedback. Henry (2001:36) particularly makes mention of nurturing trust within an

organisation, as it promotes freedom to share ideas without fear of negative criticism. This is reiterated by Rothberg (2000:218).

- **Rewards**

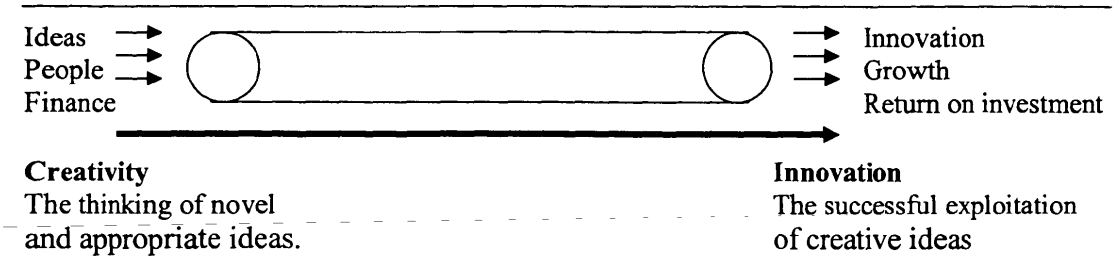
There is evidence that this is more effectively achieved through encouragement than financial rewards, for example, since the motivation to create is more effectively proactive than reactive (Walton 2003:155).

- **Consider the whole organisational environment when considering an individual's creative potential**

Certain sources within the organisation are likely to impair creativity. These sources should be identified and dealt with.

An organisation that is consistently able to improve its creative climate should also be enabled to exploit the creative ideas that result from it, which in essence, is innovation. Cook (1998:180) expands on this with a graphic representation (Figure 4.5) of the input and output within a creative organisation

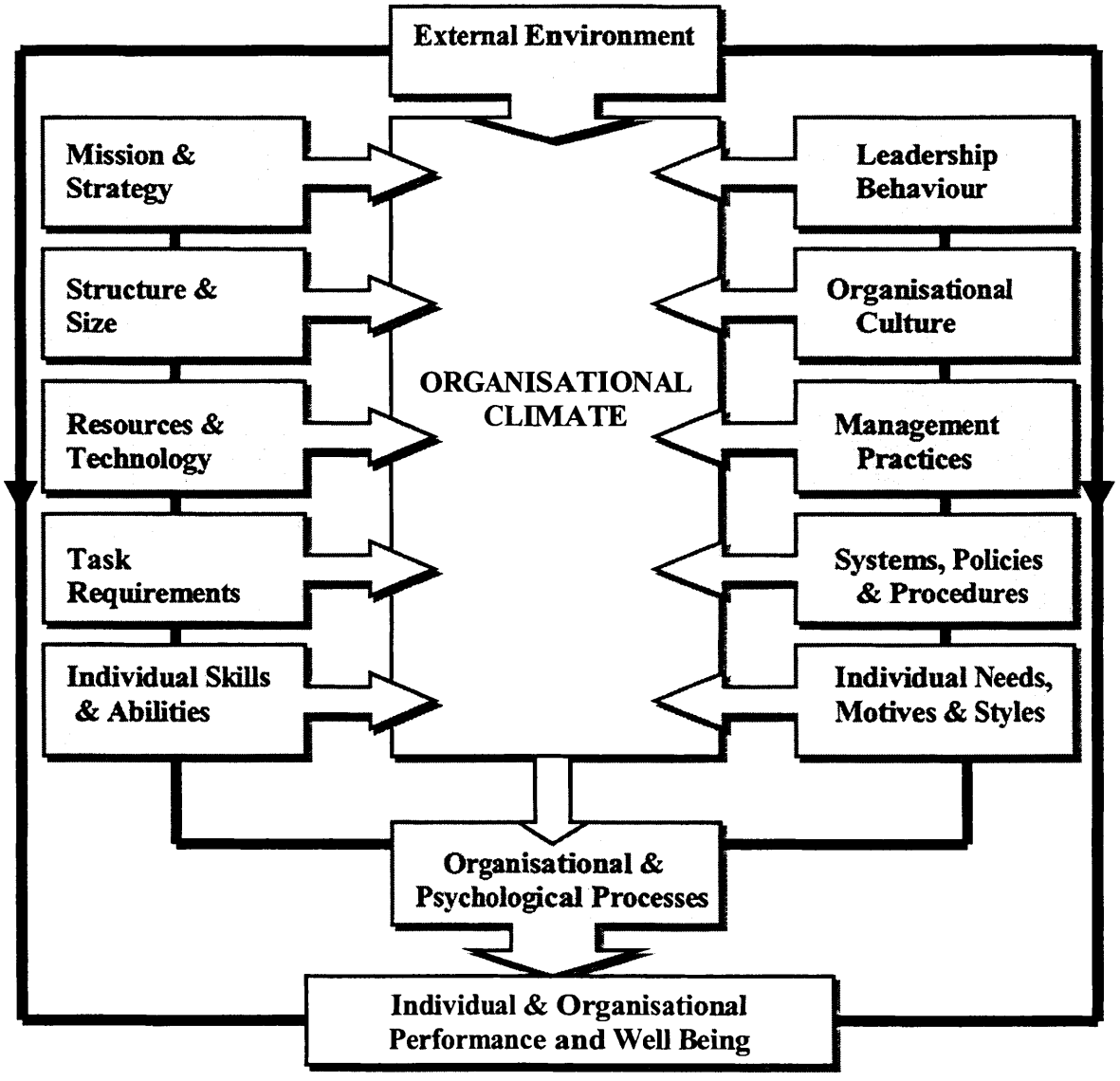
FIGURE 4.5 The input-output view of the creative organisation



Source: Cook (1998:180)

Isaksen *et al.* (2001:172) propose a model that can be utilised for organisational change when assessing the creative climate of an organisation, taking into account the barriers that exist within that climate. The model is outlined in Figure 4.6.

FIGURE 4.6 A model for creative organisational change



Source: Isaksen *et al.* (2001:172)

In explanation of Figure 4.6; organisational climate may be seen as an intervening variable that affects individual and organisational performance due to its modifying effect on these processes. The climate is influenced by many aspects within the organisation, which in turn affects organisational and psychological processes of individuals. (Isaksen *et al.*, 2001:172-173).

The components of an organisational climate exert a direct influence on the performance and/or outcomes of individuals, teams and the organisation as a whole (Amabile & Gryskiewicz, 1989:241; Service & Boockholdt, 1998:296; Witt & Beorkrem, 1989:37).

The model for organisational change to a creative climate (Figure 4.5) indicates which factors are important to consider when attempting to reorganise or change an organisation into one that encompasses a creative climate. The fourteen variables in the model describe the key elements for bringing about this change within an organisation (Isaksen *et al.*, 2001:173).

Kanter (1985:361-362) points out guidelines that organisations can make use of to stimulate a creative climate.

- Publicise and take pride in existing achievements

- Provide support for innovative initiatives, perhaps through access to senior managers, perhaps through project teams

- Improve communication across the enterprise by creating cross-functional activities and by bringing people together.

- Reduce layers in the hierarchy of the organisation and give more authority to those further down the chain.

- Publicise widely and more frequently organisational plans on future activity, giving those lower down a chance to contribute their ideas and become involved in the process.

4.8 SYNOPSIS

Within this chapter, an in-depth discussion regarding the concept of creativity has been addressed; with the inclusion of a description of the role creativity plays within the concept of innovation and other related terminology. The discussion focused on the facet of creativity that constitutes something new or unique, as a differentiating component to obtain SCA. Creativity is a resource or core competence which an organisation can strive to develop, which will give them an advantage which cannot be imitated by competitors, which is in actuality a true definition of SCA.

The specific focus was on creativity within an organisational context, especially within the confines of strategy formulation as opposed to creativity within the individual, or within other disciplines. This is for the purpose of the main focus of the study, which views creative outcomes from a strategic organisational perspective.

Individual, psychological and cultural barriers to creativity were outlined for background purposes, but for the purpose of this study, the focus will be on organisational barriers or hindrances in the organisational environment which may be viewed as impediments to the creative efforts of employees and managers alone, *ceteris paribus* – other variables considered constant. A thorough literature review concerning potential organisational barriers was given, as well as various views on how these barriers could be overcome. Other suggestions were made on how to develop creativity to enable an organisation to facilitate conditions that could give rise to a creative organisational climate.

The next chapter will focus on the research methodology employed in the empirical part of the study, with regard to the development of the survey instrument based on the empirical studies outlined in this chapter.

CHAPTER 5

RESEARCH METHODOLOGY

5.1 INTRODUCTION

This chapter provides an outline of the procedures and methodologies used in the empirical design of the research study. The preceding chapters have laid the foundation for the design of the research instrument, based on previous studies in similar directions. Summaries of those research designs were given in the preceding chapter (refer to Table 4.4.).

The research methodology that was followed, which is summarised in this chapter, includes the sampling procedures, the design of the research instrument, methods employed in the gathering of data, administration of the questionnaire and the preliminary work that was done to finalise the research instrument. The statistical procedures, which were utilised in the analysis of the data are also outlined, namely: descriptive statistics, validity and reliability analysis, analysis of variance, multiple analysis of variance, as well as correlations of the factors. Tests were done to determine the practical and statistical differences between the institutions.

The data that was required from the respondents, contained in the survey instrument, included certain biographical information, strategic management dimensions and creativity barrier dimensions. Data on competitive advantage measures of throughput rates and research output rates were obtained separately from the Department of Education (DOE) and correlated with the data obtained from the research instrument. The last section of the survey instrument contained an open-ended questioning style to garner other useful information from the respondents regarding the barriers to creativity present in the organisational climate of the specific institution.

5.2 DATA GATHERING AND ANALYSIS

In line with the original objectives outlined in Chapter One, the following data were gathered from respondents and from an independent source (DOE), as follows:

1. The prevalent prescriptive strategy dimensions and processes being employed by certain South African higher education institutions.

2. The prevalent creativity barrier dimensions that exist within certain higher education institutions in South Africa.

3. The organisational competitive advantage performance output dimensions of throughput rates and research output rates in the selected South African public higher education institutions.

The data explained in one and two above, were obtained through the survey instrument and the data in three above was obtained from the Department of Education (DOE) South Africa directly, which was summated and calculated. Certain statistical information was obtained online from the website of the DOE, which was then analysed and calculated into useful data.

A survey of selected public higher education institutions in South Africa was conducted through the use of personally administered questionnaires, along with a covering letter (refer to Annexure A). South African higher education was chosen primarily due to the fact that no other studies of this nature have previously been conducted in higher education institutions or in South Africa at present. It was also useful to compare the findings of the research with similar research conducted in the private sector and in other countries. Table 4.4 outlines a selection of similar research, which has been conducted in other parts of the world to date.

An important point to note here is that the previously mentioned studies carried out by other researchers, were conducted primarily in business organisations and not in higher education institutions as this study aims to do. This study went one step further into also examining strategic management perspectives in conjunction with the barriers to creativity. This was to obtain an overall picture of the environmental situation in those higher education institutions. Both sets of dimensions were compared with throughput and research output rates to determine what relationships (if any) exist between them.

Four higher education institutions were chosen for the study and a total of 179 respondents (population selected from each institution) participated in completing the questionnaire. After the research instrument was designed (refer to Annexure B), it was tested on a pilot study group of 30 academic staff members from a higher education institution. This was useful in assessing the reliability of the questionnaire and clarity of the items contained therein. It was tested and re-tested, finally revised and prepared for the final main survey part of the study (Annexure C).

5.3 DATA REQUIREMENTS

The types of data that were gathered for the study are as follows:

1. Creativity barrier dimensions data.
2. Prescriptive strategic management dimensions data.
3. Organisational competitive performance data (throughput and research output rates).
4. Other biographical data.

The data for the study was necessitated by other related research that has been done in the field, which was outlined in the previous literature chapters (refer to Table 4.4). The final instrument was developed as a derivation of research instruments from previous studies, after comprehensive testing. The design of the research instrument will be discussed as follows.

5.4 DEVELOPMENT OF THE RESEARCH INSTRUMENT

The research instrument was developed on the basis of several other studies and research instruments. The creativity dimensions were based on previous research into creative climates within organisations (refer to Table 4.4), and the strategic management dimensions were assessed based on other survey instruments, which measure strategic management perspectives as follows:

5.4.1 Development of the prescriptive strategic management dimensions

In order to measure prescriptive strategic management, an analysis of the literature was done to identify variables that pertained to strategic management. Electronic sources were consulted and the following potential questions were identified as useful in determining the strategic functioning of an organisation. The potential variables are outlined in Table 5.1. Once the items were generated, they were utilised in the pilot study, where they were checked, tested and re-tested. Some items were refined, reworded or deleted from the results of the pilot study for use in the main survey part of the study. Strategic planning was considered as a factor individually in the main survey.

Table 5.1 Prescriptive strategic management dimensions

	Survey 1	*Survey 2*	*Survey 3*
1	Do top executives take formal responsibility for the organisation's strategic planning?	Are you aware of the internal and external environments that may pose future growth opportunities or threats to your organisation?	Is strategic planning in the organisation carried out smoothly and effortlessly?
2	Is strategic planning a top priority activity, performed on a regular basis, e.g. each year?	Do you feel that your leadership team shares the same level of awareness as you do in the areas mentioned above?	Are most employees in the company knowledgeable about our organisational vision and goals?

Table 5.1 Prescriptive strategic management dimensions (continued ...)

	Survey 1	*Survey 2*	*Survey 3*
3	Does the organisation provide resources (managers' time, money, staff support, *etc.*) earmarked specifically for strategic planning?	Do you have a formal strategic planning process that is continually implemented each year?	Do most employees in the company clearly see the relationship between the work they do and the fulfillment of the organisation's long- and short-term objectives.
4	Does the organisation follow a defined set of procedures in its strategic planning process?	Are you aware of the perceptions your leadership and staff have about your organisational capabilities?	Are most employees in the company involved to some extent in strategic planning?
5	Does the organisation have a written mission statement?	Do you feel your leadership team has the same level of awareness as you do in the areas of strategic management?	Does the organisation have clearly defined roles that certain individuals fulfill in strategic planning?
6	Are all management and higher-level staff aware of the mission? Do they understand it?	Do you have a formal strategic planning process that is continually implemented each year?	Does the organisation believe that main planning tasks should be fulfilled only by top-level management?
7	Does the organisation periodically gather and analyse data about market and other external factors that affects the business?	Do you feel that you have a clear vision of the future and a path to get there that is shared by all?	Is it evident in the organisation that strategic planning is carried out well because the objectives are consistently achieved?
8	Does the organisation have knowledge of and access to sources of information about the industry, markets, and other external factors?	Do you feel that your current vision and plan for the future represents the "best thinking" from all of the members of your leadership team?	Is strategic planning considered to be a key organisational activity in the company?
9	Does this internal analysis identify key strengths and weaknesses in the organisation?	Have the organisation's vision and plans for the future been clearly communicated through all levels of the organisation?	Does the organisation, always seem to have problems when it is time to implement the strategic plans?
10	After completing its external and internal analyses, does the organisation review the mission and goals in light of the apparent threats/ opportunities and strengths/ weaknesses?	Do all individuals understand and are able to make the connection between what they do for the organisation and how they contribute to the future vision of the organisation?	Are plotting strategies to achieve objectives, then implementing these plans, and subsequently assessing the outcomes of the planning a seamless process in the organisation?

Table 5.1 Prescriptive strategic management dimensions (continued ...)

	Survey 1	*Survey 2*	*Survey 3*
11	Does the organisation decide its strategic plan(s) based on feasibility and risk/return criteria?	Is your organisation focused on results?	Do all employees have a copy of the organisation's strategic plan?
12	Does the organisation make strategic decisions (implementation action plans) based upon the strategic plan?	Do individuals in the organisation spend most of their time on activities that contribute to the future and vision of the organisation and have they set clear and measurable goals that support your strategy.	When *ad-hoc* planning needs arise, does the organisation make decisions based on the current long- and short-term objectives?
13	Does the organisation clearly assign lead responsibility for action plan implementation to a person or, alternatively, to a team?	Do you know on a day-by-day basis how you are progressing toward your future vision?	
14	Are sufficient resources allocated for implementation?	Does your organisation conduct regular results' management meetings?	
15	Does the organisation set clearly defined and measurable performance standards for each plan element?	Does the organisation encourage individual growth through systematic training and development programs?	
16	Does the organisation review monitoring data regularly, and revise strategic decisions as appropriate?	Are individuals at all levels of the organisation appropriately involved in the development and achievement of organisational goals?	
17	Are individuals responsible for strategic planning and implementation rewarded for successful performance?	Do employees see a personal opportunity to satisfy their own needs by contributing to the achievement of department and organisational goals?	

Source: GPRA (2001), LMG (2003), TBC (2004)

Certain variables from the abovementioned were selected or altered to form part of the initial design of the research instrument (Annexure B) These variables were also tested in the pilot study and further refined or deleted for use in the final research instrument

(Annexure C). When selecting the variables for the strategic planning portion of the survey, it was important to consider only assessing those areas that the individual respondents would have knowledge of, or be able to answer. Only very select variables were chosen and refined for that portion of the study. This was to determine how knowledgeable the respondents were regarding the strategic processes employed by the institution/s, which would give an indication of how thoroughly strategic planning is utilised throughout the institution.

5.4.2 Development of the creativity barrier dimensions

As with the strategic management dimensions, the creativity barrier dimensions were also identified from the available literature and from previous studies on the subject. The previous studies were summarised in Table 4.4. The main dimensions used in the study were those identified by Amabile (1998:6) in the KEYS scale, but also used by various other authors (Isaksen *et al.*, 1999:665-674; Henry, 2001:36; Wong & Pang, 2003:33; Amabile & Gryskiewicz,1987; Ekvall & Tångeberg-Andersson, 1986:215-225). The dimensions in previous studies that measured creative organisational climates are listed as follows:

- **Freedom.** Deciding what work to do or how to do it; a sense of control over one's work.
- **Challenging work.** A sense of having to work hard on challenging tasks and important projects.
- **Sufficient resources.** Access to appropriate resources, including funds, materials, facilities and information.
- **Supervisory encouragement.** A line manager who serves as a good work role model, sets goals appropriately, supports the work group, values individual contributions and shows confidence in the work group.
- **Work group support.** A diversely skilled team in which people communicate, are open to new ideas, constructively challenge each other's work, trust and help each other, and feel committed to the work they are doing.

- **Organisational encouragement.** An organisational culture that encourages creativity through the fair, constructive judgement of ideas; rewards and recognition for creative work; mechanisms for developing new ideas; an active flow of ideas; and a shared vision.
- **Organisational impediments.** An organisational culture that impedes creativity through internal political problems, harsh criticism of new ideas, destructive internal competition, an avoidance of risk, and an overemphasis on the status quo.
- **Workload pressure.** Extreme time pressures, unrealistic expectations for productivity and distractions from creative work.

The use of the abovementioned dimensions are represented as a matrix in Table 5.3 to indicate which of the dimensions have been used in previous studies. As the study was intent on developing scales that measured actual barriers to creativity in an organisational climate, the original dimensions were merely reversed to obtain the barrier dimensions as follows:

TABLE 5.2 Creativity barrier dimensions used in the study

	Dimension
Factor 1	Lack of freedom/autonomy
Factor 2	Unchallenging work
Factor 3	Insufficient resources
Factor 4	Lack of supervisory encouragement
Factor 5	Lack of team unity
Factor 6	Lack of organisational support
Factor 7	Organisational hindrances/bureaucracy
Factor 8	Workload pressure

Source: Adapted from Amabile (1998:6)

TABLE 5.3 Matrix of creativity barrier dimensions used in previous studies

Author(s)	Freedom	Challenging work	Sufficient resources	Supervisory encouragement	Work group support	Organisational encouragement	Organisational impediments	Workload pressure
Ekvall & Tångeberg-Andersson (1986)	X	X				X		
Isaksen *et al.* (1999)	X	X		X	X	X		
Amabile & Gryskiewicz (1987)	X		X		X	X	X	X
Amabile & Gryskiewicz (1989)					X	X	X	X
Amabile (1998)	X	X	X	X	X	X	X	X
Wong & Pang (2003)		X				X	X	X

Source: Amabile (1998:6); Isaksen *et al.* (1999:665-674); Henry (2001:36); Amabile & Gryskiewicz (1987); Ekvall & Tångeberg-Andersson (1986:215-225); Wong & Pang (2003:33).

Items from the selected dimensions were generated based on the work by the abovementioned authors. The KEYS instrument could not be used precisely as it was for the research that needed to be conducted in the higher education system in South Africa, therefore the KEYS items were merely used as a framework, and new or adapted items from other studies or items developed by the researcher were generated to be used in the final research design. Mouton (2001:102) indicates that most of the existing questionnaires, scales and tests a researcher would have access to, would most likely have been developed in highly industrialised countries of Europe and North America. Such instruments usually cannot be applied in a South African context without some adaptation, especially in multicultural and multi-ethnic studies.

Once the items were generated, they were utilised in the pilot study, where they were checked, tested and re-tested. Some items were refined, reworded or deleted from the results of the pilot study for use in the main survey part of the study.

When designing the questionnaire items, various information compiled by authors (Dilman, 1978; Converse & Presser, 1986; Bradburn & Sudman, 1988) was taken into account on the principles of questionnaire and scale construction. The most common errors encountered when developing questions are laid out in Table 5.4. The second column of Table 5.4, indicates how those errors were mitigated in the design of the actual instrument in the study.

TABLE 5.4 Sources of error in scale construction

Most common errors	Actual questionnaire design
No piloting or pre-testing is done.	A pilot test of 30 respondents was done
Ambiguous or vague items: Words that are undefined or too vague.	Every effort was made to state the questions in language that was simple and understandable.
Double-barrelled questions: These are questions that combine two or more questions in one.	The use of the word "and" was avoided, in order not to encounter this error.

TABLE 5.4 Sources of error in scale construction (continued ...)

Most common errors	Actual questionnaire design
Item order effects: Research has shown that the order or sequence of questions may affect response accuracy and response rates.	Questions were put in a logical sequence, with biographical data first, then scale questions and lastly open-ended questions.
Fictitious constructs: Measuring constructs or attitudes that do not exist, e.g. asking respondents about matters of which they have no knowledge.	As the questionnaire was generally asking respondents about their working environment, it is assumed that they would have adequate knowledge thereof.
Leading questions: Questions where the respondent is being led or influenced to give a certain response through the wording of questions.	No leading questions were asked.
Negatively phrased questions or double negatives (especially when asking people to agree or disagree with such a question).	Some negatively and positively phrased questions were used, as barriers to creativity were being measured and to avoid respondents merely answering the same way automatically.
Poor and confusing layout of the questionnaire can lead to non-response or other errors.	Every effort was made to make the instrument as straightforward as possible.
Instruments that are too long: Research has shown that the length of the questionnaire has a direct and often negative impact on the quality of the responses.	The original instrument was quite long, but was shortened considerably to only 62 questions and 3 open-ended questions.
Sensitive or threatening questions may lead to non-response or refusal to participate	None of the information that was asked could be considered to be sensitive or threatening, especially as the respondents remained anonymous.
Avoid mono-operational bias, *i.e.* measuring constructs using only a single item or question. Instead construct a scale or an index, where possible.	Every construct was measured by a number of items (at least 3 or more). Reliability was high which indicated that this problem was not significant.

5.4.3 Scales used in the study

Researchers can make use of many types of scales in questionnaire design. Scales that are used to measure specific dimensions usually fall into three categories, namely, the Likert scale, the semantic differential scale and the staple scale. The study made use of the Likert scale (closed style of questioning), so a further discussion of that type of scale will be outlined.

A question that provides values between which the respondent has to exercise a value judgement on the basis of a certain scale, is known as a closed question (Steyn *et al.*, 2000:43). The Likert scale (also known as the summated rating scale) asks respondents to indicate the extent to which they either agree or disagree with a series of statements about a given construct or object (for example, organisational behaviour). Respondents may select a choice ranging from 'strongly agree' to 'strongly disagree'. The responses may be arranged individually or in total, *i.e.* summated. The researcher can then calculate a respondent's overall attitude score by the summation of weighted values associated with the statements that have been rated. Likert scales are relatively simple to construct and easy to administer (Martins *et al.*, 1996:228).

The study made use of a six-point Likert scale ranging from "strongly agree" to "strongly disagree". It was considered more beneficial to use an even rating scale than an odd one, so that respondents were prevented from merely choosing the "middle-of-the-road" response.

5.4.4. Competitive advantage measures

As indicated in the preceding chapters, higher education institutions in South Africa may make use of two measures as a basis for performance and competitive advantage, namely the throughput rates and research output rates.

5.4.4.1 Throughput rates

Statistics were obtained from the DOE on the number of students enrolled at a particular institution, as well as the number of students that graduated after three years. From this the throughput rate could be calculated (refer to Section 3.3.3.1). The formula that was used in this regard was, for example:

$$\frac{\text{Number of students graduating in 2003}}{\text{Number of students enrolled in 2000}}$$

Students that were enrolled in 2000, who had completed their degrees/diplomas in the allotted time frame (*i.e.* end of 2002) would have graduated in 2003, thus the formula for calculating throughput rates as a percentage. The rates for the selected institutions chosen for the study were calculated per year and a three-year average percentage was used to render the calculations representative. The enrolled students for the years of 1998, 1999 and 2000 were chosen and subsequently the graduation rates for 2001, 2002 and 2003 to obtain the three-year average rate. The actual calculation of the rates will be disclosed in Chapter Six and the tables of data upon which the calculations are based, may be found in Annexure F.

This information was used as a correlation against the barriers to creativity, to determine whether any relationships could be observed between them and this one measure of competitive advantage.

5.4.4.2 Research output rates

Research outputs for higher education institutions as advocated by the DOE are listed as a unit amount. A total number of units are given for each higher education institution. Outputs made by the institution may take the form of publication in journals, conference proceedings or any other accredited literature, as well as publication of chapters in books and/or whole textbooks written by academic staff members. Each publication receives a

unit output on a weighted scale. Some publications will receive more of an output than others. The total percentage of research outputs per institution can be obtained by dividing them by the number of academic staff members per institution, as follows:

$$\frac{\text{Research outputs per institution}}{\text{Academic/research staff members per institution}}$$

The percentage of research outputs per staff member was calculated for each of the selected institutions, also over a three-year average period, as a representative number of years. The information available from the DOE at the time of the research was for the years 2000, 2001 and 2002 only. Updated information would not be released by the DOE, therefore only these three years were used in the calculations. Full calculations per institution will be given in Chapter Six, and the raw data used for the calculations may be found in Annexure G.

This useable data was also then correlated with the findings regarding the barriers to creativity to explore whether there were any relationships between the two, and to determine whether there is any evidence that creativity can result in a competitive advantage for higher education institutions.

5.5 PILOT TESTING THE QUESTIONNAIRE

Once a questionnaire is designed, it is advisable to test it on a small group of respondents. A small sample of individuals that are similar to those that will be used in the actual study, should complete the questionnaire (McMillan & Schumacher, 2001:185). West (1999:89) advocates that it is necessary to pilot a questionnaire to test the following:

- Whether all questions can be answered and that respondents are likely to be willing to answer them.
- That all questions can be answered by a single respondent.

- That the questionnaire flows logically and is ordered in a way which respondents find easy to follow.
- That pre-coded questions include all major options.
- That the questionnaire is not too long.

For these reasons, the questionnaire was piloted on a sample group of 30 academic staff members, randomly chosen, which would be similar to the sample used in the main study. From this pilot test, it was ascertained which questions might be ambiguous. Testing for reliability and validity was also done at this stage, as well as inter-item correlations to determine which items might become problematic.

The original instrument contained biographical information, 81 Likert scaled questions and three open-ended questions. After running the results of the pilot study several times, certain items were deleted and refined. This allowed for the development of the final research instrument, which consisted of biographical information, 62 Likert scale questions and 3 open-ended questions. It was not necessary to undertake a full factor analysis, as the items were already categorised into nine pre-determined factors, as per the literature review and other research conducted in the field (refer to Table 5.2)

5.6 THE SAMPLING PROCEDURE

Sampling is necessary when it is not possible to survey an entire population of unmanageable size and it is unnecessary to assume that a census survey would necessarily provide more useful results than a planned sample survey (Saunders *et al.*, 2003:151).

5.6.1 Identifying the target population

The survey population is the aggregate of elements from which the sample is drawn (Martins *et al.*, 1996:252), which may be individuals, groups, organisations, human products and events or the conditions to which they are exposed (Welman & Kruger,

1999:47). The target population used in the study were the public higher education institutions in South Africa.

5.6.2 Determining the sampling frame

The second step in the sample selection process is identifying the sampling frame, which is the listing of the elements from which the actual sample will be drawn (Churchill, 1995:577).

As it was practically and geographically not possible to survey the whole target population (Saunders *et al.*, 2003:151), a sample frame was demarcated by a certain geographical region, namely the Gauteng Province. The study was demarcated on the basis of geographical boundaries and institutional characteristics, as follows: the target population used in the study were the then 26 public higher education institutions in South Africa, limited to only those institutions in the Gauteng province. At the commencement of the study, there had not yet been any mergers of the higher education institutions, and the total target population for South Africa was 36 institutions (of which 15 were Technikons and 21 were Universities).

At the beginning of 2004, this number was reduced to 26 (of which 8 were Universities of Technology, 2 were Technikons and 16 were mainstream, comprehensive Universities), brought about by mergers that sought to consolidate the 36 original institutions. Following the merger of Rand Afrikaans University and Technikon Witwatersrand in early 2005, there were 25 institutions (DOE, 2004a). Even so, at the time the survey instrument was administered, the sampling frame consisted of 26 institutions, as listed in Table 5.5

A listing of these institutions is available on the Council of Higher Education Web site (http://www.che.ac.za/links/links.php?link=12), which provides links to each of the listed institutions' Web sites, from which relevant contact details can be obtained.

TABLE 5.5 South African public HE institutions in 2004

	Comprehensive Universities	*Universities of Technology*	*Technikons*
1	Nelson Mandela Metropolitan University	Cape Peninsula University of Technology	Mangosuthu Technikon
2	North-West University	Central University of Technology, Free State	Technikon Witwatersrand
3	Rand Afrikaans University	Durban Institute of Technology	
4	Rhodes University	Tshwane University of Technology	
5	Stellenbosch University	Vaal University of Technology	
6	University of Cape Town	Walter Sisulu University for Technology and Science (Border Technikon Campus)	
7	University of Fort Hare	Walter Sisulu University for Technology and Science (Eastern Cape Technikon Campus)	
8	University of KwaZulu-Natal	Walter Sisulu University for Technology and Science (University of Transkei Campus)	
9	University of Limpopo		
10	University of Pretoria		
11	University of South Africa		
12	University of the Free State		
13	University of the Western Cape		
14	University of the Witwatersrand, Johannesburg		
15	University of Venda		
16	University of Zululand		

Source: CHE (2004).

The Gauteng province of was selected, due to its geographic location, as well as the fact that the majority of students enrolled in public higher education are enrolled in this province (DOE, 2004a). The numbers of students for higher education overall are outlined in Table 5.6 per institution. This data from the DOE was only available at the time of the research up until 2002, therefore all the higher education institutions that existed at that time (before the mergers) are included in Table 5.6.

TABLE 5.6 Student enrolments in 2002

Institution (universities)	*Number of students enrolled 2002*	*Institution (technikons/ universities of technology)*	*Number of students enrolled 2002*
University of Cape Town	19 560	Border Technikon	4 844
University of Fort Hare	7 349	Cape Technikon	14 063
University of Durban-Westville	9 251	Eastern Cape Technikon	7 320
University of Natal	29 028	Northern Gauteng Technikon	11 056
Medical University of South Africa	4 039	Technikon Free State	7 786
University of the North	8 394	Technikon SA	52 102
Potchefstroom University	25 442	Natal Technikon	10 704
University of the Free State	17 451	Peninsula Technikon	9 163
University of Port Elizabeth	21 335	Port Elizabeth Technikon	9 493
University of Pretoria	40 733	Mangosuthu Technikon	7 023
Rand Afrikaans University	22 134	Vaal Triangle Technikon	15 340
Rhodes University	7 425	Technikon Witwatersrand	13 994
University of South Africa	143 136	ML Sultan Technikon	9 674
University of Stellenbosch	21 395	Pretoria Technikon	37 051
University of the North West	7 674	Technikon North West	5 077
University of Transkei	4 622		
University of Venda	7 783		

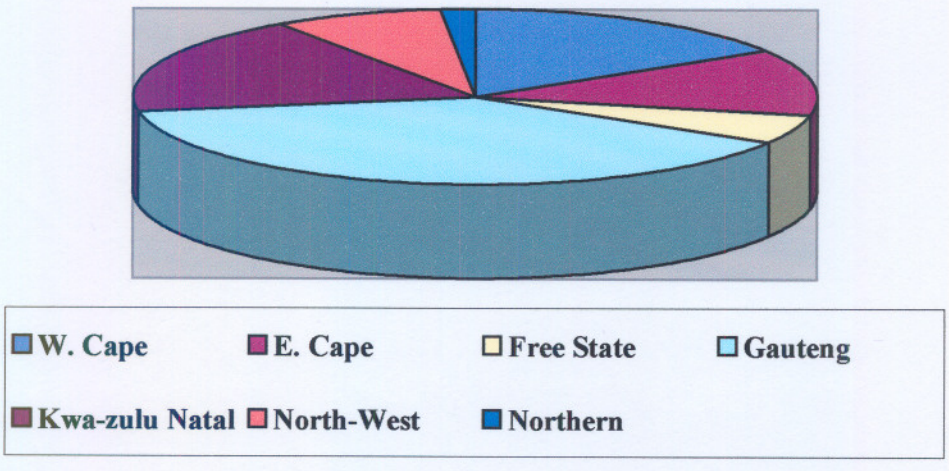
TABLE 5.6 Student enrolments in 2002 (continued ...)

Institution (universities)	*Number of students enrolled 2002*	*Institution (technikons/ universities of technology)*	*Number of students enrolled 2002*
Vista University	21 369		
University of the Western Cape	12 729		
University of the Witwatersrand	22 181		
University of Zululand	7 400		
TOTAL	**460 470**		**214 690**

Source: DOE (2004a)

As can be seen from Table 5.6, the majority of students studying at higher education institutions can be found in Gauteng (a total number of 183 808 students), excluding the distance education providers and the Medical University of South Africa (refer to Section 5.6.2). The number of students per province in South Africa is represented in Figure 5.1.

FIGURE 5.1 Number of students per province in South Africa



5.6.3 Selecting a sampling procedure

The study utilised a multistage design in developing a sample, based on a cluster judgement sample. McDaniel and Gates (1999:426) explain that the term judgment sample is applied to any situation in which the researcher is attempting to draw a representative sample based on judgmental selection criteria and in cluster sampling, the sampling units are selected in groups (Dillon *et al.*, 1993:225).

Due to the changing nature of South African education (refer to paragraph 3.2), the original number of thirty-five (35) higher education institutions was reduced to twenty-six (26). A three-year average of competitive advantage data (throughput rates and research output rates) from the selected institutions of higher education (before the mergers) was utilised for the study. This necessitated utilising from the Gauteng province only those institutions that remained unaffected by the mergers and in effect had not merged with another institution. From the institutions in the Gauteng province, only 2 Universities and 2 Universities of Technology were unaffected by the mergers and thus were selected to participate in the survey. The HE institutions that existed within the Gauteng province at the time the research was conducted are outlined in Table 5.7.

TABLE 5.7 HE institutions in the Gauteng province

Universities	***Technikons/Universities of Technology***
University of South Africa	Tshwane University of Technology
Medical University of South Africa	Vaal University of Technology
Pretoria University	Technikon Witwatersrand
Rand Afrikaans University	
University of the Witwatersrand	

Source: DOE (2004a)

This required that of the original HE Institutions, two universities and two universities of technology fulfilled the criteria, and those were therefore selected to be utilised in the study in order to draw comparisons between the two types of institutions.

5.6.4 Determining the relevant sample size

The number of subjects in a study is called the sample size, represented by the letter *n* (McMillan & Schumacher, 2001: 177). Because the sampling procedure was multi-stage in its approach, *n* is represented by the number of respondents from each institution rather than the actual number of institutions selected. From the original cluster sample of four institutions, respondents had to be selected to participate in the survey. The methodology for choosing these respondents was based also on a non-probability sample, utilising judgement (purposive) sampling, as potential respondents were initially screened to determine whether they fulfilled the criteria of being full-time academic staff members that were involved in teaching and research. West (1999:69) indicates that probability sampling is seldom used, because it is too costly to undertake. Churchill (1995:582) explains that when using non-probability judgement sampling, the sample elements are chosen because it is expected that they can serve the research purpose and most typically because they are believed to be representative of the population of interest.

Since sample size formulas cannot correctly be used for non-probability samples, the determination of the necessary sample size is usually a subjective, intuitive decision made by the researcher, based on past studies or the amount of resources available (Zikmund, 2000:519).

To accurately determine the situation in those higher education institutions, the questionnaire was administered to full-time academic employees, as they are ultimately responsible for the performance output measures being used in the study. Due to the fact that the questionnaires were personally administered, the respondents had a non-probability chance of being selected to participate, based on their availability at a given time. For statistical significance, it was necessary to allow for a minimum of at least 30

questionnaires per institution. It was decided to pursue a quota sample of 50 respondents per institutions to allow sufficient room for error or non-completion of certain items.

5.6.5 Data collection from respondents

Data was collected over the months of October and November 2004. A total of one hundred and seventy-nine questionnaires were completed. A six-point scale was used again in the collection of data in the main survey. Table 5.7 represents data collected from the institutions. The original quota required was 50 questionnaires per institution (Refer to Section 5.6.4). Every attempt was made to secure a sufficient sample from each institution. However, although numerous follow-up attempts, telephone calls and reminders were sent to Institution D, a response of only 19 questionnaires was obtained. It was decided to utilise those questionnaires as it were, as a final cut-off date was imposed in the interest of expediency.

TABLE 5.8 Selection of sampling elements from the institutions

INSTITUTIONS	*SAMPLE SIZE*
INSTITUTION : A (Comprehensive university)	**58**
INSTITUTION : B (Comprehensive university)	**50**
INSTITUTION : C (University of Technology)	**52**
INSTITUTION : D (University of Technology)	**19**
TOTAL	**179**

5.6.6 Information for decision making

The final information obtained from the study was then analysed with which conclusions could be reached, and recommendations could be made. The analysis of the data will be discussed in Chapter Six.

5.7 STATISTICAL ANALYSIS

The following statistical methods in the STATISTICA and SAS programmes were used on the empirical data set:

- Reliability analysis
- Validity analysis
- Descriptive analysis
- Correlation analysis
- T-tests
- Analysis of variance (ANOVA) and Multiple analysis of variance (MANOVA)

5.7.3 Reliability analysis

Reliability refers to the consistency of measurement – the extent to which the results are similar over different forms of the same instrument or occasions of data collection (McMillan & Schumacher, 2001:244). It is the ability of an instrument to consistently measure the same thing repeatedly.

Welman and Kruger (1999:143) consider reliability to refer to the extent to which obtained scores on a scale may be generalised to different measuring occasions, measurement forms and measurement administrators. Nel *et al.* (1997:114) are of the opinion that reliability and validity are the two typical criteria for assessing the appropriateness of any measuring instrument. There are three main ways in which reliability can be measured: test-retest, alternative forms and internal consistency.

5.7.3.1 Test-retest reliability

Test-retest reliability refers to the degree to which a measurement/test is immune to the particular measurement/test occasion on which it is administered, so that scores obtained on one occasion may be generalised to those which could potentially have been obtained on other comparable occasions (Welman & Kruger, 1999:143). It involves administering the measurement scale to the same group of respondents at two different times. If the two sets of measurements are highly correlated then the measurement scale is viewed as consistent and reliable (Dillon *et al.*, 1993:294).

This method may be problematic, as it is difficult to administer the measuring scale to the same set of respondents twice.

5.7.1.2 Parallel-forms reliability

Parallel-forms reliability of a measurement scale is determined by interchangeable versions of a measurement scale which have been compiled to measure the same construct equally well but by means of different content (Welman & Kruger, 1999:144).

Problems encountered with the parallel-forms reliability test include the expense, time, human resources needed to conduct the equivalent forms of the test and the difficulty involved in developing two versions of the measure, which are the equivalent of one another (Dhurup, 2003:231).

5.7.1.3 Internal consistency tests

Equivalency or internal consistency of a set of scale items refers to the degree to which scores obtained from the various individual scale items are consistent. There are several methods available for measuring internal consistency. The two most popular are the split-half method and the coefficient alpha. With the split-half method, the scale items are randomly split into two sets, with an equal number of items in each, and the scores

obtained in each split-half are correlated. The stronger the association, the more internally consistent are the items (Dillon *et al.*, 1993:294). Although the split-half method is easy to administer, the results are dependent on how the halves are split (Webb, 2002:244).

To overcome the drawback associated with this method, researchers commonly use the second method, which is the coefficient alpha (Cronbach alpha). The instrument was tested and re-tested for reliability in the pilot phase of the study, as well as in the main survey, using the internal consistency method by means of the Cronbach-alpha co-efficient.

5.7.2 Validity analysis

Unless the study is based on a standardised scale or test, of which the validity has already been established or where the findings have an obvious face validity, the researcher can incorporate a membership validity test into the communication plan. This membership validity test can take a variety of forms, but usually a representative group from the population being investigated is exposed to the findings and subsequently asked about the degree to which the trends are in fact a valid reflection of the entirety (Garbers, 1996: 269). A measurement scale can be reliable, yielding consistent and stable results over time and situations, yet not be valid. A measurement scale that is unreliable cannot be valid. Reliability is a necessary but not sufficient condition for validity (Dillon *et al.*, 1993:294).

5.7.2.1 Face validity

The survey was initially designed using face validity. According to Leedy (1993:41), face validity relies upon the subjective judgement of the researcher. Two questions should be asked in this regard: (1) Is the instrument measuring what it is supposed to measure? and (2) Is the sample being measured adequate to be representative of the behaviour or trait being measured? The face validity in this case was determined by the researcher and

previous research questionnaires that were available on the subject. The items in the main survey instrument were generated based on this research.

5.7.2.2 Content validity

An additional type of validity that was utilised, was content validity. Litwin (1995:35) explains that content validity is an evaluation of how appropriate the items in a questionnaire seem to a set of reviewers who have some knowledge of the subject matter. The determination of content validity typically involves a review of the contents of the questionnaire to ensure that it has not omitted any important elements or included items that are not relevant. This type of validity was ascertained through the pilot study.

5.7.2.3 Construct validity

A theoretical measure of how meaningful a survey instrument is, usually after many years of experience by numerous investigators in many varied settings (Litwin, 1995: 82). As the survey instrument was based on previous studies in the field, it was assumed that construct validity could be ascertained. Construct validity is also considered to comprise two other forms of validity: convergent and divergent.

5.7.2.3.1 Convergent validity

A scale's convergent validity is related to the high association between constructs. The scale's convergent validity was determined through the use of correlation co-efficients. Correlations support the notion that the observed results are not a manufactured article of the instrument, that there is a high correlation of results from the survey instrument intended to measure the same construct (Avkiran, 1994:15). The reliability of a scale as measured by coefficient alpha indicates the intensity of cohesiveness amongst scale items and is also an indirect indicator of convergent validity (Parasuraman *et al.*, 1988:439).

5.7.2.3.2 Divergent validity

Divergent or discriminant validity is another theoretically based way of thinking about the ability of a measure to estimate the underlying truth in a given area. For a survey instrument to have divergent validity, it must be shown not to correlate too closely with similar but distinct concepts or traits (Litwin, 1995:44). The survey instrument was tested for divergent validity by examining the correlations between the factors to ensure that they were not too highly correlated. Those variables that were shown to have high correlations, were deleted.

5.7.3 Descriptive analysis

Descriptive statistics enable a researcher to describe and compare variables numerically. They are based on the central tendency and the dispersion (Saunders *et al.*, 2003:351). Descriptive statistics were used to determine whether or not the data was normally distributed and included measures such as the median, mean, standard deviation and skewness and kurtosis values.

5.7.4 Correlation analysis

Correlation analysis may be undertaken to explore possible relationships between two variables. An analysis of the correlations between the pre-determined factors was undertaken to determine whether there were any significant relationships between various factors, which may have been relevant to the study.

5.7.5 T-tests

When investigating the significance of the difference between the means of two samples, it is common practise to make use of t-tests (Kanji, 1993:14). These tests were used to assess whether there were any significant differences in the factor means between the four sample groups tested in the survey, statistically and practically. The two universities

of technology were compared with one another (Institution C and D); the two comprehensive universities were compared with one another (Institution A and B) and the two universities of technology were compared to the two comprehensive universities overall (Institution A and B compared to institution C and D).

5.7.6 Analysis of variance (ANOVA) & Multiple analysis of variance (MANOVA)

With regard to the differences in means for the nine factors experienced by the four institutions, various explanations with regard to the position of the differences should be given. To indicate whether the variances were significant, analysis of variance (ANOVA) and multiple analysis of variance (MANOVA) were conducted. Multiple analysis of variance indicates whether there were any significant differences and the analysis of variance shows where the differences have occurred in the data.

5.8 SYNOPSIS

The statistical analysis and methods employed for the empirical study, with specific reference to the development of the measuring instrument were outlined in this chapter. The compilation of the pilot study, sampling procedure, generation of items for the questionnaire and the various types of statistical analysis, which were used in the study were outlined.

The methodology employed in this chapter will now be implemented and laid out in the following chapter (Chapter Six), where the results of the study will be made known. Chapter Six will outline the results of the pilot study, as well as the main survey. The information obtained from the respondents in the survey will be tabulated into useful data, interpreted and discussed. All the results from the statistical analysis will be presented in Chapter Six, although certain data will be listed in the Annexures. The data presented in Chapter Six will lay the foundation from which conclusions can be drawn and recommendations can be made for the final chapter of the study.

CHAPTER 6

ANALYSIS OF EMPIRICAL DATA

6.1 INTRODUCTION

This chapter intends to report on and give explanations regarding the empirical findings of the study. A discussion regarding the outcomes of the pilot study will be given as a foundation for the results of the main survey. The main survey was statistically analysed using multivariate statistical techniques. Multivariate techniques are suitable for analysing data that concurrently requires multiple measurements on each item under scrutiny. In other words, there are two or more variables contained in the data set.

The initial processing of the data involved coding and an examination of the descriptive statistics obtained from the analysis. The purpose of examining the preliminary data was to determine whether the data were normally distributed. The data had previously been classified into nine factors (refer to Section 5.4.2), which had already been identified. The pre-determined factors were then examined for any significant correlations to determine whether or not each one had any effect on the other.

Subsequently, the data was tested for validity and reliability. Validity indicates how adequately the concept is described by the measures and reliability refers to the uniformity of the measures. Further comparisons were done between the different sample groups by means of T-tests to determine what differences (if any) could be noted.

Finally, to establish whether or not there were any relationships between the dependent and independent variables (barriers to creativity and competitive advantage measures), comparative analysis amongst institutions was employed.

6.2 PRELIMINARY DATA ANALYSIS OF THE PILOT TEST

The rationale behind an initial pilot test is, according to Van der Merwe (2003:32) is that through a little data capturing and preliminary analysis, aspects that might need attention can be highlighted, which will save time and money in the imminent future.

The pilot test was used to examine the reliability of the survey instrument and to determine whether any questions were ambiguous or redundant. Thirty respondents completed the initial questionnaire. These comprised thirty full-time academic staff members from a public higher education institution. The initial questionnaire consisted of eighty-one items and three open-ended questions, as well as classification questions (refer to Annexure B). Initially there were sixty-seven creativity barrier variables and fourteen strategic planning variables.

The reliability was obtained by computing a Cronbach-alpha coefficient for the entire scale, as well as for each of the nine factors. The results obtained (refer to Table 6.1) gave a satisfactory reliability result. The six-point scale returned a Cronbach alpha reliability value of 0.952425 on the creativity barrier items and 0.490767 for the strategic planning items. Each factor was then computed separately, as the high number of total variables resulted in high correlation coefficients. The reliability results obtained for each of nine factors are represented in Table 6.1.

As can be seen from Table 6.1, the overall reliability was high and exceeded the suggested level of 0.70 (Nunnally, 1978:245; Litwin, 1995:31). When reducing the items into the separate nine factors, it can be seen that the reliability for Factor 1 (Lack of freedom) and Factor 9 (Strategic planning) was a little lower than the recommended level. Certain items were thus deleted to raise the reliability on this factor and to mitigate the inter-item correlations.

An inter-item correlation analysis was done to determine which items might be soliciting identical or very similar concepts. On certain items (refer to Annexure D), the inter-item correlation was too high or too low, according to the specific guideline given by Clark and Watson (1995:316), who suggest that the average item-to-item

correlation should occur within the scope of 0.15 to 0.5. When examining the item-to-item correlation (refer to Annexure D), it was shown that a substantial number of correlations occurred within that range, indicating the existence of common factors, thus justifying the categorising of the data into the nine pre-determined factors.

TABLE 6.1 Reliability of the scale in the pilot test

	Dimension	*N*	*Cronbach Alpha*
F1	Lack of freedom/autonomy	30	0.535560
F2	Unchallenging work	30	0.774998
F3	Insufficient resources	30	0.823030
F4	Lack of supervisory encouragement	30	0.889194
F5	Lack of team unity	30	0.911505
F6	Lack of organisational support	30	0.798585
F7	Organisational hindrances/bureaucracy	30	0.731410
F8	Workload pressure	30	0.688537
F9	Prescriptive strategic planning	30	0.490767

Correlations that were too low meant that certain items might have been ambiguous or redundant. It was for these reasons, after careful consideration that the original total of eighty-one items was reduced to sixty-two items, which were used in the final survey instrument (see Annexure C). Item modification was undertaken as follows:

- Items B1, B2, B7, B9, B18, B21, B22, B25, B26, B38, B40, B42, B46, B52, B53, B54, B59, B61, B66, B71, B74, B77, B78 and B81 were deleted due to item-to-item correlations that did not fall into the required range, as suggested by Clark and Watson (1995:316). In some cases the items were deleted to increase the Cronbach-alpha.

- Items B8, B13, B14, B18, B29, B45, B48, B49, B50, B64, B68, were reworded to avoid double-barrelled phrases or to encapsulate the fundamental nature of the construct being measured.

- The word "supervisor" was changed to read "line manager".

- Items referring to "work group" were changed to read "department".

- B19, B38, B62 and B80 were reworded and placed under the strategic planning section.

- 5 new items were generated under the strategic planning factor for use in the final survey, which was deemed necessary to increase the overall reliability result for that specific factor.

The modification process was confirmed by a re-computation of the data after the removal of each item to confirm the assumptions regarding the reliability and item-to-item correlations (validity).

6.3 CODING OF THE DATA

Coding involves grouping and assigning values to various responses from the survey instrument. Codes are usually regarded as numbered symbols. However, they are more broadly defined as rules for interpreting, classifying and recording of data (Dhurup, 2003:261).

The questions on the survey instrument were divided into four sections. Section A - classification data, Section B – perceptions data (creativity barriers), Section C - perceptions data (prescriptive strategic planning) and Section D – open-ended questions. Apart from the open-ended questions in Section D, all of the questions were one hundred percent structured. Table 6.2 summarises the coding of the questions that were used in the final survey instrument

TABLE 6.2 Coding information

Question number	*Construct measured*	*Variable*
Section A, Question 1	Name of institution	INST
Section A, Question 2	Function	FUNCTION
Section A, Question 3	Faculty	FACULTY
Section A, Question 4	Years of service	SERVICE
Section A, Question 5	Highest qualification	QUAL
Section B, Question 1	Workload pressure	B1
Section B, Question 2	Organisational bureaucracy	B2
Section B, Question 3	Lack of team unity	B3
Section B, Question 4	Lack of freedom	B4
Section B, Question 5	Workload pressure	B5
Section B, Question 6	Lack of freedom	B6
Section B, Question 7	Lack of organisational support	B7
Section B, Question 8	Lack of team unity	B8
Section B, Question 9	Organisational bureaucracy	B9
Section B, Question 10	Workload pressure	B10
Section B, Question 11	Lack of organisational support	B11
Section B, Question 12	Organisational bureaucracy	B12
Section B, Question 13	Lack of freedom	B13
Section B, Question 14	Organisational bureaucracy	B14
Section B, Question 15	Insufficient resources	B15
Section B, Question 16	Lack of supervisory encouragement	B16
Section B, Question 17	Lack of organisational support	B17
Section B, Question 18	Lack of team unity	B18
Section B, Question 19	Organisational bureaucracy	B19
Section B, Question 20	Lack of freedom	B20
Section B, Question 21	Workload pressure	B21

TABLE 6.2 Coding information (continued ...)

Question number	*Construct measured*	*Variable*
Section B, Question 22	Insufficient resources	B22
Section B, Question 23	Lack of supervisory encouragement	B23
Section B, Question 24	Lack of organisational support	B24
Section B, Question 25	Lack of organisational support	B25
Section B, Question 26	Unchallenging work	B26
Section B, Question 27	Unchallenging work	B27
Section B, Question 28	Organisational bureaucracy	B28
Section B, Question 29	Lack of team unity	B29
Section B, Question 30	Organisational bureaucracy	B30
Section B, Question 31	Lack of freedom	B31
Section B, Question 32	Organisational bureaucracy	B32
Section B, Question 33	Insufficient resources	B33
Section B, Question 34	Lack of supervisory encouragement	B34
Section B, Question 35	Unchallenging work	B35
Section B, Question 36	Lack of organisational support	B36
Section B, Question 37	Lack of team unity	B37
Section B, Question 38	Lack of supervisory encouragement	B38
Section B, Question 39	Lack of organisational support	B39
Section B, Question 40	Organisational bureaucracy	B40
Section B, Question 41	Insufficient resources	B41
Section B, Question 42	Lack of organisational support	B42
Section B, Question 43	Lack of organisational support	B43
Section B, Question 44	Lack of team unity	B44
Section B, Question 45	Workload pressure	B45
Section B, Question 46	Lack of supervisory encouragement	B46
Section B, Question 47	Insufficient resources	B47
Section B, Question 48	Unchallenging work	B48

TABLE 6.2 Coding information (continued ...)

Question number	*Construct measured*	*Variable*
Section C, Question 1	Prescriptive strategic planning	C1
Section C, Question 2	Prescriptive strategic planning	C2
Section C, Question 3	Prescriptive strategic planning	C3
Section C, Question 4	Prescriptive strategic planning	C4
Section C, Question 5	Prescriptive strategic planning	C5
Section C, Question 6	Prescriptive strategic planning	C6
Section C, Question 7	Prescriptive strategic planning	C7
Section C, Question 8	Prescriptive strategic planning	C8
Section C, Question 9	Prescriptive strategic planning	C9
Section C, Question 10	Prescriptive strategic planning	C10
Section C, Question 11	Prescriptive strategic planning	C11
Section C, Question 12	Prescriptive strategic planning	C12
Section C, Question 13	Prescriptive strategic planning	C13
Section C, Question 14	Prescriptive strategic planning	C14

6.4 ANALYSIS OF THE MAIN SURVEY

Before evaluating a data set through the use of erudite statistical techniques, a researcher should get an impression regarding what the data are approximating. Preliminary analysis may provide valuable insights pertaining to the research objectives and suggest important approaches for additional analysis of data. Preliminary data analysis involves examining the central tendency and the distribution of the data on each variable in the data set (Pelser, 2001:165). This is also useful in determining whether the data is normally distributed.

6.4.1 Statistical software: STATISTICA and SAS

The software packages, STATISTICA and SAS, were used throughout the analysis stage of the research process.

6.4.2 Frequency distributions: all variables

Frequency distributions were used in the study for encapsulating responses to certain questions. The frequency distributions for the entire population sample of the study are represented as one-way tables in Annexure D.

The following section will present the descriptive statistics for uncovering the central tendency and distribution of the data. The data has been subdivided into the four sample groups by institution, referred to as Institution A, B, C and D respectively.

6.4.3 Descriptive statistics: total sample

The basic descriptive statistics of central tendency and variability for the entire sample comprising the four higher education institutions that were surveyed are shown in terms of the nine pre-determined factors in Table 6.3. Some missing data was encountered with regards to the perceptions data in Section C and the classifications data in Section A. The total number of respondents that answered the questions is reflected by the Valid *N*. The minimum and maximum values refer to the respective response values for each dimension, from strongly agree (1) to strongly disagree (6).

A number of measures of central tendency or "average" are widely used to give meaning to raw data (Burton *et al.*, 2002:30). Here the arithmetic mean for grouped data – those items that can be identified within an interval scale – is utilised. The highest mean responses were obtained for Factors 1, 2 and 4, generating means of 4.09, 4.28 and 4.17 respectively. On the scale, this indicates that overall the respondents *slightly disagree* with the variables representing those dimensions, which are namely: lack of freedom, unchallenging work and lack of supervisory encouragement. This can indicate that those barriers are not especially prevalent.

TABLE 6.3 Descriptive statistics: total sample

	Valid N	*Mean*	*Median*	*Minimum*	*Maximum*	*Std.Dev.*	*Skewness*	*Kurtosis*
Function	179	3.581006	3.000000	1.000000	7.00000	1.933698	0.830386	-0.70832
Faculty	178	3.646067	3.000000	1.000000	10.00000	2.725380	1.359048	0.62979
Service	178	2.415730	2.000000	1.000000	5.00000	1.432543	0.556236	-1.04744
Qual	174	3.080460	3.000000	1.000000	4.00000	0.814867	-0.473558	-0.53317
Bf1	179	4.085196	4.000000	1.000000	6.00000	0.972886	-0.479795	0.39679
Bf2	179	4.281657	4.500000	1.000000	6.00000	1.133252	-0.746805	0.13888
Bf3	179	3.401490	3.400000	1.000000	5.80000	1.104004	0.042344	-0.60923
Bf4	179	4.173929	4.200000	1.000000	6.00000	1.274103	-0.355258	-0.75908
Bf5	179	3.929236	4.000000	1.000000	6.00000	1.224500	-0.256811	-0.79992
Bf6	179	3.411235	3.333333	1.000000	6.00000	1.054167	0.167699	-0.49216
Bf7	179	3.100330	3.111111	1.000000	5.55556	0.963717	0.214971	-0.42714
Bf8	179	2.711173	2.600000	1.000000	6.00000	1.036057	0.753298	0.61932
C	176	3.136572	3.071429	1.214286	5.78571	0.854407	0.272064	0.01937

On the other hand, the lowest mean score obtained for the factors was for Factor 8 (workload pressure), which resulted in a mean score of 2.71, indicating that respondents overall agreed that they were experiencing workload pressure. The means for the other factors ranged from 3.10 – 3.93 indicating that respondents slightly agreed that those factors/barriers were present in their working environment.

Another computation that can be used on a scale is standard deviation, which is regarded as the dispersal of the responses from their mean. The largest standard deviation obtained is 1.27 from Factor 4. Therefore the sample is moderately homogenous and thus the mean gives a satisfactory indication of the responses.

The skewness scores show negatively skewed distributions (values < 0) for Factors 1, 2, 4, 5, 6 and positively skewed distributions (values > 0) for the others. None of the skewness scores are above the –2 or +2 range, which indicates that the data is normally distributed.

6.4.4 Descriptive statistics: Institution A

The basic descriptive statistics of central tendency and variability for Institution A is outlined in terms of the nine pre-determined factors in Table 6.4. Some missing data was encountered with regards to the perceptions data in Section C and the classifications data in Section A. The number of respondents that answered the questions is reflected by the Valid *N*. The minimum and maximum values refer to the respective response values for each dimension, from strongly agree (1) to strongly disagree (6).

The highest mean for Institution A is 4.59 for Factor 2, which refers to unchallenging work, indicating that respondents from Institution A disagreed with the items which stated that the work which was being performed was unchallenging. The lowest mean for Institution A, which corresponded similarly to the entire sample population was tabulated for Factor 8 (workload pressure). The mean score was fairly low at 2.70, indicating that respondents from Institution A did experience a high level of workload pressure.

TABLE 6.4 Descriptive statistics: Institution A

	Valid N	*Mean*	*Median*	*Minimum*	*Maximum*	*Std.Dev.*	*Skewness*	*Kurtosis*
Function	58	4.482759	3.500000	1.000000	7.00000	2.333895	0.00545	-1.77758
Faculty	57	4.035088	3.000000	1.000000	10.00000	2.993832	1.13600	0.00116
Service	57	2.350877	2.000000	1.000000	5.00000	1.395032	0.64635	-0.78728
Qual	55	3.200000	3.000000	1.000000	4.00000	0.847655	-0.77998	-0.15258
Bf1	58	4.216379	4.400000	1.000000	5.80000	1.020036	-1.07378	1.49995
Bf2	58	4.594828	4.750000	1.500000	6.00000	0.982107	-1.04785	1.08170
Bf3	58	3.339080	3.200000	1.000000	5.80000	1.011173	0.29462	-0.04469
Bf4	58	4.141379	4.225000	1.200000	6.00000	1.254086	-0.42438	-0.44723
Bf5	58	3.959483	4.000000	1.666667	6.00000	1.151104	-0.14867	-0.78239
Bf6	58	3.652299	3.777778	1.444444	6.00000	1.044731	0.03715	-0.59910
Bf7	58	3.269787	3.555556	1.222222	5.44444	0.987983	-0.21837	-0.54881
Bf8	58	2.709483	2.550000	1.000000	6.00000	1.153996	0.73374	0.07571
C	57	3.340470	3.285714	1.714286	5.78571	0.977426	0.34708	-0.44615

The highest standard deviation was 1.25 for Factor 4. The standard deviation and variance decreases with every respondent that gives the same answer to a particular question. Thus, it can be assumed that the sample is relatively homogenous, and the mean for this data set gives a reliable indication of the responses.

The skewness measures obtained from the data of Institution A indicate that Factors 1, 2, 4, 5 and 7 have negatively skewed distributions (values < 0). The other four factors have positively skewed distributions (values > 0). The kurtosis values obtained for all of the factors in Table 6.4, indicate relatively flat distributions, as they are all negative values, except for factor 1 and 2, which show positive values, and this may indicate that there could be a few outliers occurring within the answers to the variables on that factor. All the factors fall within the –2 and +2 range, indicating normal distribution. Factors 1 and 2 represent a lack of freedom in the workplace and unchallenging work, respectively.

6.4.5 Descriptive statistics: Institution B

The basic descriptive statistics of central tendency and variability for Institution B is also outlined in terms of the nine pre-determined factors in Table 6.5. The only missing data was encountered with regards to the perceptions data in Section C regarding the strategic planning variables. The number of respondents that answered the questions is reflected by the Valid *N*. The minimum and maximum values refer to the respective response values for each dimension, from strongly agree (1) to strongly disagree (6).

The highest mean for Institution B is 4.57, again for Factor 2, which refers to unchallenging work, indicating that respondents from Institution B disagreed with the items which stated that the work which was being performed was unchallenging. The means for Factors 1, 4 and 5 were also above the 4.0 range indicating that those barriers were not prevalent in Institution B. One of the lower means for Institution B, which corresponded similarly to the entire sample population was for Factor 8, namely workload pressure. The mean score was fairly low at 2.84, indicating that respondents from Institution B did experience a high level of workload pressure.

TABLE 6.5 Descriptive statistics: Institution B

	Valid N	*Mean*	*Median*	*Minimum*	*Maximum*	*Std.Dev.*	*Skewness*	*Kurtosis*
Function	50	3.240000	3.000000	1.000000	7.00000	1.857802	1.14561	0.241803
Faculty	50	3.260000	3.000000	1.000000	10.00000	2.058432	1.84309	3.992342
Service	50	2.260000	2.000000	1.000000	5.00000	1.482001	0.82408	-0.802307
Qual	50	3.360000	3.500000	1.000000	4.00000	0.749422	-1.01289	0.656711
Bf1	50	4.275000	4.400000	2.400000	6.00000	0.943628	-0.30516	-0.558777
Bf2	50	4.570000	4.750000	1.000000	6.00000	1.057095	-1.41471	2.583497
Bf3	50	3.909000	3.900000	1.200000	5.60000	1.047431	-0.72927	0.419201
Bf4	50	4.534667	5.000000	1.000000	6.00000	1.205692	-0.73755	-0.026654
Bf5	50	4.363667	4.666667	1.000000	6.00000	1.173439	-0.87743	0.312985
Bf6	50	3.655556	3.722222	1.000000	5.88889	1.051759	0.02943	-0.286057
Bf7	50	3.300119	3.222222	1.333333	5.55556	0.986323	0.34182	-0.106678
Bf8	50	2.844000	2.900000	1.000000	6.00000	1.005172	0.55496	0.797990
C	48	2.737614	2.785714	1.214286	4.50000	0.794443	0.06659	-0.653833

However, the lowest overall mean score obtained at Institution B was 2.74 for Factor 9 (Section C), which was for strategic planning, indicating that the respondents rated the existence of prescriptive strategic planning within that institution to be somewhat prevalent.

The highest standard deviation was 1.20 for Factor 4. As with institution A, it can thus be assumed that the sample is relatively homogenous, and the mean for this data set gives a reliable indication of the responses.

Factors 1 - 5 have negatively skewed distributions (values < 0). The other four factors have positively skewed distributions (values > 0). The kurtosis values obtained for the factors indicate that they are normally distributed. Factor 2 shows a slightly peaked distribution. This factor refers to unchallenging work within the institution. The other kurtosis values show relatively flat distributions.

6.4.6 Descriptive statistics: Institution C

The basic descriptive statistics of central tendency and variability for Institution C is again outlined in terms of the nine pre-determined factors in Table 6.6. The only missing data was encountered with regards to the classifications data in Section A regarding the qualification of the respondent. The number of respondents that answered the questions is reflected by the Valid *N*. The minimum and maximum values refer to the respective response values for each dimension, from strongly agree (1) to strongly disagree (6).

The highest mean for Institution C is 3.74, for Factor 4, which refers to lack of supervisory encouragement indicating that respondents from Institution C marginally agreed that they did not receive encouragement from their supervisors. The mean scores for factors 1, 2, 5 and 9 were also moderately low (ranging from 3.32 –3.71), indicating the existence of those factors in Institution C. Those barriers refer to lack of freedom, unchallenging work, lack of team unity and prescriptive strategic planning. These barriers cannot be considered to be a significant problem for Institution C. The means for Factors 3, 6, 7 and 8 were somewhat low (ranging from 2.52 – 2.83) indicating that those barriers were noticeably prevalent in Institution C.

TABLE 6.6 Descriptive statistics: Institution C

	Valid N	*Mean*	*Median*	*Minimum*	*Maximum*	*Std.Dev.*	*Skewness*	*Kurtosis*
Function	52	3.019231	3.000000	2.000000	7.000000	1.228587	1.281707	1.18957
Faculty	52	2.557692	2.000000	1.000000	9.000000	1.830177	2.388986	5.52247
Service	52	2.615385	2.500000	1.000000	5.000000	1.483951	0.327892	-1.31085
Qual	51	2.862745	3.000000	1.000000	4.000000	0.800490	-0.230325	-0.42928
Bf1	52	3.710577	3.600000	1.000000	5.800000	0.946269	-0.122042	0.78300
Bf2	52	3.594551	3.583333	1.000000	6.000000	1.151516	-0.140059	-0.36473
Bf3	52	2.838462	2.700000	1.000000	5.200000	1.013662	0.390605	-0.52740
Bf4	52	3.746154	3.500000	1.400000	6.000000	1.353059	0.125284	-1.12868
Bf5	52	3.323718	3.500000	1.000000	6.000000	1.190198	0.221582	-0.57808
Bf6	52	2.814103	2.777778	1.000000	5.000000	0.900717	0.358001	-0.30300
Bf7	52	2.670406	2.444444	1.000000	4.750000	0.835329	0.628965	0.02768
Bf8	52	2.521154	2.600000	1.000000	4.800000	0.872305	0.543291	0.41846
C	52	3.417776	3.392857	1.428571	5.142857	0.694692	-0.117097	0.74213

The prevalent factors that were mentioned previously refer respectively to insufficient resources, lack of organisational encouragement, organisational hindrances or bureaucracy and workload pressure for Institution C.

The highest standard deviation was 1.35 again for Factor 4. As with the other institutions, it can thus be assumed that the sample is relatively homogenous, and the mean for this data set gives a reliable indication of the responses.

Factors 1, 2 and 9 have negatively skewed distributions (values < 0) and Factors 3, 4, 5, 6, 7 and 8 have positively skewed distributions. All the Factors have skewness values within the –2 and +2 range. This therefore indicates normally distributed data for Institution C. The kurtosis values obtained for this Institution are also indicative of relatively flat distributions, with the majority of the factors presenting negative kurtosis values.

6.4.7 Descriptive statistics: Institution D

The basic descriptive statistics of central tendency and variability for Institution D is also outlined in terms of the nine pre-determined factors in Table 6.7. The only missing data was encountered with regards to the classifications data in Section A regarding the qualification of the respondent. The number of respondents that answered the questions is reflected by the Valid *N*. The minimum and maximum values refer to the respective response values for each dimension, from strongly agree (1) to strongly disagree (6).

The highest mean for Institution D is 4.49, again for Factor 4, which refers to lack of supervisory encouragement indicating that respondents from Institution D did not entirely agree with the items which stated that they did not receive encouragement from their supervisors. The means for Factors 1, 2 and 5 were also above the 4.0 range indicating that those barriers were not prevalent in Institution D. One of the lower means for Institution D, which corresponded similarly to the entire sample population was for Factor 8, namely workload pressure. The mean score was fairly low at 2.88, indicating that respondents from Institution D did experience a high level of workload pressure.

TABLE 6.7 Descriptive statistics: Institution D

	Valid N	*Mean*	*Median*	*Minimum*	*Maximum*	*Std.Dev.*	*Skewness*	*Kurtosis*
Function	19	3.263158	3.000000	2.000000	7.00000	1.446916	1.207368	0.84013
Faculty	19	6.473684	8.000000	2.000000	10.00000	3.372576	-0.313951	-1.84580
Service	19	2.473684	2.000000	1.000000	5.00000	1.306753	0.314489	-1.14469
Qual	18	2.555556	3.000000	2.000000	3.00000	0.511310	-0.244470	-2.19938
Bf1	19	4.210526	4.000000	3.000000	6.00000	0.725637	0.631289	0.42482
Bf2	19	4.447368	4.500000	2.750000	6.00000	0.952260	-0.108849	-0.72308
Bf3	19	3.797368	3.600000	2.200000	5.80000	1.052573	0.437022	-0.69137
Bf4	19	4.494737	4.400000	2.800000	6.00000	0.962331	-0.078715	-0.88975
Bf5	19	4.350877	4.666667	2.500000	5.83333	1.046592	-0.249792	-1.33744
Bf6	19	3.666667	3.555556	2.333333	5.55556	0.878020	0.530760	-0.22079
Bf7	19	3.233918	3.222222	1.333333	4.77778	0.843676	-0.065774	0.59063
Bf8	19	2.886842	2.600000	1.400000	5.60000	1.142590	1.320887	1.94657
C	19	2.763158	2.642857	2.071429	3.50000	0.421941	0.222800	-1.05700

However, the lowest overall mean score obtained was 2.76 for Factor 9 (Section C), at Institution D, which was for strategic planning, indicating that according to the survey instrument, the respondents rated the existence of prescriptive strategic planning within that institution to be somewhat prevalent, reminiscent of the situation in Institution B.

The highest standard deviation was 1.14 for Factor 8 unlike the other institutions, which showed the highest standard deviation for Factor 4. However, as with the other institutions, the relatively low standard deviations for all the factors is indicative of a relatively homogenous sample, and the mean for this data set therefore gives a reliable indication of the responses.

All of the factors have skewness values within the –2 and +2 range indicating that the data is normally distributed. .

6.4.8 Validity and reliability of the scale

The Cronbach alpha computed for the entire sample was documented at 0.956751 for the eight creativity barrier factors, and at 0.861933 for the separate strategic planning factor, as prescribed by the pilot test (refer to Section 6.2). A minor improvement could be noted for the creativity barrier variables from the initial pilot test and a significant improvement on the reliability of the strategic planning variables (refer to Table 6.1).

The reliability for the survey instrument as a whole, as well as reliability for each institution separately, is indicated in Table 6.8. This table shows the Cronbach alpha values for the creativity barrier dimensions listed individually. The Cronbach alpha values for the prescriptive strategic planning dimension per institution as well as for the overall sample is shown in Table 6.9.

Regarding the creativity dimensions, amongst institutions, the Cronbach alpha ranged from 0.9415 to 0.9618. The reliability is significantly higher than the proposed standard of 0.7 (Nunnally, 1978:245; Litwin, 2005:31). These elevated values are indicative of a high degree of data stability.

TABLE 6.8 Reliability analysis: main survey (factors B1-B8)

Valid N	*Sample*	*Cronbach alpha*	*Standardised alpha*	*Inter-item correlation*	*Mean*	*Std deviation*
145	Whole sample	0.9568	0.9560	0.3192	171.11	40.47
40	Institution A	0.9455	0.9449	0.2756	176.65	37.97
41	Institution B	0.9618	0.9616	0.3564	186.05	41.22
47	Institution C	0.9415	0.9402	0.2564	148.26	34.61
17	Institution D	0.9480	0.9474	0.2932	185.24	33.71

TABLE 6.9 Reliability analysis: main survey (factor C)

Valid N	*Sample*	*Cronbach alpha*	*Standardised alpha*	*Inter-item correlation*	*Mean*	*Std deviation*
158	Whole sample	0.8619	0.8622	0.3264	43.89	11.94
46	Institution A	0.8923	0.8916	0.3382	46.67	14.08
44	Institution B	0.8630	0.8634	0.3381	38.80	11.15
49	Institution C	0.7935	0.7928	0.2392	47.86	9.91
19	Institution D	0.4503	0.4372	0.7010	38.68	5.91

The Cronbach alpha for the strategic planning dimension ranged from 0.4372 to 0.8916. The lowest reliability score was obtained for Institution D and can be attributed to the low number of responses from that institution. However, the Cronbach alpha for the entire strategic planning dimension was 0.8622, which acceptably fulfils the criteria of 0.7 as suggested by Nunnally (1978:245) and Litwin (1995:31). It can also be noted that the Cronbach alpha values for each institution are

somewhat consistent, except for Institution D, Factor C. The reliability between the four institutions can therefore be considered to be fairly analogous.

Table 6.10 represents the validity and reliability for the entire scale, for the whole sample, per variable.

TABLE 6.10 Aggregate reliability analysis per variable

	Scale mean If item deleted	*Scale variance if item deleted*	*Standard deviation if item deleted*	*Item-total correlation*	*Alpha if item deleted*
B1	168.6069	1596.528	39.95658	0.257719	0.957153
B2	168.4414	1559.584	39.49157	0.508798	0.956093
B3	167.1586	1553.844	39.41883	0.543991	0.955916
B4R *	166.3035	1605.315	40.06638	0.206419	0.957227
B5	168.4552	1604.483	40.05599	0.177031	0.957546
B6	167.5034	1561.574	39.51676	0.543534	0.955899
B7	168.1448	1544.951	39.30587	0.644286	0.955392
B8	167.6552	1525.205	39.05387	0.762981	0.954732
B9	168.6207	1573.242	39.66412	0.504197	0.956081
B10	168.1448	1554.869	39.43182	0.611438	0.955580
B11	167.4138	1537.967	39.21692	0.686790	0.955163
B12	167.4138	1541.442	39.26121	0.728325	0.955021
B13R *	167.2138	1589.837	39.87276	0.318289	0.956896
B14	168.2828	1548.603	39.35229	0.627266	0.955484
B15	167.7172	1549.913	39.36893	0.546899	0.955922
B16	167.0759	1534.401	39.17143	0.649430	0.955349
B17	167.0759	1553.877	39.41925	0.573151	0.955755
B18	166.8069	1555.135	39.43520	0.607075	0.955599
B19	167.9793	1560.324	39.50093	0.583697	0.955719
B20	167.2345	1561.904	39.52093	0.578687	0.955746
B21	167.9310	1560.616	39.50463	0.553250	0.955853
B22	167.6897	1548.173	39.34682	0.638371	0.955432
B23	166.8896	1555.643	39.44164	0.641589	0.955468
B24	168.2759	1582.255	39.77757	0.434583	0.956365
B25	167.8552	1554.910	39.43235	0.569129	0.955775
B26	167.1793	1556.464	39.45205	0.566965	0.955785
B27	166.8000	1576.312	39.70279	0.468528	0.956230
B28	168.1310	1535.700	39.18801	0.728585	0.954965
B29	167.2828	1559.927	39.49591	0.554225	0.955848
B30	167.9034	1566.653	39.58096	0.542410	0.955911
B31	166.8276	1568.515	39.60448	0.576025	0.955798
B32	167.3724	1593.917	39.92389	0.278750	0.957073
B33	168.2897	1563.185	39.53714	0.536059	0.955934
B34	166.7172	1551.210	39.38540	0.640264	0.955441
B35	166.8621	1552.298	39.39922	0.595392	0.955644

TABLE 6.10 Aggregate reliability analysis (continued ...)

B36	167.0414	1542.784	39.27829	0.708029	0.955109
B37	166.8138	1553.434	39.41363	0.605922	0.955597
B38	167.2828	1541.844	39.26632	0.656741	0.955322
B39	168.1379	1547.029	39.33229	0.651874	0.955367
B40	167.9172	1550.903	39.38151	0.669136	0.955328
B41R *	167.6345	1582.177	39.77658	0.349725	0.956843
B42	167.8965	1551.196	39.38523	0.599769	0.955621
B43R *	167.6207	1580.442	39.75478	0.407239	0.956505
B44	167.5586	1542.674	39.27689	0.628945	0.955463
B45	168.5655	1594.701	39.93370	0.260779	0.957193
B46	166.8414	1554.396	39.42582	0.620472	0.955540
B47	167.0138	1564.772	39.55720	0.548466	0.955880
B48	166.6069	1560.666	39.50527	0.533577	0.955949
C1	41.26582	122.4230	11.06449	0.628954	0.847287
C2	40.78481	127.6372	11.29767	0.363244	0.861183
C3R *	40.17089	121.3062	11.01391	0.533736	0.851726
C4R *	40.01899	120.4490	10.97493	0.561122	0.850079
C5R *	40.01266	118.7467	10.89709	0.608840	0.847154
C6	41.11393	132.8478	11.52596	0.203477	0.869556
C7	40.36709	119.9159	10.95061	0.630467	0.846254
C8	40.83544	128.4539	11.33375	0.378784	0.859778
C9	41.94937	128.9088	11.35380	0.407993	0.858108
C10	41.03165	118.6509	10.89270	0.692353	0.842929
C11R *	40.51266	122.5030	11.06811	0.512880	0.852913
C12	40.84810	122.3693	11.06207	0.533754	0.851698
C13	40.82278	122.5509	11.07027	0.555330	0.850563
C14	40.78481	121.2575	11.01170	0.603947	0.847912

* Indicates negatively phrased items for which values have been reversed

As has been outlined in Table 6.10, the entire scale displays a high reliability value on each of the variables. The Cronbach alpha for each factor ranged from 0.7395 to 0.8811 for the whole sample, with an overall alpha of 0.9568 for the entire scale, and 0.8619 for the strategic planning factor which is indicative of a high internal consistency amongst variables in each dimension.

6.5 BIOGRAPHICAL INFORMATION

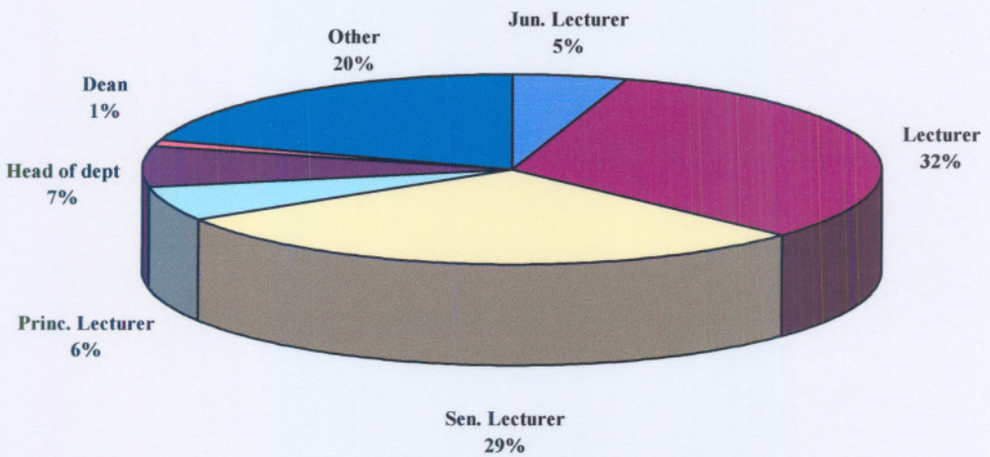
The following section classifies the respondents for the entire sample into certain categories, measured by their job description, the Faculty they work for, the years of service they have provided to the Institution and the highest qualification level they have managed to obtain. The following classification sections are represented by

frequency tables and pie charts, giving indications for the entire sample obtained overall from the four institutions.

TABLE 6.11 Function within the Institution - overall sample

	Frequency	*Cumulative Count*	*Valid Percent*	*Cumulative Percent*
1	9	9	5.02793	5.0279
2	58	67	32.40223	37.4302
3	52	119	29.05028	66.4804
4	11	130	6.14525	72.6257
5	13	143	7.26257	79.8883
6	1	144	0.55866	80.4469
7	35	179	19.55307	100.0000
Missing	0	179	0.00000	100.0000

FIGURE 6.1 Function within the Institution – overall sample



As can be seen from the frequency table and the chart in Figure 6.1, the majority of respondents were lecturers and senior lecturers respectively. Only a small number of respondents were placed into the junior lecturer, HOD and Dean category. Where

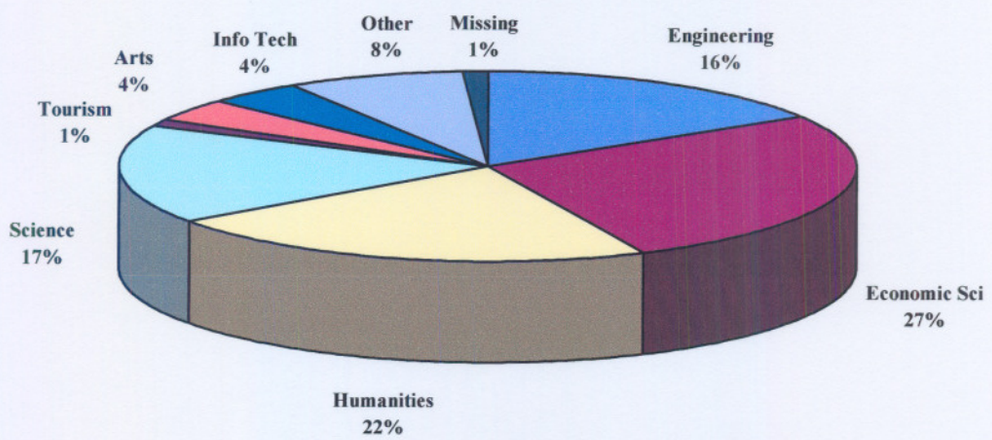
respondents marked, the category "other", it referred to a job description not listed in the survey categories, such as Associate Professor or Principal Tutor, which are job categories that are intermittently utilised by certain institutions.

Care was taken to include all the various job categories in the sample of respondents questioned during the survey, in order to obtain a relatively accurate overall picture of the institutions in question.

TABLE 6.12 Faculty within the Institution – overall sample

	Frequency	*Cumulative Count*	*Valid Percent*	*Cumulative Percent*
1	29	29	16.20112	16.2011
2	48	77	26.81564	43.0168
3	39	116	21.78771	64.8045
4	31	147	17.31844	82.1229
7	2	149	1.11732	83.2402
8	7	156	3.91061	87.1508
9	7	163	3.91061	91.0615
10	15	178	8.37989	99.4413
Missing	1	179	0.55866	100.0000

FIGURE 6.2 Faculty within the Institution – overall sample

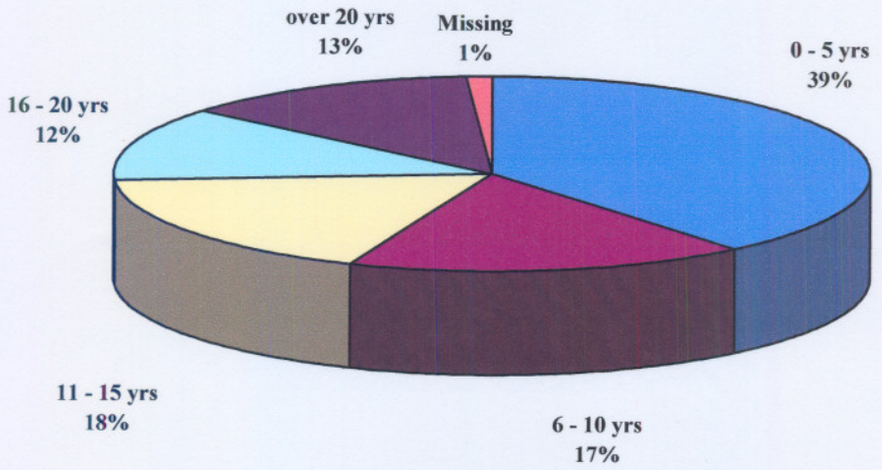


The majority of respondents could be classified into the Economic and Management Sciences category, with the second highest total of respondents being placed in the Humanities category. Third followed with Science and lastly, Engineering. The other faculties had relatively few respondents overall. This sampling method was executed to obtain an overall, varying depiction of the higher education institutions. This can be seen in Table 6.12, as well as in Figure 6.2.

TABLE 6. 13 Years of service within Institution – overall sample

	Frequency	*Cumulative Count*	*Valid Percent*	*Cumulative Percent*
1	70	70	39.10615	39.1061
2	31	101	17.31844	56.4246
3	33	134	18.43575	74.8603
4	21	155	11.73184	86.5922
5	23	178	12.84916	99.4413
Missing	1	179	0.55866	100.0000

FIGURE 6.3 Years of service – overall sample

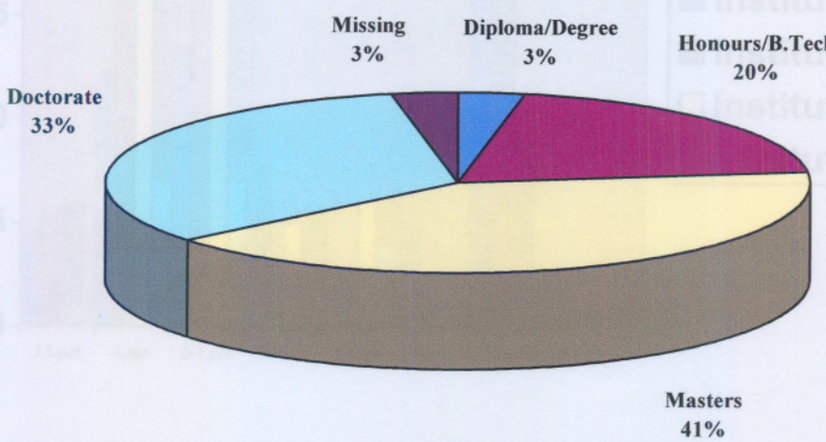


Most of the respondents had 0 –5 years of the service in the organisation. Secondly, the respondents were placed in the 11 – 15 years category, followed by the 6 – 10 years category. Overall, the respondents had a moderately average number of years of service between categories, apart from Category one, which was conspicuous by a significantly high number of respondents. This is depicted in Table 6.13, as well as in Figure 6.3.

TABLE 6. 14 Highest qualification – overall sample

	Frequency	*Cumulative Count*	*Valid Percent*	*Cumulative Percent*
1	5	5	2.79330	2.7933
2	36	41	20.11173	22.9050
3	73	114	40.78212	63.6872
4	60	174	33.51955	97.2067
Missing	5	179	2.79330	100.0000

FIGURE 6.4 Highest qualification – overall sample



Chapter 6: Analysis of empirical data

The majority of respondents sampled in the survey, were in possession of at least a Master's qualification. Thirty-three percent had attained a Doctorate and only a marginal three percent were in possession of simply a degree or diploma. This three percent would usually be attributed to junior lecturers who were still in training and probably registered for future qualifications. The distribution of qualifications is outlined in a frequency table in Table 6.14 and also in Figure 6.4.

The previous section outlined the classification data for the entire sample. Conversely, to give an indication of the varying classification statistics per institution, in addition, the following section will compare the four sample institutions, in terms of: function, faculty, years of service and highest qualification obtained.

FIGURE 6.5 Function classification per institution

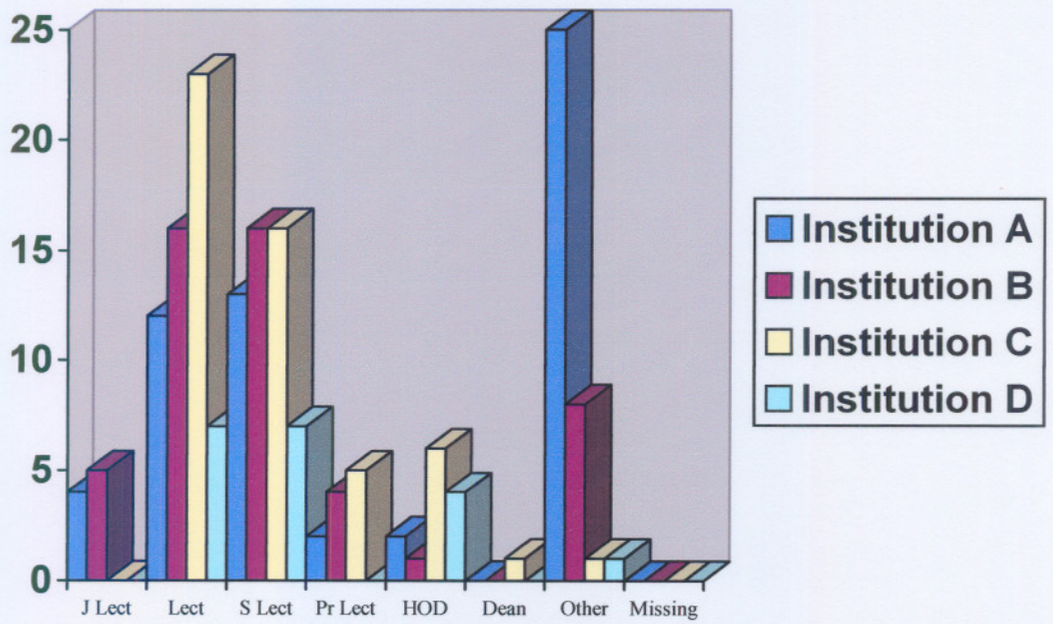
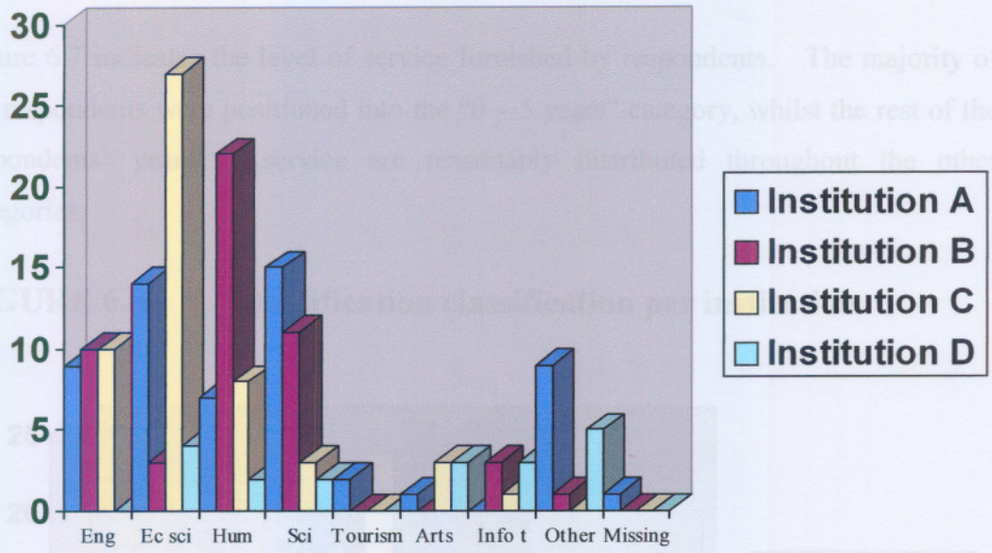


Figure 6.5 shows the function classification per institution. There is a reasonable correlation between the functions that the various respondents fulfilled in this category. Institution A had a high number of respondents that were placed in the "other" category, usually referring to a designation such as principal tutor, which was not categorised on the survey instrument.

FIGURE 6.6 Faculty classification per institution



From Figure 6.6, it can be inferred that the majority of respondents were categorised into the first four groupings, and Institution B had a high number of respondents in the Economic Sciences category. It is noted that the differences between the faculties in the sample may result in secondary variances. This will be taken into consideration.

FIGURE 6.7 Years of service classification per institution

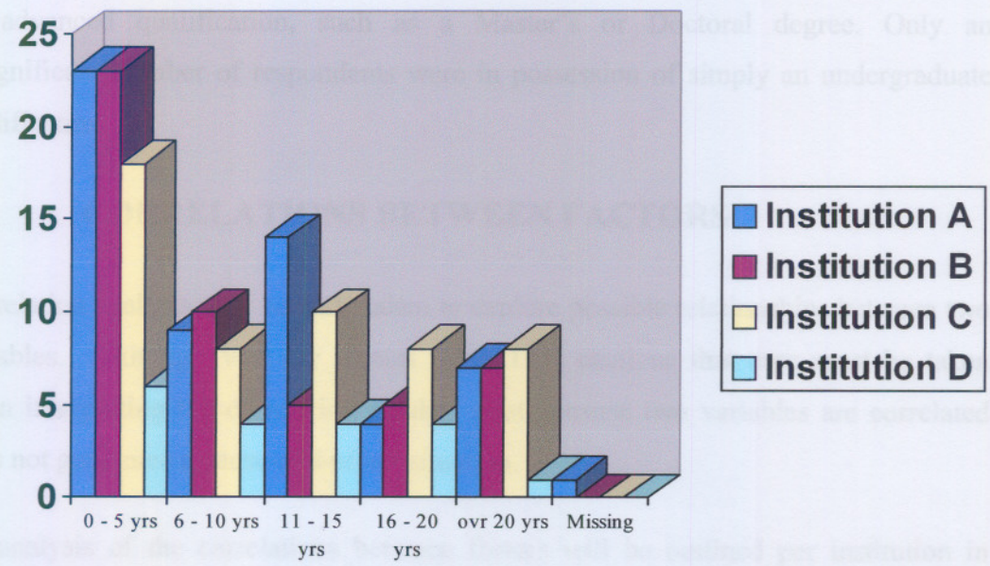


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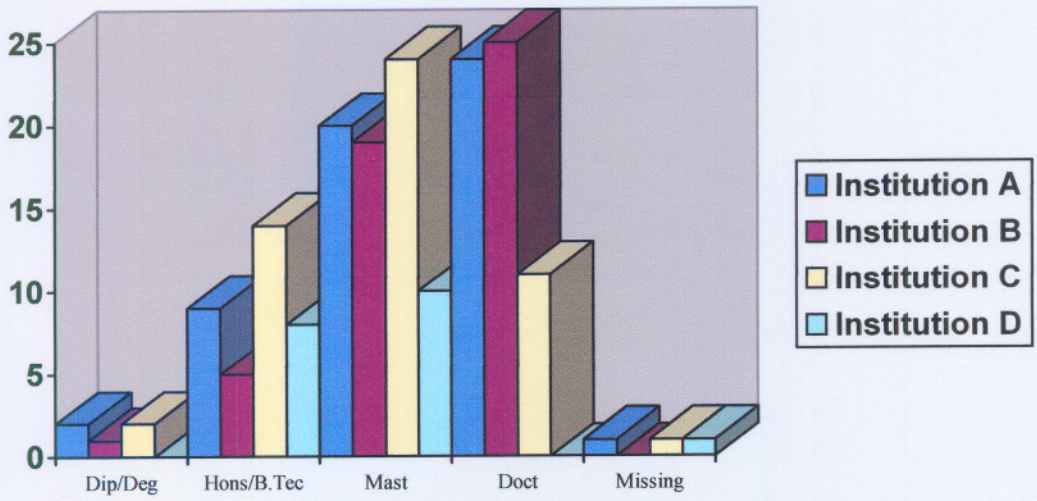
Figure 6.7 indicates the level of service furnished by respondents. The majority of the respondents were positioned into the "0 – 5 years" category, whilst the rest of the respondents' years of service are reasonably distributed throughout the other categories.

FIGURE 6.8 Qualification classification per institution



It can be inferred from Figure 6.8 that the majority of respondents are in possession of an advanced qualification, such as a Master's or Doctoral degree. Only an insignificant number of respondents were in possession of simply an undergraduate qualification.

6.6 CORRELATIONS BETWEEN FACTORS

Correlation analysis may be undertaken to explore possible relationships between two variables. Although Van der Honert (1999:101) cautions that care must be taken when interpreting the correlation results. Just because two variables are correlated does not guarantee a cause-and-effect situation.

An analysis of the correlations between factors will be outlined per institution in Tables 6.15 to 6.18. The correlations for the whole sample will be outlined in Table 6.19. Significantly correlated items (values > 0.5) will be highlighted.

TABLE 6.15 Factor correlations – Institution A

	Bf1	*Bf2*	*Bf3*	*Bf4*	*Bf5*	*Bf6*	*Bf7*	*Bf8*	*C*
Lack of freedom	1.00	0.53*	0.55*	0.44	0.32	0.55*	0.68*	0.33	-0.02
Unchallenging work		1.00	0.35	0.58*	0.48	0.57*	0.53*	0.27	0.05
Insufficient resources			1.00	0.31	0.37	0.38	0.51*	0.37	-0.21
Lack of supervisory encouragement				1.00	0.66*	0.77*	0.62*	0.31	-0.35
Lack of team unity					1.00	0.67*	0.52*	0.12	-0.32
Lack of organisational support						1.00	0.80*	0.38	-0.43
Organisational hindrances							1.00	0.32	-0.28
Workload pressure								1.00	-0.38
Prescriptive strategic planning									1.00

* Marked correlation significant at > 0.5

Correlations between the factors for Institution A, show the highest correlations between Factor 6 (Lack of organisational support) and Factor 7 (Organisational hindrances) with a value of 0.8. This could possibly indicate that organisational hindrances in the form of bureaucracy, for example, also contribute to an overall perception that there is a lack of support from the organisation, in general.

Other mentionable correlations include Factor 1 (lack of freedom) and Factor 2 (Unchallenging work). Factor 4 (lack of supervisory encouragement) and Factor 6 (lack of organisational support). There may be some relationship between these factors, which warrants further exploration.

There are a number of the factors that show marked correlations for Institution A. However, as they are barely above the cut-off point of 0.5, they cannot be considered particularly significant and therefore will not be discussed in detail. Only factors that are highly correlated and that have significant, logical connections will be explored.

TABLE 6.16 Factor correlations – Institution B

	Bf1	*Bf2*	*Bf3*	*Bf4*	*Bf5*	*Bf6*	*Bf7*	*Bf8*	*C*
Lack of freedom	1.00	0.67*	0.28	0.60*	0.61*	0.48	0.49	0.61*	-0.35
Unchallenging work		1.00	0.38	0.64*	0.72*	0.51*	0.49	0.46	-0.32
Insufficient resources			1.00	0.40	0.50*	0.61*	0.60*	0.45	-0.40
Lack of supervisory encouragement				1.00	0.80*	0.66*	0.71*	0.52*	-0.34
Lack of team unity					1.00	0.72*	0.72*	0.59*	-0.31
Lack of organisational support						1.00	0.89*	0.49	-0.55
Organisational hindrances							1.00	0.59*	-0.56
Workload pressure								1.00	-0.31
Prescriptive strategic planning									1.00

* Marked correlation significant at > 0.5

Correlations between the factors for Institution B, show the highest correlations between Factor 6 (Lack of organisational support) and Factor 7 (Organisational hindrances) with a value of 0.89. This could again be an indication that organisational hindrances, such as bureaucracy or political problems, could also contribute to the observation that there is a lack of support from the organisation, in general.

Other mentionable correlations include Factor 1 (lack of freedom) and Factor 2 (Unchallenging work); Factor 4 (Lack of supervisory encouragement) and Factor 6 (Lack of organisational support); and Factor 4 (Lack of supervisory encouragement) also correlates highly with Factors 5 (Lack of team unity) and 7 (Organisational hindrances). There may be some relationship between these factors that warrants further exploration.

There are a number of the other factors that show marked correlations for Institution B too. Again, as they are scarcely above the cut-off point of 0.5, they cannot be considered particularly significant and therefore will not be discussed in detail.

TABLE 6.17 Factor correlations – Institution C

	Bf1	*Bf2*	*Bf3*	*Bf4*	*Bf5*	*Bf6*	*Bf7*	*Bf8*	*C*
Lack of freedom	1.00	0.57*	0.27	0.55*	0.43	0.48	0.58*	0.52*	-0.26
Unchallenging work		1.00	0.53*	0.54*	0.40	0.61*	0.54*	0.35	-0.48
Insufficient resources			1.00	0.35	0.31	0.57*	0.55*	0.39	-0.40
Lack of supervisory encouragement				1.00	0.62*	0.71*	0.65*	0.34	-0.37
Lack of team unity					1.00	0.51*	0.69*	0.38	-0.35
Lack of organisational support						1.00	0.83*	0.41	-0.55
Organisational hindrances							1.00	0.50*	-0.52
Workload pressure								1.00	-0.25
Prescriptive strategic planning									1.00

* Marked correlation significant at > 0.5

Correlations between the factors for Institution C, similarly show the highest correlations between Factor 6 (Lack of organisational support) and Factor 7 (Organisational hindrances) with a value of 0.83. It appears that if there is a perception of a lack of support experienced in the organisation, it occurs concurrently with other organisational hindrances, such as a lack of transparency in the organisation.

Other mentionable correlations include Factor 1 (lack of freedom) and Factor 2 (Unchallenging work) as noticed in the other institutions. Factor 4 (lack of supervisory encouragement) and Factor 6 (lack of organisational support) are also moderately highly correlated. There may be some relationship between these factors that could warrant further exploration.

Other factors in Institution C, although slightly correlated, are not significantly correlated to merit being mentioned here. Only factors that are highly correlated and that have significant, logical connections will be explored.

TABLE 6.18 Factor correlations – Institution D

	Bf1	*Bf2*	*Bf3*	*Bf4*	*Bf5*	*Bf6*	*Bf7*	*Bf8*	*C*
Lack of freedom	1.00	0.69*	0.39	0.40	0.20	0.49	0.42	0.43	-0.40
Unchallenging work		1.00	0.07	0.30	0.28	0.41	0.32	0.17	-0.10
Insufficient resources			1.00	0.68*	0.48	0.53*	0.68*	0.70*	-0.74
Lack of supervisory encouragement				1.00	0.79*	0.65*	0.70*	0.64*	-0.57
Lack of team unity					1.00	0.52*	0.62*	0.36	-0.35
Lack of organisational support						1.00	0.87*	0.56*	-0.57
Organisational hindrances							1.00	0.66*	-0.50
Workload pressure								1.00	-0.51
Prescriptive strategic planning									1.00

* Marked correlation significant at > 0.5

Correlations between the factors for Institution D, show the highest correlations between Factor 6 (Lack of organisational support) and Factor 7 (Organisational hindrances) with a value of 0.87. This could again be an indication that organisational hindrances, such as political problems within organisational structures, could also contribute to the lack of support from the organisation, in general.

Other mentionable correlations include Factor 1 (lack of freedom) and Factor 2 (Unchallenging work); Factor 4 (Lack of supervisory encouragement) and Factor 7 (Organisational hindrances); and Factor 4 (Lack of supervisory encouragement) also correlates highly with Factors 5 (Lack of team unity) and 6 (Lack of organisational support). There may be some patterns in these correlations that warrant further investigation.

There are a number of the other factors that show marked correlations for Institution D as well. Again, as they are narrowly above the cut-off point of 0.5, they cannot be considered particularly significant and therefore will not be discussed in detail.

TABLE 6.19 Factor correlations – whole sample

	Bf1	*Bf2*	*Bf3*	*Bf4*	*Bf5*	*Bf6*	*Bf7*	*Bf8*	*C*
Lack of freedom	1.00	0.62*	0.42	0.54*	0.47	0.54*	0.61*	0.48	-0.24
Unchallenging work		1.00	0.47	0.60*	0.57*	0.62*	0.56*	0.35	-0.28
Insufficient resources			1.00	0.44	0.48	0.57*	0.59*	0.46	-0.42
Lack of supervisory encouragement				1.00	0.72*	0.72*	0.68*	0.42	-0.41
Lack of team unity					1.00	0.67*	0.66*	0.37	-0.39
Lack of organisational support						1.00	0.86*	0.44	-0.51
Organisational hindrances							1.00	0.48	-0.45
Workload pressure								1.00	-0.36
Prescriptive strategic planning									1.00

* Marked correlation significant at > 0.5

The correlations for the whole sample is outlined in Table 6.19, drawing comparisons between the correlations found in the individual institutions. Overall, the patterns that emerged in the correlations amongst the individual institutions were repeated in the whole sample as well. This indicates that the factors were similarly correlated in each of the institutions.

Most noticeable was the correlation between Factor 6 (Lack of organisational support) and Factor 7 (Organisational hindrances). There is a marked relationship between the two. The other Factors that showed correlations in every one of the institutions was Factor 1 (Lack of freedom) and Factor 2 (Unchallenging work). This might be indicative of respondents experiencing a situation where they did not have autonomy over their work, resulting in them predictably finding the said work, unchallenging. The strategic planning factor was negatively correlated with the other factors.

6.7 COMPARISONS BETWEEN INSTITUTIONS

When investigating the significance of the difference between the means of two samples, it is common practise to make use of t-tests (Kanji, 1993:14). These tests

were used to assess whether there were any significant differences in the factor means between the four sample groups tested in the survey, statistically and practically.

The institutions were compared as follows: the two comprehensive universities were compared with one another; the two universities of technology were compared with one another; and the two universities of technology were compared with the two comprehensive universities.

As well as using the t-value to determine statistical significance, Cohen's d-statistic is used to determine whether there is any practical significance between means as advocated by Steyn (2000:1). The effect can be small, medium or large in terms of practical significance and is represented as follows:

- $0.20 \leq d < 0.50$ – small effect, practically non-significant;
- $0.50 \leq d < 0.70$ – medium effect, points towards being practically significant;
- $0.70 \leq d$ – large effect and the results are practically significant.

With reference to the abovementioned influences, comparisons between all the various groups of institutions were undertaken as previously mentioned to determine whether the differences between the institutions were statistically and/or practically significant.

6.7.1 Comparison between comprehensive universities – Institution A & B

Table 6.20 gives an indication of the statistical and practical significance of the two institutions in terms of the nine factors tested for in the survey. Institution A and B showed statistically significant differences at $p<0.05$ for Factor 3 (Insufficient resources) and Factor 9 (prescriptive strategic planning).

The Cohen's d-statistic for Factor 3 and 9 reflected a medium effect and point toward practical significance at $d = 0.544$ and $d = 0.617$ respectively. This indicates that for those two factors there are statistical and practical significant differences between the two institutions, which culminate in a medium effect. The other factors do not show any statistical or practical significant differences between the two universities.

TABLE 6.20 Mean factor scores: Institution A and B

Variable	*Mean A*	*Mean B*	*t-value*	*p*	*N A*	*N B*	*Cohen's d*
Lack of freedom	4.216	4.275	-0.308	0.758	58	50	***
Unchallenging work	4.595	4.570	0.127	0.900	58	50	***
Insufficient resources	3.339	3.909	-2.872	0.005*	58	50	0.544 **
Lack of supervisory encouragement	4.141	4.535	-1.654	0.101	58	50	***
Lack of team unity	3.959	4.364	-1.803	0.074	58	50	***
Lack of organisational encouragement	3.652	3.656	-0.016	0.987	58	50	***
Organisational hindrances	3.270	3.300	-0.159	0.874	58	50	***
Workload pressure	2.709	2.844	-0.640	0.523	58	50	***
Strategic planning	3.340	2.738	3.425	0.000*	57	48	0.617 **

* statistically significant at $p<0.05$ ** medium effect, pointing towards practical significance

*** no Cohen's d-statistic calculated – variable not statistically significant

6.7.2 Comparison between universities of technology – Institution C & D

Table 6.21 reports on the practical differences that can be observed between Institutions C and D, which are known as universities of technology. Factors 1 (Lack of freedom), 4 (Lack of supervisory encouragement) and 7 (Organisational hindrances) show a medium effect, ($d < 0.5$), meaning the differences between the factors of those two institutions lean towards being practically significant.

Factors 2 (Unchallenging work), 3 (Insufficient resources), 5 (Lack of team unity), 6 (Lack of organisational encouragement) and 9 (Strategic planning) showed large practical significant differences between the two institutions. No genuine statistical or practical difference can be observed for Factor 8 (Workload pressure), indicating that

there is scarcely a difference between the answers for questions pertaining to that factor between Institutions C and D. This is practically non-significant. Statistical differences can however be observed for all the other eight factors at $p < 0.05$.

TABLE 6.21 Mean factor scores: Institution C and D

Variable	*Mean C*	*Mean D*	*t-value*	*p*	*N C*	*N D*	*Cohen's d*
Lack of freedom	3.711	4.210	2.086	0.041*	52	19	0.528 **
Unchallenging work	3.595	4.447	2.884	0.005*	52	19	0.741 #
Insufficient resources	2.839	3.797	3.493	0.001*	52	19	0.911 #
Lack of supervisory Encouragement	3.746	4.494	2.211	0.030*	52	19	0.553 **
Lack of team unity	3.324	4.350	3.319	0.002*	52	19	0.863 #
Lack of organisational encouragement	2.814	3.666	3.554	0.001*	52	19	0.947 #
Organisational hindrances	2.670	3.233	2.510	0.014*	52	19	0.668 **
Workload pressure	2.521	2.886	1.436	0.156	52	19	***
Strategic planning	3.418	2.763	-3.846	0.000*	52	19	0.942 #

* statistically significant at $p<0.05$
** medium effect, pointing towards practical significance
\# large effect, practically significant
*** no Cohen's d-statistic calculated – variable not statistically significant

6.7.3 Comparison between Institutions A & B and C & D

The next set of mean differences which is examined is outlined in Table 6.22, which represents a comparison between comprehensive universities and universities of technology. This is in order to determine whether there are any mean differences between the two types of institutions and whether or not the differences in the factors will be statistically and/or practically significant.

It can be inferred from Table 6.22 that there are no large practical significant differences between the two types of institutions. The Cohen's d-statistics indicates a

medium effect for factors 2 (Unchallenging work) and 6 (Lack of organisational encouragement), with scores of 0.615 and 0.586 respectively. This indicates that the differences lean towards being practically significant. Although there are small differences between factors 1 (Lack of freedom), 3 (Insufficient resources), 5 (Lack of team unity) and 7 (Organisational hindrances), they are practically non-significant, with a small overall effect. It can thus be deduced that there are no vast practical differences between the two types of institutions with regard to the barriers to creativity. However, statistically, the two types of institutions differed significantly on all the factors, except Factor 4 (Lack of supervisory encouragement) and 9 (Strategic planning).

TABLE 6.22 Mean factor scores: Institutions A and B compared to C and D

Variable	*Mean A & B*	*Mean C &D*	*t-value*	*p*	*N A & B*	*N C & D*	*Cohen's d*
Lack of freedom	4.244	3.844	-2.734	0.007*	108	71	0.407 [a]
Unchallenging work	4.583	3.823	-4.639	0.000*	108	71	0.656 **
Insufficient resources	3.603	3.095	-3.082	0.002*	108	71	0.461 [a]
Lack of supervisory Encouragement	4.324	3.947	-1.952	0.053	108	71	***
Lack of team unity	4.147	3.600	-2.994	0.003*	108	71	0.444 [a]
Lack of organisational encouragement	3.654	3.042	-3.950	0.000*	108	71	0.586 **
Organisational hindrances	3.284	2.821	-3.224	0.002*	108	71	0.471 [a]
Workload pressure	2.772	2.619	-0.965	0.336	108	71	***
Strategic planning	3.065	3.243	1.357	0.177	105	71	***

* statistically significant at $p<0.05$

[a] small effect, practically non-significant

** medium effect, pointing towards practical significance

*** no Cohen's d-statistic calculated – variable not statistically significant

With regard to the differences in means for the nine factors experienced by the four institutions, as shown in the t-tests, various explanations with regard to the position of the differences should be given.

6.7.4 Analysis of variance

To indicate whether the abovementioned variances were significant, an analysis of variance (ANOVA) and multiple analyses of variance (MANOVA) was conducted. This is represented in Table 6.23 and 6.24 respectively.

Tukey's tests were carried out to determine where the specific variances lay. Tukey HSD tests are based on short confidence intervals and therefore are more able to readily give an indication of the significant differences between means (Steyn *et al.*, 2000:519). The results of the Tukey HSD tests are outlined in Annexure E.

TABLE 6.23 Multiple analysis of variance (levels of significance)

	Test	*Value*	*F*	*Effect*	*Error*	*p*
				df	df	
Intercept	Wilks	0.0176	1020.11	9	164.00	0.000*
Inst	Wilks	0.6172	3.19	27	479.61	0.000*

* Significant at $p < 0.05$

Table 6.23 indicates through the Wilks test that there are significant levels of variance found between the four institutions, significant at $p < 0.05$. Table 6.24 indicates to which institution/s those specific variances can be attributed. As can be seen from the table, Institution C accounts for the majority of the variance. The table shows that there is significant variance on each of the factors at $p < 0.05$.

The main focal points that can be inferred from the abovementioned tests, are outlined in Table 6.25, indicating the source of the variance amongst the factors in the institutions.

TABLE 6.24 Analysis of variance

Degrees of freedom	*Intercept A*	*Institution C*	*Error 172*	*Total 175*
Bf1 SS	2450.914	10.807	156.779	167.586
Bf1 MS	2450.914	3.602	0.912	
Bf1 F	2688.859	3.952		
Bf1 p	0.000000*	0.009316*		
Bf2 SS	2695.799	35.564	190.122	225.687
Bf2 MS	2695.799	11.855	1.105	
Bf2 F	2438.835	10.725		
Bf2 p	0.000000*	0.000002*		
Bf3 SS	1751.751	32.331	184.090	216.421
Bf3 MS	1751.751	10.777	1.070	
Bf3 F	1636.705	10.069		
Bf3 p	0.000000*	0.000004*		
Bf4 SS	2588.065	17.284	267.840	285.125
Bf4 MS	2588.065	5.761	1.557	
Bf4 F	1661.987	3.700		
Bf4 p	0.000000*	0.012934*		
Bf5 SS	2322.756	31.420	234.556	265.977
Bf5 MS	2322.756	10.473	1.364	
Bf5 F	1703.277	7.680		
Bf5 p	0.000000*	0.000076*		
Bf6 SS	1721.195	25.611	171.474	197.085
Bf6 MS	1721.195	8.537	0.997	
Bf6 F	1726.471	8.563		
Bf6 p	0.000000*	0.000025*		
Bf7 SS	1410.134	13.383	151.524	164.907
Bf7 MS	1410.134	4.461	0.881	
Bf7 F	1600.695	5.064		
Bf7 p	0.000000*	0.002193*		
Bf8 SS	1098.495	3.957	185.331	189.288
Bf8 MS	1098.495	1.319	1.078	
Bf8 F	1019.478	1.224		

TABLE 6.24 Analysis of variance (continued ...)

Bf8 p	0.000000*	0.302586		
C SS	1363.245	16.771	110.981	127.752
C MS	1363.245	5.590	0.645	
C F	2112.780	8.664		
C p	0.000000*	0.000022*		

* Significant at $p < 0.05$

TABLE 6.25 The sources of variation amongst institutions

Factor	*Designation*	*Main source/s of variation*
1	Lack of freedom	▪ Institution A and C ▪ Institution B and C
2	Unchallenging work	▪ Institution A and C ▪ Institution B and C ▪ Institution C and D
3	Insufficient resources	▪ Institution A and B ▪ Institution B and C ▪ Institution C and D
4	Lack of supervisory encouragement	▪ Institution B and C
5	Lack of team unity	▪ Institution A and C ▪ Institution B and C ▪ Institution C and D
6	Lack of organisational encouragement	▪ Institution A and C ▪ Institution B and C ▪ Institution C and D
7	Organisational hindrances	▪ Institution A and C ▪ Institution B and C
8	Workload pressure	▪ No significant variance
9	Prescriptive strategic planning	▪ Institution A and D ▪ Institution B and C ▪ Institution C and D

From the abovementioned analysis it can be inferred that Institutions A and B, which are comprehensive universities, are quite similar in the barriers they encounter, experiencing some differences on only four of the factors. The two universities of technology, whilst experiencing a degree of the barriers to creativity, did differ from one another on five of the factors. In the last analysis of variance table between comprehensive universities and universities of technology, they differ significantly on almost all of the factors. It can be noted from this that the universities of technology experience all the barriers on a greater level than do the comprehensive universities.

One of the objectives of the study (refer to Chapter One), was directed towards drawing a comparison between the extent to which barriers were experienced and the performance outputs attained by an institution. The outputs have been measured by the research output and throughput rates of an institution. The calculations for the three-year average of throughput and research output rates for the four institutions are presented in Annexure F and G respectively. Table 6.26 outlines the performance output rates of the four institutions as opposed to the means of each factor.

As can be seen from Table 6.26, the lowest mean scores were obtained for Institution C on every single factor. Institution C is a university of technology. This indicates that Institution C experiences all the barriers to creativity most prevalently, and also experiences a lower frequency of strategic planning than do the other institutions. The second lowest mean scores overall were obtained by Institution D, which is also a university of technology. When comparing the barriers then to the performance output rates, a clear relationship can be observed between the lower performance output rates and the existence of the barriers in that institution. It can be seen from the table that the universities of technology are experiencing the lowest performance output rates, which is typical of such a type of institution (refer to Section 3.3.3.2).

It can also be shown from this data that it would seem that the two institutions that experience the barriers to creativity most widely, also experience the lowest throughput and research outputs in comparison to the comprehensive universities. Therefore, it can be concluded that there is indeed a correlation between the presence of the barriers and the performance measures. The performance measures are lower in the institutions that experience the barriers to a greater extent than the other institutions that have higher performance measures.

TABLE 6.26 Performance output rates

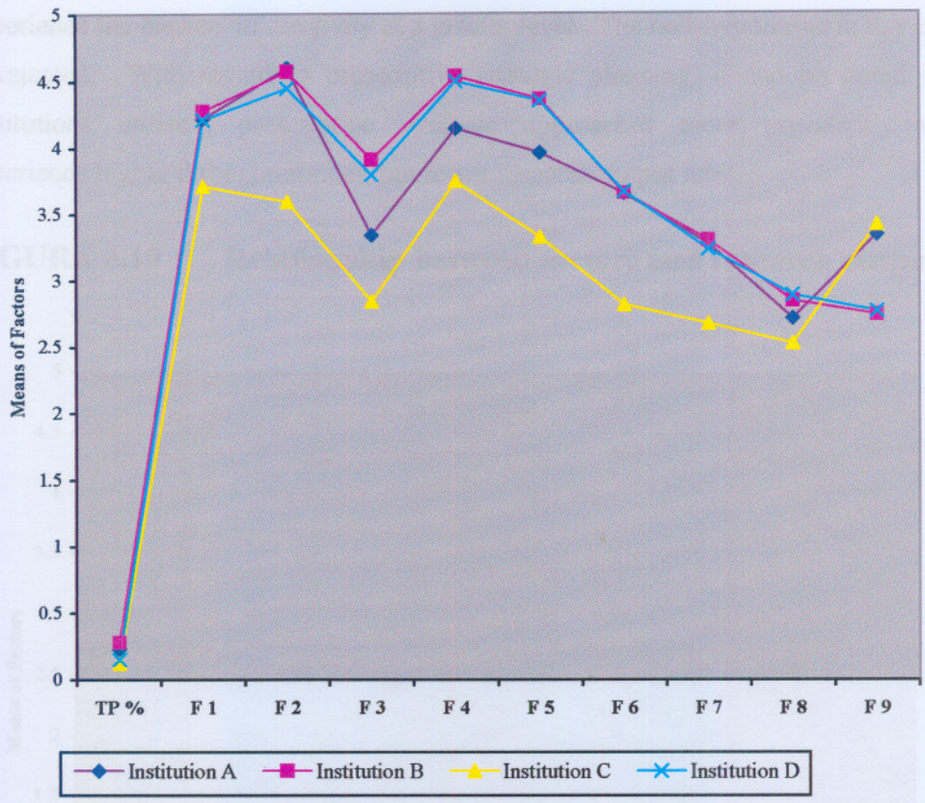
Institution	*Throughput Rates*	*Research output rates*	*Mean Factor 1*	*Mean Factor 2*	*Mean Factor 3*	*Mean Factor 4*	*Mean Factor 5*	*Mean Factor 6*	*Mean Factor 7*	*Mean Factor 8*	*Mean Factor C*
A	*23.41 %*	*57.73 %*	4.216379	4.594828	3.339080	4.141379	3.959483	3.652299	3.269787	2.709483	3.340470
B	*27.60 %*	*49.99 %*	4.275000	4.570000	3.909000	4.534667	4.363667	3.655556	3.300119	2.844000	2.737614*
C	*12.33 %*	*3.00 %*	3.710577*	3.594551*	2.838462*	3.746154*	3.323718*	2.814103*	2.670406*	2.521154*	3.417776
D	*14.96 %*	*2.07 %*	4.210526	4.447368	3.797368	4.494737	4.350877	3.666667	3.233918	2.886842	2.763158

* Represents the lowest mean in the sample group

Moreover, the institutions making use of prescriptive strategic planning are more capable of achieving better performance on throughput rates only than their counterparts that are not utilising these methods. This is also reflected in Table 6.26.

The representation of relationships between the means and performance output rates for each institution is also graphically represented in Figure 6.9 and 6.10 respectively.

FIGURE 6.9 Relationship between factors and throughput rate

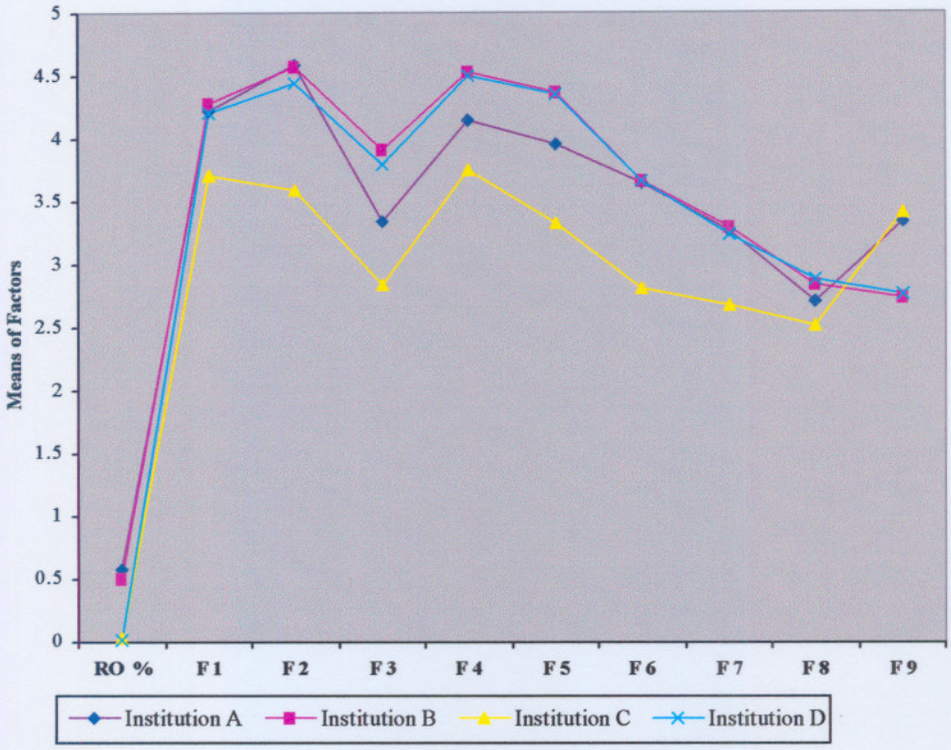


Van der Honert (1999:101) advises that if a correlation exists between two variables that are seemingly unrelated, it can be said that the correlation is spurious. However, if there is a logical reason to believe that the two variables are related, it can be concluded that the correlation is not false. The study proposed in the preceding chapters that the performance measures of throughput and research outputs were a measure of competitive advantage, and therefore there is a logical reason to believe that the abovementioned variables may be related. From the Figure 6.9 and Figure

6.10, it can be seen that the majority of the lowest means obtained for the barriers are found for the universities of technology in relation to their throughput and research output rates.

The data lend evidence to support the original hypothesis (*H1*), which indicated that the institutions experiencing lower throughput and research output rates would also experience the barriers to creativity at a greater level. The null-hypothesis in this case is rejected. With regard to prescriptive strategic planning, it can be noted that institutions utilising prescriptive strategic approaches more prevalently will experience higher throughput rates, but lower research output rates.

FIGURE 6.10 Relationship between factors and research outputs



6.8 OPEN-ENDED QUESTIONS – SECTION D

The last section of the survey instrument entailed an open-ended section where respondents were asked to fill in three open-ended questions. Open-ended questions

are utilised where the respondent is free to give any answer (Hague, 2002:107) and is useful when it is difficult to anticipate all responses (Welman & Kruger, 1999: 172).

Open-ended questions were used to give further insight into the organisational climate contained within the institutions. The open-ended responses are tabulated *verbatim* in Annexure H. From the responses, it could be noted that they could be classified into the eight pre-determined factors concerning barriers to creativity. No additional dimensions/barriers could be recognised or identified within the open-ended responses.

6.9 SYNOPSIS

This chapter presented the results of the data analysis. It began with the initial preliminary results from the pilot test stage, including validity and reliability. Item deletion was also covered in this section. The chapter then proceeded to a discussion on the coding of the data. The results of the main survey were then tabulated. The reliability of the main survey was explained, followed by descriptive statistics that determined the central tendencies of the data and ascertained whether they were normally distributed.

Some details were furnished with regard to the classification data of the respondents from each institution, and correlation analysis was undertaken regarding the nine pre-determined factors to determine whether there were any significant relationships that could merit exploration, regarding the barriers to creativity and the strategic planning factor.

Significant and practical differences between the institutions used in the sample for the study were evaluated in detail. Section 6.7.4 proceeded to draw comparisons between the nine factors and the cited performance outputs (throughput and research output rates).This offered evidence to support the main hypothesis of the study.

The study progresses now to Chapter Seven, where further interpretations regarding the empirical results will be given, research questions and objectives will be re-examined to determine whether or not they have been answered and conclusions and final recommendations pertaining to the study will be specified and discussed.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

Any organisation may consciously have to focus on the fact that in order to survive, especially in changeable environments, a source of sustainable competitive advantage needs to be garnered. Whilst many sources of competitive advantage are outlined in standard business literature, most can be imitated by competitors and therefore cannot be considered to be sustainable. The study argues that creativity is the only true source of SCA, because its very nature concerns itself with the proponent of newness or uniqueness.

Higher education institutions in South Africa have gone through a period of transformation and the landscape is still continually changing. Many higher education institutions have experienced mergers and those that have not, have to compete with merged institutions that arguably might be bigger, more efficient and more competitive. These higher education institutions are threatened by continual change, and they need to consider how best to moderate these changes by remaining competitive.

Any institution should be investing in creativity, higher education institutions notwithstanding. However, organisational climates that inhibit creativity are inherent to many organisations. These organisational climates may be unintentionally hindering creativity amongst their employees and consequently stifling potential enhanced performance outcomes, such as competitive advantage.

Furthermore, coupled with potential barriers to creativity, organisations may be misdirecting their attempts to utilise strategic management perspectives to gain competitive advantages. Prescriptive strategic management is often utilised as a framework for facilitating competitive advantage. Prescriptive strategic management

may potentially be a formalised structure that can allow creativity to flourish and so enhance the ability to sustain competitive advantage. Organisations will have to consider whether or not their continued existence will manage to be maintained through the use of their current strategic planning perspectives and unfavourable organisational climates.

7.2 OVERVIEW OF THE STUDY

The study concerned itself with an examination into the current situation of four selected public higher education institutions. The organisational climates and current strategic methods employed by the institutions were examined, to gain perspectives on which potential barriers to creativity existed within their organisational climates.

The organisational barriers to creativity and strategic perspectives were derived from literature, tested and used in the final survey (refer to Section 5.4.1 and Section 5.4.2).

The results of this research were then correlated against the performance output measures that were outlined in Section 1.1 and Section 3.3.3 to determine whether there were any significant relationships between the variables. This was intended to show that creativity could have a significant impact on the performance of an institution, which could result in sustainable competitive advantages.

The main conclusions that could be drawn from the study indicate which specific barriers to creativity are most prevalent within the institutions and which need attention (refer to Section 6.4). That section also confirmed to what degree these institutions make use of prescriptive strategic planning methodologies in their operations. An examination of the factors was confirmed through correlation analysis in Section 6.6.

7.2.1 Research questions

The study addressed the following research questions:

- What are the prevalent prescriptive strategy dimensions and processes being employed by selected South African public higher education institutions?

- What are the prevalent creativity barrier dimensions that exist within selected public higher education institutions in South Africa?

- What relationships can be observed between the prescriptive strategy dimensions, the creativity barrier dimensions, and the organisational competitive advantage performance output dimensions of throughput rate and research output in selected South African public higher education institutions?

Question one and two were addressed by originally identifying the dimensions through the literature survey in Chapter two and four. The final dimensions are outlined in Section 5.4.1 and Section 5.4.2. The descriptive statistics and analysis of variance, which purposefully examined the mean values that are outlined in Section 6.4, also empirically confirmed the outcome of those two questions.

Question three was answered through correlation analysis, analysis of variance and differences in mean values (t-tests) in Section 6.7.

7.2.2 Research objectives

Added to the research questions, several research objectives were also addressed by the study, as follows.

7.2.2.1 General objective

To determine the likelihood of incorporating creativity into strategy formulation processes within selected higher education organisations in South Africa in order to yield sustainable competitive advantages, though the investigation of strategy dimensions, barriers to creativity and their relationship to the throughput rate and research output rates. The aim is to develop a framework for strategically facilitating creativity, which could be used by academic institutions to improve their performance

outputs in this regard. This primary objective was addressed by each of the chapters of the entire study. The framework for facilitating creativity will be highlighted in Figure 7.1 and specific recommendations will be made in that regard.

7.2.2.2 Specific objectives

The following specific, secondary objectives were incorporated into the study and addressed as follows:

- **To define creativity.** This objective was dealt with in Chapter Four, specifically refer to Section 4.2.

- **To define strategy formulation and distinguish between prescriptive and emergent strategy.** This objective was covered in Chapter Two, refer specifically to Section 2.2; Section 2.3; Section 2.5 and Section 2.6.

- **To define sustainable competitive advantage and sources thereof.** This objective was addressed in Chapter Three, in Section 3.3.2 and Section 3.3.3.

- **To investigate the appropriateness of creativity as an element of strategy.** This objective was addressed in Section 3.3.

- **To define the barriers to creativity within organisations.** This objective was dealt with in Section 4.5; Section 4.6 and Section 5.4.2.

- **To determine which barriers to creativity are present within selected South African higher education institutions.** This objective was empirically addressed in Section 6.4.

- **To explore the relationship between creative barriers and performance output in selected South African higher education institutions.** This objective was also empirically addressed specifically in Section 6.7.

7.3 CONTRIBUTION OF THE STUDY

This study has contributed to ascertaining which organisational climates are prevalent in the higher education institutions that were selected for the study. An examination of potential barriers to creativity in those institutions has been conducted, which will give insight into where the potential problem areas lie in a higher education institution. Other higher education institutions could take note of these potential problem areas and utilise the research to measure the barriers within their organisational climates. This was an area of research that had not yet been conducted.

Recommendations will be given in Section 7.7 regarding how to mitigate those barriers, which may be useful to a higher education institution or another organisation in addressing barriers that may arise in their organisational climates.

The study showed that there was a relationship between creativity and competitive advantage in those selected higher education institutions, which has lent evidence regarding the usefulness of adopting and incorporating creativity into the strategic approaches of an organisation.

The study has also highlighted whether prescriptive strategic approaches are being utilised by the selected higher education institutions, which will be incorporated into the framework that forms part of the recommendations. This framework can serve as a model for higher education institutions that observably should aspire to improve their performance and sustain competitive advantages.

7.4 SUMMARY OF THE RELEVANT BARRIERS

Eight barriers to creativity within an organisational climate were identified in the literature portion of the study through the use of previous empirical studies done on the subject. These eight barriers were represented in Section 5.4.2 in Table 5.2. A separate dimension of prescriptive strategic planning was developed to ascertain what level of strategic functioning was being employed by the selected HE institutions.

The study indicated that many of the barriers were present to some degree within all of the HE institutions. However, certain barriers were significant to the extent that they appeared to be present in all the institutions. The most widely shown barrier in all of the institutions was found to be Workload Pressure. The mean values for questions pertaining to this barrier were the highest, indicated that this barrier was the most widely experienced barrier in an institution. This was true for each of the institutions and is consistent with other empirical findings in previous studies (refer to Section 4.6). Table 7.1 represents a matrix of the barriers present in each institution and for the whole sample.

TABLE 7.1 Presence of barriers in higher education

	Factor	*Inst A*	*Inst B*	*Inst C*	*Inst D*	*Whole sample*
F1	**Lack of freedom**			X		
F2	**Unchallenging work**			X		
F3	**Insufficient resources**	X	X	X	X	X
F4	**Lack of supervisory encouragement**			X		
F5	**Lack of team unity**	X		X		X
F6	**Lack of organisational support**	X	X	X	X	X
F7	**Organisational hindrances**	X	X	X	X	X
F8	**Workload pressure**	X	X	X	X	X

From Table 7.1, it can be seen that Institution C experiences the barriers most significantly overall, but the total sample experienced only five of the barriers mostly significantly. Those five barriers are identified and described as follows.

- **Insufficient resources.** Indicates lack of access to appropriate resources, including funds, materials, facilities and information.

- **Lack of team unity.** Teams are not open to new ideas, do not constructively challenge each other's ideas or trust and assist each other. Teams do not feel committed to the work they are doing.

- **Lack of organisational support.** Ideas are not judged fairly or constructively. Reward and recognition for creative ideas are not given. There are no mechanisms for developing ideas. There is a lack of ideas actively emanating in the institutions and no shared vision.

- **Organisational hindrances.** The institutions experience internal political problems, such as destructive internal competition, avoidance of risk and an impetus to maintain the *status quo*. Ideas may also be harshly criticised in this instance.

- **Workload pressure.** This barrier was experienced most severely and can include extreme time pressures, unrealistic expectations for productivity and distractions from creative work.

The evidence of the presence of these barriers in the selected higher education institutions corresponds with similar studies. For example, Wong and Pang (2003:27-29) conducted a study in the hotel industry and found evidence of three of the abovementioned factors, with specific reference to Workload Pressure, which was consistent with the results that were ascertained from the empirical portion of this study. The fact that the selected higher education institutions experienced a lack of resources overall, was not consistent with other studies, and thus may be a significant issue in higher education institutions specifically, which warrants further investigation.

Amabile and Gryskiewicz (1989:231-254) identified four elements that hinder creativity in an organisational climate. Two of those elements were present in the study, namely political problems (such as bureaucracy and lengthy organisational structures) and time/workload pressure, which is potentially characteristic of higher education institutions (as well as other types of organisations).

With regard to the barriers, the empirical part of the study also indicated that Lack of Organisational Support and Organisational Hindrances were also highly correlated with one another, indicating that respondents found that receiving little or no support for their ideas, had a proportional relationship with political problems experienced in the institution, such as destructive competition and harsh criticism.

7.5 PRESCRIPTIVE STRATEGIC PLANNING

The study has indicated that there is a positive relationship between utilising prescriptive strategic planning and one of the performance measures of the institutions. In other words, those institutions making use of prescriptive strategic approaches generally performed better in that area than those who did not make use of them, and are more likely then to have a competitive advantage through their higher throughput rates (refer to Table 6.26). Institutions not utilising prescriptive strategy still had higher research rates than their counterparts. Rather than construing this as a shortcoming of prescriptive strategic approaches, it is contended that perhaps in those institutions prescriptive strategy was not being utilised effectively and therefore there was no observable relationship between prescriptive strategy and research outputs. The respondents that encountered this trend, indicated by frequencies that their institutions were unable to properly implement their planned strategies (refer to Annexure D).

The study initially advocated the use of emergent strategy, as it was potentially more suitable to the tenet of creativity. However, the empirical results show that those institutions making use of prescriptive strategic methods are generally more likely to outperform their competitors and so, are more likely to obtain competitive advantage, if correctly implemented. The empirical data has shown that higher education

institutions are to be considered as potentially bureaucratic organisations (Refer to Table 6.3), according to the categorisation indicated in Figure 3.2. and should rather be making use of traditional strategic methods, which might be more suited to their typically, bureaucratic environments. The null-hypothesis (*H2*) regarding the utilisation of emergent strategy, was thus accepted (refer to Section 1.2).

The prescriptive strategic planning variable was negatively correlated with the other hindrances to creativity (refer to Section 6.6). This indicates that organisational climates that were characterised by fewer of the hindrances to creativity may utilise prescriptive strategic planning more effectively. This indicates that creativity is not necessarily a component of emergent strategy as originally postulated, but that it may thrive in a more structured environment as argued in Section 4.2.3. Prescriptive strategy may therefore provide the autonomy for employees to explore their creativity, more freely. Further, in the face of the turbulent environments that characterise the South African higher education industry (refer to Section 3.2), such a prescriptive approach may act as a defence against the erosion of competitive advantage.

7.6 COMPETITIVE ADVANTAGE IN HIGHER EDUCATION

The study has shown that there is a definite relationship between the barriers in higher education institutions and the performance output measures. Institutions who wish to sustain competitive advantages should thus consider a concrete investment in the creative potential of employees. Creative employees will be more able to implement creative teaching methods and research strategies (refer to Section 4.2), which can ultimately result in an inimitable competitive advantage for the institution following that approach, if constituted properly.

Moreover, it has been shown empirically that there is a positively correlated relationship between the use of strategic planning and performance output in terms of the throughput rates of institutions. Institutions should also consider revising and formalising the use of their strategic methodologies, in order to improve the basis for their competitive advantage. If prescriptive strategy is implemented effectively, it can have an impact on all measures of competitive advantage.

7.7 RECOMMENDATIONS

In light of the discussion regarding the five empirically classified barriers in the overall sample of the selected higher education institutions, the following recommendations can be made:

7.7.1 Insufficient resources

The institutions experiencing insufficient resources should note that resources such as time and finances, can support or eradicate creativity (refer to Section 4.7.4). More resources above what is sufficient, does not necessarily boost creativity, but a restriction of resources can dampen creativity. Financial controls are essential in an organisation. However, there is a danger in allowing funding to be the only criterion on which decisions are based. Focussing too heavily on costs can paralyse an institution (refer to Section 4.5.2), as creativity cannot flourish and be rewarded if there are not adequate funds.

It is necessary to provide support in the form of sufficient time, authority and resources for creative efforts. HE institutions may be renowned for restrictions on spending, but the institutions should at the very least provide resources such as computer equipment, facilities for lecturing and funding for research or innovative teaching. Employees should not have to campaign to obtain the basic components of an adequate physical working environment.

7.7.2 Lack of team unity

When an institution has taken note of a lack of team unity, it should consider that creativity is encouraged by the formulation of diverse teams, not homogenous teams (refer to section 4.7.7). Employee creativity is fostered by membership in empowered teams and by regular brainstorming sessions. Although teams should not be so diverse that they will continually engage in negative conflict. Higher education institutions could consider regular team building exercises to assist in the facilitation of

supportive, diverse teams which will result in increased creativity, productivity and ultimately, competitive advantage.

7.7.3 Lack of encouragement or support of ideas

If an institution is not giving encouragement or support of ideas, it might need to examine the intrinsic organisational culture, as creativity is truly enhanced when the entire organisation supports it. Mandating information sharing and collaboration is useful in this regard (refer to Section 4.7.6). This involves adopting a climate where employees feel free to bring up ideas, offer opinions and give feedback on aspects that affect them, without fear of negative repercussions. The HE institutions should also consider giving rewards for creative ideas, whether monetary or non-monetary. An overall attitude of encouragement from the management of an institution may assist greatly in facilitating the freedom to be creative. Employees should be involved in creative training advocated by the organisation (refer to Section 4.7.8). This can take place during the course of a normal working day, as well as through deliberate training. Short-term one-off workshops are unlikely to be of lasting benefit. A series of regular two-hour sessions coupled with enlightened management practice would be more useful.

7.7.4 Organisational hindrances

When organisational hindrances, such as bureaucracy or internal political problems are present, the executive management of the higher education institutions should expect to see experimentation and take risks themselves (refer to Section 4.7.6). Moreover, structures in creative organisations should be flexible, with few rules and regulations, loose job descriptions and high autonomy (refer to Section 4.7.8). This would also indicate that employees should stop focusing on achievement and competition. All projects should be given complete energy and concentration regardless of the outcome.

The way in which an organisation is structured can have implications for the development of the creative process (refer to Section 4.5.2). As an institution grows, processes are often set in place, which are counter-productive to the creative process

and to communication in general. For this reason, larger HE institutions may have more complicated structures in place, and for the most part, less of a creative climate

A rigid organisational structure can also inhibit creativity. HE institutions should take cognisance of the fact that keeping bureaucracy to a minimum and adopting short organisational structures should minimise the dissatisfaction of employees not being able to implement new ideas, due to rigid, lengthy organisational structures or by being bogged down in administrative paperwork.

7.7.5 Workload pressure

Most of the respondents appear to be experiencing workload pressure, so the institutions ought to consider the fact that extreme time pressures, unrealistic expectations for productivity and distractions from creative work all contribute to employees feeling unable to cope and unable to produce creative outcomes (refer to Section 4.6). Institutions often impede creativity with impossible deadlines. In this case, employees feel over-controlled and unfulfilled, which invariably destroys motivation. Furthermore, creative exploration may take time and managers who do not grant time for this are inadvertently impeding the creative process.

HE Institutions should take precautionary measures in not overloading employees with administrative duties that do not form part of their job description of teaching and/or research. Employees should have the freedom to concentrate on what they were employed to do, without unnecessary distractions, rather than being burdened with administrative paperwork. HE institutions, should consider hiring specific employees to undertake the administrative duties and allow academic staff members to concentrate on fulfilling their creative potential. The cost implications of this action would be overruled by the resulting increasing in creativity, productivity and again, in due course, competitive advantage.

7.7.6 The strategic approach

With regard to the strategic approach of the institutions. Top management should make more of an effort to utilise formal, prescriptive strategic approaches, as the

study has shown that they are more effectual in raising performance, than if they are not implemented properly (refer to Section 2.6.1 and Section 6.7.4). These formal strategic approaches can be adopted for the institution as a whole, as well as for the individual departments. When strategies have to be implemented successfully, institutions should consider a careful match of strategy to organisational structure and culture, as well as the correct allocation of resources in order for a strategy to be successful (refer to Section 2.5.7).

The institutions should thus be following a formal strategic management process which includes, for example: having established mission statements that are meaningful to employees (refer to Section 2.5.1). Moreover, the institutions should regularly assess their strengths, weaknesses, opportunities and threats. However, after conducting such an assessment, the institutions should make every effort to utilise this information effectively. In other words, potential threats that arise must be mitigated, as far as possible, and weaknesses must be acted upon in order to overcome them (refer to Section 2.5.3). This process is elaborated upon in Table 7.2.

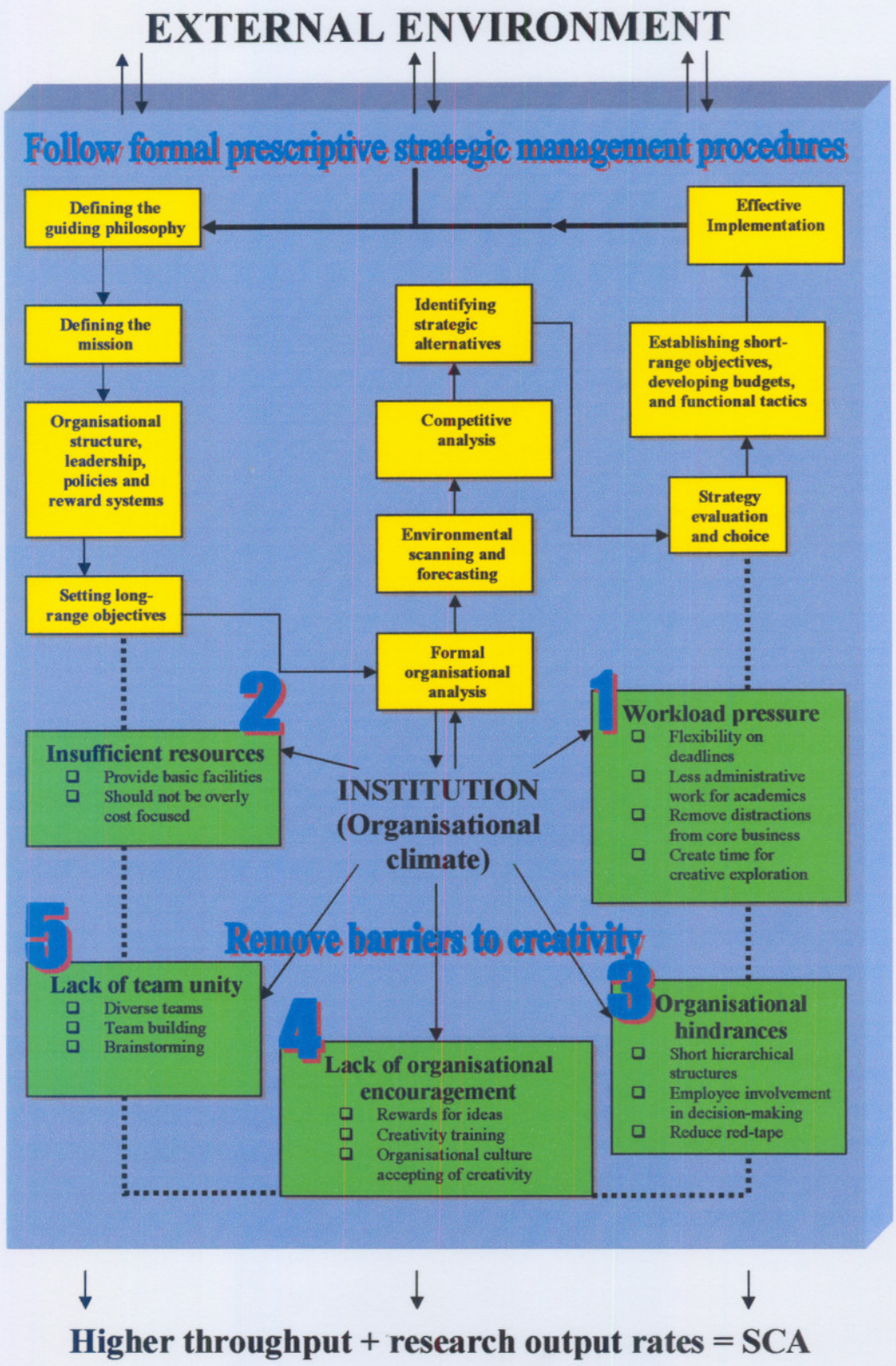
7.7.7 Competitive advantage

Institutions that make an effort to reduce the identifiable barriers to creativity and improve their approach to adopting strategic perspectives, should ultimately see an overall increase in their competitive advantage. In other words, their throughput and research output rates should improve. Employees that progress creatively due to organisational barriers being removed within their working environments, will be more reactive to changing circumstances and better equipped to make a contribution to improving the performance measures of the institution.

7.7.8 Proposed framework of recommendations

In light of the recommendations, a proposed framework that organisations could use as a basis to improve their current situation is outlined in Figure 7.1., which serves as a summary of the abovementioned recommendations, and integrates and adapted version of the original prescriptive strategic management model outlined in Figure 2.2.

FIGURE 7.1 **Integrated strategic framework for HEIs**



The figure shows how the barriers should be moderated within the constraints of the organisational climates of HE institutions, as well as utilising prescriptive strategic management to obtain sustainable competitive advantage. The barriers are represented in order in terms of the intensity with which they were experienced by the institutions.

As can be seen by Figure 7.1, the organisational climates of higher education institutions, as identified in the study, are characterised by five predominant barriers to creativity, namely: Lack of Resources (insufficient funding, human resources, etc); Lack of team unity (no rapport amongst team members); Lack of Organisational Encouragement (no incentives or negative criticism); Organisational Hindrances (bureaucracy), and most predominantly, Workload Pressure (overloading and unrealistic expectation from the organisation). As shown in the figure, the organisational environment will be impacted by external forces and *vice versa*.

As previously discussed, there are various practical means that an institution can then adopt to overcome each of these barriers. The recommendations that were made in that regard, were significantly structured in rejoinder to the answers gained from respondents in each institution, obtained from the open-ended questions in Section D of the survey instrument (refer to Annexure H), as well as from the literature review. An descriptive explanation of how the institutions in actuality would realistically implement the recommendations delineated in Figure 7.1, is elaborated upon in Table 7.2 (steps in the prescriptive strategic management process) and Table 7.3 (removing the barriers to creativity) respectively.

Within organisational climates, institutions should be retaining their focus on a formal prescriptive strategic management approach, which advocates the scanning and monitoring of the external and internal environment of an organisation. The study has shown that utilising the prescriptive approach to strategy is generally more likely to result in a competitive advantage. Therefore, higher education institutions should follow the formalised process advocated in Figure 7.1, which shows that the procedure is a structured and methodological step-by-step process. The steps advocated in this process, specifically tailored for higher education institutions will be discussed as follows in Table 7.2.

TABLE 7.2 Steps in the prescriptive strategic management process

Step	*Description*
Defining the guiding philosophy	HE institutions will have to consider the fundamental reason for their existence, as well as formulating a written statement regarding their commitment to the core business of the institution.
Defining the mission	Institutions should develop a formal mission statement to circulate to all employees. Employees from all levels should assist in developing the mission statement in order to harbour a unified sense of purpose.
Organisational structure, leadership, policies and reward systems	Hierarchical structures should consist of only a few management layers, in order to avoid prolonged decision-making. Top management of the institution should be focused on creative climates and competitive advantage. The policies that will be put in place in the institution, should be indicative of the fact that creativity will be supported and specific reward systems should be put in place, which will recognise and support creativity.
Setting long-range objectives	Long-term objectives with a life-span of three to five years should be formulated and recorded.
Formal organisational analysis	This involves conducting an internal resource audit of the institution, as well as an internal SWOT analysis. Other procedures, such as a value chain analysis can also be conducted, which involves examining the functional areas of the institution to identify weaknesses.
Environmental scanning and forecasting	Institutions will have to monitor the economic, political, social, technological, physical and international environments to determine future trends, opportunities and threats. An external SWOT analysis can be conducted in this regard.

TABLE 7.2 Steps in the prescriptive strategic management process (continued ...)

Competitive analysis	Institutions will have to undertake a thorough competitive analysis, which may involve benchmarking themselves against those direct competitors that can be identified in a strategic industry analysis.
Identifying strategic alternatives	This involves an identification of the generic strategies which can be utilised in the pursuit of competitive advantage. Institutions should ideally be utilising differentiation in order to distinguish themselves from other higher education institutions.
Strategy evaluation and choice	This involves deciding which grand strategies can be utilised in the pursuit of the generic strategy (differentiation), e.g. market development, product development or innovation.
Establishing short-range objectives, developing budgets, and functional tactics	These will have to be in line with the long-term objective/s previously set, and will be the catalyst to achieve the broad objective/s. Indicates how the objective/s will be achieved.
Effective Implementation	The final step involves implementing functional tactics to achieve the original objectives and broad generic strategy, as well as controlling the process through feedback and performance measurement systems.

Furthermore, Figure 7.1 indicates that if higher education institutions can identify and address the organisational barriers to creativity as outlined in the recommendations, as well as implementing prescriptive strategic imperatives, this should allow employees to explore creative avenues of teaching and research. This should in all probability improve the throughput and research output performance measures of an institution, leading to a sustainable competitive advantage.

Table 7.3 goes on to describe the practical implications behind the recommendations made with regard to overcoming the potential barriers to creativity in an

organisational climate. These were identified in the empirical portion of the study as being prevalent within the selected higher education institutions.

TABLE 7.3 Description of recommendations

Recommendation	*Description*	
Flexibility on deadlines	Allowing employees to have a choice regarding deadlines with regard to work that they have to complete, within reason *e.g.* exam papers, test dates, submission of student marks *etc.*	**Workload Pressure**
Less administrative work for academics	Respondents indicated that overall they were completing too much administrative work. Specific administrative personnel should be hired to alleviate the academic staff members in this regard.	
Remove distractions from core business	Allow academics to focus on teaching and research, and remove virtually all administrative responsibilities	
Create time for creative exploration	Specific time should be allocated for employees to do research, or other creative exploration, such as new teaching strategies, *etc.* At least two hours per week should be reserved solely for this purpose. High contact hours should be reduced.	
Provide basic facilities	All academic staff should be provided with basic facilities in order to complete their work, such as computers, telephones, sufficient classroom equipment, proximas, overhead projectors, *etc.*	**Insufficient Resources**
Should not be overly cost focused	Institutions should examine their budgeting procedures to ensure that funds are being spent on providing adequate facilities for academic staff, rather than on other activities that do not form part of the core business of the institution.	

TABLE 7.3 Description of recommendations (continued...)

Recommendation	*Description*	
Short hierarchical structures	Decisions to implement new ideas should not have to pass through several layers of management for approval. Thus hierarchical structures should be flat in nature.	**Organisational Hindrances**
Employee involvement in decision-making	Autocratic decisions should not merely be passed down to employees, but collaborative decision-making procedures should be followed, involving specific information and discussion sessions when any significant decisions have to be finalised that may affect employees.	
Reduce red-tape	Paperwork and administrative procedures that are lengthy, costly and discouraging should be avoided. Processes to acquire resources or to implement decisions should be simplified as far as possible.	
Rewards for ideas	Monetary rewards, or other incentives such as vacations or other prizes should be offered for innovative ideas in teaching and research to motivate employees above and beyond their average salaries.	**Lack of Organisational encouragement**
Creativity training	Specific training programmes that teach employees to think more creatively would make a large contribution to improving the creative climate in the organisation. These should be regular sessions, at least once a month.	
Organisational culture accepting of creativity	Top management should refer to creativity continually, which will serve to inform employees that the organisation is committed to developing their creative potential.	

TABLE 7.3 Description of recommendations (continued...)

Recommendation	*Description*	
Diverse teams	Diversified teams should be developed within the institution, which are to be utilised when new ideas have to be developed or implemented. This will involve recruiting a team consisting of varying genders, ages and races as enhanced creativity emerges from diverse teams.	**Lack of Team Unity**
Team building	Allowing time for relaxation, as well as free time away from the institution for specific team building exercises could be effective in establishing higher commitment amongst team members.	
Brainstorming	Regular, facilitated brainstorming sessions could be introduced amongst academic staff members in the institution to generate new ideas for teaching and research.	

7.8 FUTURE RESEARCH OPPORTUNITIES

The future possibilities for research that could be conducted as an extension of this study include the following:

An investigation into other higher education institutions could be conducted in areas other than the Gauteng province, to further explore the relationships between creativity, prescriptive strategy and competitive advantage.

Comparisons could be drawn between different faculties within specific institutions to determine whether there are any significant relationships between their individual performances, prescriptive strategy and the existence of the barriers to creativity.

The measuring instrument could be tested and utilised as a diagnostic tool in organisations other than higher education institutions to determine whether it can be standardised for all organisations.

The framework/model suggested by the study could be implemented and further tested for effectiveness with regard to competitive advantages in a specific higher education institution or possibly in more than one institution in a comparative study.

7.9 CONCLUDING REMARKS

The study proposed to answer three main research questions, in which it succeeded. The study examined performance measures that were a reflection of the competitive advantage of higher education institutions, and showed that there is a relationship between an organisational climate punctuated by creativity barriers, ineffectual use of prescriptive strategic approaches and a low performance output.

It is likely that any organisation would wish to improve their competitive performance in order to be more effective. Higher education institutions also need to be concerned about their performance in order to survive. It is important, then for those higher education institutions, to take note of these potential barriers to creativity highlighted by the study and to proactively remove them to ensure they remain competitive into the future. Coupled with this, HEIs should comprehend the nature of prescriptive strategic approaches and the formal steps utilised in this regard, in relation to their organisational and external environments. Once a thorough understanding of the approach is obtained, singular emphasis must be placed on the correct implementation thereof, in order to ensure that competitive advantages are not eroded.

ANNEXURE A

COVERING LETTER

TO: INSTITUTION X

Attention: Full time academic staff members

My name is Andrea Garnett. I am a lecturer in the department of Business Management at the Vaal University of Technology and currently attempting to complete my PhD at the North West University, under the supervision of Dr T. Pelser. The study is on barriers to creativity in the workplace. I have selected four academic institutions to take part in the study, of which your institution is one.

I am requesting that you might please take a few minutes to assist me and complete the attached questionnaire on barriers to creativity. The questionnaire merely involves making crosses next to sixty-four statements, along with 3 open-ended questions. It should not take more than 15 minutes to fill in electronically and five minutes on a hard copy. If you would prefer a hard copy, I would be happy to provide you with one.

Out of professional courtesy, please take the time to assist me in this regard. All responses are anonymous (the institution will not be named either) and will merely be outlined in the form of statistical data in the analysis.

Thank you again for your consideration in this regard. Should you wish to have any further information about the results of the study, or have any further questions regarding the attached questionnaire, please don't hesitate to contact me at the information listed below. **The questionnaire can be forwarded to the following e-mail address (andreag@vut.ac.za).**

Thank you most sincerely.
Andrea Garnett
Vaal University of Technology
Department of Business Management
Private Bag X021
Vanderbijlpark
1900
Tel (016) 950 9867
andreag@vut.ac.za

ANNEXURE B

QUESTIONNAIRE
PILOT STUDY

BARRIERS TO A CREATIVE CLIMATE

Section A: Demographical Information

1. Name of Institution: _____

2. Your Function:

Junior Lecturer	Lecturer	Senior Lecturer
Principal Lecturer	Head of department	Dean
Other: (Please specify):		

3. The faculty most suited to your situation:

Engineering	Economical and Management Sciences	Humanities
Science	Law	Medical Technology
Tourism	Arts	Information Technology
Other: (Please specify):		

4. Years of service:

0 - 5 years	6 – 10 years	11 – 15 years	16 –20 years	Over 20 years

5. Gender:

Male	Female

Section B: Please mark each question with a cross (X).

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
1	I do not have the freedom to decide how I am going to carry out my projects	1	2	3	4	5	6
2	I feel that I am working on unimportant activities	1	2	3	4	5	6
3	I have too much work and not enough time to complete it in	1	2	3	4	5	6
4	This organisation is strictly controlled by upper management	1	2	3	4	5	6
5	My co-workers and I do not function well as a team	1	2	3	4	5	6
6	This organisation uses a formal strategic planning process	1	2	3	4	5	6

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
7	The activities I undertake in my work environment are not challenging	1	2	3	4	5	6
8	I set out my own goals to carry out in my work situation	1	2	3	4	5	6
9	There is much emphasis in this organisation on doing things the way we have always done them	1	2	3	4	5	6
10	I do not have sufficient time to complete my work	1	2	3	4	5	6
11	My department uses formal strategic planning	1	2	3	4	5	6
12	I feel considerable pressure to meet someone else's specifications in how I do my work	1	2	3	4	5	6
13	Overall, the people in this organisation have no shared "vision" of where we are going and what we are trying to do	1	2	3	4	5	6
14	There is a feeling of distrust among the people I work with most closely	1	2	3	4	5	6
15	People in this organisation are very concerned about protecting their territory	1	2	3	4	5	6
16	There are too many distractions from project work in this organisation	1	2	3	4	5	6
17	New ideas are not encouraged in this organisation	1	2	3	4	5	6
18	In my department/work group, we do not challenge each other's ideas constructively	1	2	3	4	5	6
19	Strategic planning in this organisation is a lengthy process	1	2	3	4	5	6
20	There is destructive competition within this organisation	1	2	3	4	5	6
21	My supervisor has good interpersonal skills	1	2	3	4	5	6
22	Performance evaluation in this organisation is unfair	1	2	3	4	5	6
23	I have the freedom to decide what work and activities I am going to undertake	1	2	3	4	5	6
24	There are many political problems in this organisation	1	2	3	4	5	6
25	The strategies designed for this organisation are unsuccessful	1	2	3	4	5	6
26	The people in my work group/department are not open to new ideas	1	2	3	4	5	6

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
27	The facilities I need for my work are not readily available to me	1	2	3	4	5	6
28	My supervisor serves as a poor workplace role model	1	2	3	4	5	6
29	In this organisation, top management does not expect people to do creative work	1	2	3	4	5	6
30	In my work group/department, people are not willing to help each other	1	2	3	4	5	6
31	Procedures and structures are too formal in this organisation	1	2	3	4	5	6
32	I have no choice regarding the work I am expected to carry out	1	2	3	4	5	6
33	There are unrealistic expectations for what people can achieve in this organisation	1	2	3	4	5	6
34	Generally, I am unable to get the resources I need to do my work	1	2	3	4	5	6
35	My supervisor's expectations for my work are not clear	1	2	3	4	5	6
36	People are quite concerned about negative criticism of their work in this organisation	1	2	3	4	5	6
37	People are not recognised for creative work in this organisation	1	2	3	4	5	6
38	The strategic planning process in this organisation is ineffective	1	2	3	4	5	6
39	The work that I do does not bring out the best in me	1	2	3	4	5	6
40	My supervisor plans poorly	1	2	3	4	5	6
41	The organisation has no urgent need for the successful completion of the work I am now doing	1	2	3	4	5	6
42	People in this organisation feel pressure to produce anything acceptable, even if quality is lacking	1	2	3	4	5	6
43	The atmosphere in this organisation is not open	1	2	3	4	5	6
44	This organisation does a poor job of developing strategies	1	2	3	4	5	6
45	There is a poor blend of skills in my work group/department	1	2	3	4	5	6

46	Ideas are judged unfairly in this organisation	1	2	3	4	5	6
		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
47	Top management does not want to take risks in this organisation	1	2	3	4	5	6
48	In my daily work environment, I feel no sense of control over my own work and my own ideas	1	2	3	4	5	6
49	Failure is not acceptable in this organisation, even if the effort on the project was good	1	2	3	4	5	6
50	The budget for my work or project(s) is generally inadequate	1	2	3	4	5	6
51	This organisation is unable to successfully implement its planned strategies	1	2	3	4	5	6
52	People are encouraged to solve problems creatively in this organisation	1	2	3	4	5	6
53	People are not rewarded for creative work in this organisation	1	2	3	4	5	6
54	This organisation does better than its competitors as a direct result of its strategic planning	1	2	3	4	5	6
55	My supervisor does not support my work group/department within the organisation	1	2	3	4	5	6
56	I do not feel challenged by the work I am currently doing	1	2	3	4	5	6
57	The strategic planning done by this organisation is of very little use in reality	1	2	3	4	5	6
58	People in this organisation cannot express unusual ideas without the fear of being called stupid	1	2	3	4	5	6
59	I cannot get all the data I need to carry out my work or project (s) successfully	1	2	3	4	5	6
60	The people in my work group/department are not committed to our work	1	2	3	4	5	6
61	My supervisor communicates well with our work group/department	1	2	3	4	5	6
62	Top management is largely responsible for developing strategies in this organisation.	1	2	3	4	5	6
63	I do not get constructive feedback about my work	1	2	3	4	5	6
64	This organisation has poor mechanisms for encouraging and developing creative ideas	1	2	3	4	5	6

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
65	People are not encouraged to take risks in this organisation	1	2	3	4	5	6
66	I am involved in the strategic planning process in this organisation	1	2	3	4	5	6
67	I do not have trouble getting the materials I need to do my work	1	2	3	4	5	6
68	I feel that top management is not enthusiastic about my work or project(s)	1	2	3	4	5	6
69	People are supportive of new ideas in this organisation	1	2	3	4	5	6
70	There is a lack of open communication within my work group/department	1	2	3	4	5	6
71	My supervisor does not show confidence in our work group/department	1	2	3	4	5	6
72	I feel a sense of time pressure in my work	1	2	3	4	5	6
73	This organisation follows a planned, step-by-step approach when developing strategic plans	1	2	3	4	5	6
74	My supervisor does not value individual contributions to projects	1	2	3	4	5	6
75	My supervisor is not open to new ideas	1	2	3	4	5	6
76	The information I need for my work is not easily obtainable	1	2	3	4	5	6
77	Other areas of the organisation do not serve as a hindrance to my work or project(s)	1	2	3	4	5	6
78	Destructive criticism is not a problem in this organisation	1	2	3	4	5	6
79	I am bored with the work that I am currently engaged in	1	2	3	4	5	6
80	This organisation spends a considerable amount of time on strategic planning processes	1	2	3	4	5	6
81	This organisation often has to change and adapt its original strategic plans	1	2	3	4	5	6

Please answer the open-ended questions on the following page.

PLEASE COMPLETE THE FOLLOWING SECTION

SECTION C: QUESTION 1.1

What is the single most important factor supporting creativity and innovation in your current work environment? *Please write down something that actually exists in your present work environment, rather than something that you wish existed.*

SECTION C – QUESTION 1.2

What is the single most important factor inhibiting creativity and innovation in your current work environment? *Please write down something that is actually present in your current work environment.*

SECTION C – QUESTION 1.3

What is the single most important suggestion that you have for improving the climate for creativity and innovation in your daily work environment?

THANK YOU FOR YOUR TIME

ANNEXURE C

QUESTIONNAIRE
MAIN SURVEY

Section A: Demographical Information

1. Name of Institution: _____

2. Your Function:

Junior Lecturer	Lecturer	Senior Lecturer
Principal Lecturer	Head of department	Dean
Other: (Please specify):		

3. The faculty most suited to your situation:

Engineering	Economic and Management Sciences	Humanities
Science	Law	Medical Technology
Tourism	Arts	Information Technology
Other: (Please specify):		

4. Years of service:

0 - 5 years	6 – 10 years	11 – 15 years	16 –20 years	Over 20 years

5. Highest qualification

Diploma/ Degree	Honours/ B.Tech	Masters	Doctorate

Section B: Please mark each question with a cross (X).

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
1	I have too much work and not enough time to complete it in	1	2	3	4	5	6
3	This organisation is strictly controlled by top management	1	2	3	4	5	6
3	My co-workers and I do not function well as a team	1	2	3	4	5	6
4	I set my own goals in my work situation	1	2	3	4	5	6
5	I do not have sufficient time to complete my work	1	2	3	4	5	6
6	I feel considerable pressure to meet someone else's specifications in how I do my work	1	2	3	4	5	6

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
7	Overall, the people in this organisation have no shared "vision" of where we are going	1	2	3	4	5	6
8	There is a feeling of distrust amongst the people I work with	1	2	3	4	5	6
9	People in this organisation are very concerned about protecting their territory	1	2	3	4	5	6
10	There are too many distractions from project work in this organisation	1	2	3	4	5	6
11	New ideas are not encouraged in this organisation	1	2	3	4	5	6
12	There is destructive competition within this organisation	1	2	3	4	5	6
13	I have the freedom to decide what work activities I am going to undertake	1	2	3	4	5	6
14	There are many political problems in this organisation	1	2	3	4	5	6
15	The facilities I need for my work are not readily available to me	1	2	3	4	5	6
16	My line manager serves as a poor workplace role model	1	2	3	4	5	6
17	In this organisation, top management does not expect people to do creative work	1	2	3	4	5	6
18	In my department, people are not willing to help each other	1	2	3	4	5	6
19	Procedures and structures are too formal in this organisation	1	2	3	4	5	6
20	I have no choice regarding the work I am expected to carry out	1	2	3	4	5	6
21	There are unrealistic expectations for what people are able to achieve in this organisation	1	2	3	4	5	6
22	I am unable to get the resources I need to do my work	1	2	3	4	5	6
23	My line manager's expectations for my work are not clear	1	2	3	4	5	6
24	People are quite concerned about negative criticism of their work in this organisation	1	2	3	4	5	6
25	People are not recognised for creative work in this organisation	1	2	3	4	5	6
26	The work that I do does not bring out the best in me	1	2	3	4	5	6

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
27	The organisation has no urgent need for the successful completion of the work I am now doing	1	2	3	4	5	6
28	The atmosphere in this organisation is not transparent	1	2	3	4	5	6
29	There is a poor blend of skills in my department	1	2	3	4	5	6
30	Top management does not want to take risks in this organisation	1	2	3	4	5	6
31	In my daily work environment, I feel no sense of control over my own work	1	2	3	4	5	6
32	Failure is not acceptable in this organisation, even if the effort was good	1	2	3	4	5	6
33	The budget allocated for my work is generally inadequate	1	2	3	4	5	6
34	My line manager does not support my department within the organisation	1	2	3	4	5	6
35	I do not feel challenged by the work I am currently doing	1	2	3	4	5	6
36	People in this organisation cannot express unusual ideas without the fear of being called stupid	1	2	3	4	5	6
37	The people in my department are not committed to their work	1	2	3	4	5	6
38	I do not get feedback about my work	1	2	3	4	5	6
39	This organisation has poor mechanisms for encouraging creative ideas	1	2	3	4	5	6
40	People are not encouraged to take risks in this organisation	1	2	3	4	5	6
41	I do not have trouble getting the materials I need to do my work	1	2	3	4	5	6
42	I feel that top management is not enthusiastic about the work that I am doing	1	2	3	4	5	6
43	People are supportive of new ideas in this organisation	1	2	3	4	5	6
44	There is a lack of communication within my department	1	2	3	4	5	6
45	I feel a sense of time pressure in my work	1	2	3	4	5	6
46	My line manager is not open to new ideas	1	2	3	4	5	6

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
47	The information I need for my work is not easily obtainable	1	2	3	4	5	6
48	I am bored with the work that I am currently engaged in	1	2	3	4	5	6

Section C: Please mark each question with a cross (X)

		Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
1	This organisation uses a formal strategic planning process	1	2	3	4	5	6
2	My department uses formal strategic planning	1	2	3	4	5	6
3	This organisation does a poor job of developing strategies	1	2	3	4	5	6
4	This organisation is unable to successfully implement its planned strategies	1	2	3	4	5	6
5	The strategic planning done by this organisation is of very little use in reality	1	2	3	4	5	6
6	Top management takes responsibility for the organisation's strategic planning	1	2	3	4	5	6
7	This organisation follows a planned, step-by-step approach when developing strategic plans	1	2	3	4	5	6
8	This organisation spends a lot of time on strategic planning processes	1	2	3	4	5	6
9	This organisation has a written mission statement	1	2	3	4	5	6
10	Strategic planning is a top priority for this organisation	1	2	3	4	5	6
11	This organisation does not set aside resources for strategic planning	1	2	3	4	5	6
12	Strategic planning in this institution spans over a time frame of more than three years	1	2	3	4	5	6
13	This organisation regularly (at least annually) assesses its strengths and weaknesses	1	2	3	4	5	6
14	This organisation regularly (at least annually) assesses its opportunities and threats	1	2	3	4	5	6

Section D: Please answer the following open-ended questions

QUESTION 1.1

What is the single most important factor supporting creativity in your current work environment? *Please write down something that actually exists in your present work environment, rather than something that you wish existed.*

QUESTION 1.2

What is the single most important factor inhibiting creativity in your current work environment? *Please write down something that is actually present in your current work environment.*

QUESTION 1.3

What is the single most important suggestion that you have for improving the climate for creativity in your daily work environment?

THANK YOU FOR YOUR TIME!

ANNEXURE D

EMPIRICAL DATA AND FREQUENCY DISTRIBUTIONS

INSTITUTION A

No	Inst	Fun	Fac	Ser	Qu	B1	B2	B3	B4	B4 R	B5	B6	B7	B8	B9	B10	B11	B12	B13	B13 R	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36	B37	B38	B39	B40	B41	B41 R	B42	B43	B43 R	B44	B45	B46	B47	B48
1	A	3	4	3	3	2	1	4	1	6	2	5	1	5	4	6	4	5	2	5	2	3	1	5	3	3	5	2	3	2	2	3	3	6	5	5	1	4	1	3	1	5	4	5	1	1	1	4	3	1	6	1	3	3	1	4	6
2	A	7	3	5	3	2	3	3	1	6	2	4	2	5	3		3	5	2	5	6	3	5	5		4	5	2	3	3	4	5	5	4	4		2	5	5	1	3	6	6	6	3	2	5	4	3	3	2	5	3	1	5	5	5
3	A	7	10	3	2	2	5	6	2	5	2	5	4	5	5	3	4	5	2	5	5	4	5	5	6	5	4	3	4	4	3	4	6	3	3	5	2	5	4	2	6	5	5	6	6	4	4	3	4	3	4	3	6	2	6	4	5
4	A	7	10	3	2	1	2	4	3	4	2	2	5	4	3	3	4	4	3	4	3	4	5	5	4	3	3	3	3	3	3	4	5	6	5	3	4	4	3	2	5	4	4	5	4	3	4	4	3	6	3	4	4	1	3	4	3
5	A	7	3	1	3	1	3	3	2	5	1	4	2	5	4	5	5	5	3	4	4	2	6	4	5	3	6	2	2	6	3	4	4	6	6	3		3	3	1	5	6	6	6	5	3	4	6	1	4	4	3	5	1	6	6	6
6	A	3	3	1	3	1	1	1	1	6	1	3	1	2	2	3	2	3	2	5	2		2	4	3	2	3	2	2	2	2	2	3	2	2	3	2	2	2	1	2	5	3		5	2	2	5	2	2	4	3	3	1	3	2	5
7	A	7	10		2	3	4	6	1	6	6	1	5	6	2	5	6	6	1	6	3	1	1	6	6	4	6	6	5	5	1	1	2	5	1	1	5	6	3	5	5	6	2	3	1	1	1	4	3	2	4	3	1	5	1	1	6
8	A	7	3	1	3	1	5	1	1	6	1	2	1	1	1	1	5	5	1	6	5	2	5	5	5	2	3	1	4	5	1	5	2	4	2	5	2	5	5	1	5	1	5	5	4	1	5	5	2	3	1	6	1	1	5	5	5
9	A	3	10	3	3	2	4	4	1	6	2	3	3	5	2	3	6	3	3	4	2	1	6	5	5	4	5	5	1	6	2	5	5	5	5	2	4	6	4	1	6	6	5	3	3	5	4	6	1	5	2	5	3	2	6	5	6
10	A	7	10	4	3	1	3	5	2	5	1	2	5	4	2	2	5	3	3	4		5	6	2	5	5	5	3	1	3	3	5	5	5		5	4	5	4	4	6	5	5	5	3	5	5	2	5	3	2	5	5	2	5	6	5
11	A	7	4	3	4	5	2	5	2	5	5	3	3	3	2	3	3	4	2	5	2	5	5	5	5	2	5	2	5	5	3	5	5	2	2	2	2	3	5	5	5	5	4	5	2	3	2	2	5	5	3	4	3	5	5	5	5
12	A	1	2	1	2	6	6	1	1	6	6	3	1	1	1	1	3	5	1	6	1	1	4	6	5	6	3	2	2	2	2	2	1	6	1	1	1	3	6	2	5	6	6	1	1	1	4	5	2	3	4	3	1	6	6	5	3
13	A	2	1	1	1	3	4	5	2	5	4	4	2	4	2	5	4	4	3	4	2	3	5	4	3	4	4	4	3	4	5	5	5	5	3	5	4	5	5	1	5	6	6	5	6	6	6	4	3	5	3	4	4	4	5	4	6
14	A	5	1	5	2	1	3	6	1	6	1	6	1	6	2		6	1	2	5	1	1	6	6	6	6	6	5	6	6	6	6	6	6	6	6	5	6	5	2	6	6	6	6	6	6	6	6	1	6	6	1	6	2	6	6	6
15	A	7	10	1	4	1	5	5	1	6	1	6	5	5	6	4	5	6	2	5	5	6	6	5	6	6	4	5	5	5	5	5	5	6	5	5	6	4	5	6	6	6	6	5	5	2	5	2	5	6	1	6	5	1	6	6	6
16	A	7	3	3	4	3	2	5	2	5	3	5	2	5	2	5	5	3	3	4	2	2	5	4	5	3	5	2	2	5	2	4	5	4	1	6	2	5	3	1	5	5	6	6	5	5	4	5	2	1	2	5	5	2	5	6	5
17	A	2	3	1	4	3	3	2	1	6	4	5	2	2	2	3	6	3	1	6	3	5	3	2	3	5	6	4	5	4	2	2	2	4	3	4	3	5	5	4	5	5	5	5	4	4	3	3	4	3	3	4	3	2	5	4	5
18	A	7	4	3	3	3	5	5	2	5	3	6	5	5	1	6	6	6	5	2	2	6	6	6	5	6	5	6	6	6	2	6	5	5	5	6	3	5	2	5	5	5	6	5	5	5	6	1	6	5	2	5	6	1	6	6	5
19	A	3	4	2	4	1	1	5	3	4	1	2	2	2	2	2	2	2	5	2	2	4	2	5	5	1	2	1	2	5	4	5	2	5	1	4	1	5	5	1		5	2	6	5	1	2	2	5	2	5	2	5	1	2	1	5
20	A	7	4	2	4	2	4	5	1	6	1	2	4	5	2	5	5	4	2	5	4	5	6	5	4	3	5	5	4	5	2	4	5	4	2	2	4	4	4	2	5	5	5	3	3	2	2	5	2	5	4	3	2	1		2	6
21	A	3	1	1	4	2	5	5	4	3	2	5	5	5	5	5	5	6	3	4	5	3	6	6	6	5	5	3	3	6	4	5	5	5	6	5	5	5	5	3	6	5	6	6	6	6	5	4	3	5	2	5	5	2	6	5	6
22	A	3	4	5	4	2	1	2	2	5	2	2	1	1	3	3	3	3	3	4	1	1	1	1	3	3	4	2	2	4	3	2	5	5	2	5	1	2	5	2	5	5	5	4	3	2	2	5	2	1	3	4	1	2	5	5	5
23	A	7	2	3	3	1	2	5	2	5	1	3	5	5	5	2	6	6	2	5	1	3	5	6	6	4	5	2	3	5	2	5	6	5	5	5	2	5	2	3	5	5	5	5	5	5	5	5	2	5	2	5	5	2	5	5	5
24	A	2	7	1	3	1	3	5	2	5	1	2	1	4	2		3	3	3	4	2	2			4	2	4	2	4			2	6	2	2	1	1	3				2	1	5	2	1	1	3	4	2	3	4	1	1		2	3
25	A	3	1	3	4	5	6	2	2	5	2	5	2	5	5	5	5	5	2	5	5	5	5	4	4	5	5	5	5	4	5	5	5	4	3	4	3	5	5	3	5	5	5	5	5	5	4	3	4	3	3	4	3	3	3	4	5
26	A	7	10	4	4	1	1	5	6	1	1	1	2	2	1	1	2	1	6	1	1	1	1	6	5	1	1	1	1	2	1	5	1	3	1	3	2	1	1	1	1	1	1	2	1	2	2	6	1	4	6	1	1	1	1	1	1
27	A	2	7	1	3	2	1	5	6	1	2	2	2	3	1	1	5	3	6	1	1	2	5	3	5	1	1	4	2	4	1	2	3	5	3	5	1	2	1	1	5	5	1	5	5	2	1	6	1	2	5	2	5	1	5	2	6
28	A	7	4	4	3	3	3	5	3	4	3	2	3	4	3	5	5	4	5	2		4	5	5	5	2	3	2	3	5	2	3	4	5	3	5	3	4	3	2	5	4	4	6	5	3	2	4	3	3	3	4	4	3	4	5	5
29	A	2	4	1	4	2	4	3	2	5	2	4	3	2	3		5	3	3	4	4	3	1	4	4	4	4	1	2	3	2	3	3	3	2	3	4	3	5	2	1	5	5	4	3		4	5	2	2	3	4	1	2	4	4	4
30	A	2	3	2		2	3	5	3	4	1	2	4	5	1	1	5	3	2	5	2	1	3	4	5	3	5	2	2	5	5	6	5	3	5	6	6	5	5	2	6	6	6	6	5	4	5	3	4	1	3	4	5	1	5	3	6
31	A	2	10	1		5	5	5	2	5	5	5	1	3	2	4	4	1	2	5	2	1	2	5	5	5	5	5	2	2	4	5	5	5	1	3	5	4	4	6		5	5	2	2	5	5	1	6	2	3	4	1	5	4	1	5
32	A	3	1	3	2	3	2	6	1	6	3	3	5	5	2	3	6	6	5	2	5	2	6	6	5	5	3	6	4	6	5	6	5	6	6	5	5	6	1	4	5	5	6	5	6	6	5	5	2	5	1	6	5	1	6	1	6
33	A	3	2	1	4	3	5	3	2	5	3	4	2	2	1	4	4	3	3	4	2	2	1	4	2	5	5	2	1	3	2	1	2	4	1	3	2	5	1	2	2	4	3	2	4	1	1	1	6	2	5	2	1	2	2	5	5
34	A	1	10	1	3	3	4	6	2	5	4	5	4	4	2	4	6	5	4	3	6	5	5	6	6	3	3	4	4	5	4	6	6	5	5	2	3	5	5	4	3	6	6	6	4	3	2	3	4	3	2	5	3	4	2	6	5
35	A	7	1	4	3	1	4	5	2	5	1	3	2	3	2	2	2	2	2	5	3	3	4	3		3	4	3	3	3	3	3	2	4	3	3	3	3	4	2	2	4	2	3	2	3	2	2	4	3	4	3	4	3	2	3	3	3

Annexure D: Empirical data and frequency distributions

No	Inst	Fun	Fac	Ser	Qu	B1	B2	B3	B4	B4 R	B5	B6	B7	B8	B9	B10	B11	B12	B13	B13 R	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36	B37	B38	B39	B40	B41	B41 R	B42	B43	B43 R	B44	B45	B46	B47	B48
36	A	4	2	5	3	3	1	2	3	4	3	3	1	1	1	2	2	2	3	4	1	2	1	2	2	1	3	2	2	2	2	2	3	3	2	1	1	2	1	2	1	4	2	2	2	2	2	2	5	2	5	2	2	3	3	3	5
37	A	7	4	3	4	1	6	5	2	5	1	6	4	3	3	6	6	4	2	5	3	5	5	5	5	5	5	2	5	5	2	5	6	6	5	4	5	6	5	1	6	6	5	5	5	5	5	5	2	5	2	5	2	1	5	5	6
38	A	7	2	1	2	6	2	6	1	6	6	6	6	3	1	6	6	6	2	5	3	2	6	6	6	6	6	6	3	6	6	6	6																							6	6
39	A	3	2	2	4	1	5	2	1	6	1	3	1	1	2		2	2	2	5	3	5	5	5	3	3	5	2	5	4	3	2	5	5	2	2	1	5	4	5	3	6	5	5	2	3	3	3	4	4	5	2	1	4	5	5	6
40	A	2	2	1	4	3	3	5	2	5	3	5	3	2	2	2	5	5	2	5	3	2		4	3	4	5	4	3	4	2	3	3	4		3	3	5	5	5	5	3	5	3	3	3	4	4	3	4	3	4	1	3	5	3	5
41	A	1	2	1	2	5	4	3	2	5	5	5	3	5	4	5	2	4	3	4	4	3	4	4	4	4	4	5	3	4	4	3	3	2	5	3	2	6	5	3	4	3	5	3	2	2	2	3	4	3	4	3	2	5	4	5	3
42	A	4	4	5	4	4	4	4	5	2	5	5	2	5	4	5	5	6	5	2	5	5	5	5	5	5	4	4	4	5	5	2	5	4	5	4	5	5	4	5	5	5	5	5	3	2	3	3	4	4	3	4	4	5	5	5	5
43	A	3	1	5	4	2	4	2	1	6	4	5	2	5	3	3	5	4	1	6	2	5	3	5	3	5	6	2	5	2	1	2	5	1	2	5	4	5	4	4	6	4	5	6	2	5	4	1	6	2	3	4	5	3	5	6	6
44	A	7	1	5	4	2		6	1	6	1	6	5	6	5		6	6	2	5	5	5	6	6	6	2	5	5	6	6	2	3	6	6	5	6	4	6	5	2	6	5	5	6	6	5	4	2	5	5	2	5	6	2	6	5	6
45	A	7	4	1	4	1	2	6	2	5	1	5	6	6	4	2	6	5	1	6	6	3	6	6	6	5	6	3		5	3	5	3	5	3	6	3	5	6	3	6	6	6	5	6	5	5	5	2	6	1	6	6	1	6	5	6
46	A	7	4	3	4	1	2	1	1	6	1	1	1	1	1	1	5	2	2	5	1	3	2	5	2	2	4	1	2	5	1	2	2	6	1	2	3	1	4	2	2	5	1	6	4	2	4	5	2	4	4	3	1	1	4	5	6
47	A	2	8	2	3	1	1	5	4	3	1	2	3	4	2	2	2	3	6	1	2	2	2	2	4	2	2	1	1	3	4	3	2	4	3	3	2	2	3	2	5	1	3	3	4	2	2	5	2	3	3	4	5	2	5	2	1
48	A	7	4	2	4	1	1	1	3	4		2	1	1	1	2	4	2	5	2	2	2	2	5	5	4	4	5	5	5	2	2	2	3	2	5	3	5	4	2	5	5	1	5	5	1	2	2	5	2	2	5	3	1	3	3	1
49	A	7	4	3	4	2	2	5	5	2	2	2	2	3	2	2	2	2			1	2	3	5	5	1		1	2	3	2	1	5	5	1	5	1	2	2	2	5	3	5	5	2	1	1	2	5	1	5	2	3	2	3	5	2
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INSTITUTION B

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INSTITUTION C

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INSTITUTION D

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15	D	7	3	4	3	6	5	4	1	6	5	6	5	5	3	5	6	4	1	6	4	5	5	6	5	5	6	6	6	6	4	6	6	6	5	6	4	6	6	6	6	6	6	5	6	6	6	1	6	6	6	1	5	6	6	6	6
16	D	2	4	1	2	3	5	6	3	4	4	3	3	5	1	3	4	5	5	2	3	4	5	4	5	4	5	4	5	5	3	4	5	5	3	5	4	5	3	5	6	5	5	6	5	2	3	2	5	2	4	3	4	2	6	5	5
17	D	3	8	4	2	2	2	5	4	3	2	2	2	2	2	4	5	4	2	5	2	4	4	2	5	2	3	3	3	3	2	5	2	3	2	5	3	5	2	5	5	2	4	6	5	2	2	3	4	3	5	2	5	2	5	5	5
18	D	3	8	3	3	2	3	2	2	5	2	3	2	1	1	1	2	2	4	3	2	1	2	3	2	2	4	2	2	4	2	3	4	5	2	3	2	4	4	2	5	4	3	5	4	3	3	5	2	2	4	3	2	2	4	5	4
19	D	3	2	2	3	2	5	1	1	6	3	2	5	3	2	3	6	3	1	6	3	1	5	6	4	3	6	5	3	3	2	5	3	5	5	5	4	3	3	3	5	5	4	6	4	2	2	5	2	6	2	5	2	3	4	6	5

INSTITUTION A

	C1	C2	C3	C3R	C4	C4R	C5	C5R	C6	C7	C8	C9	C10	C11	C11R	C12	C13	C14
1	5	6	1	6	1	6	1	6	3	5	4	3	4	3	4	6	4	4
2	6	6	2	5	3	4	2	5	1	6	6	6	6	2	5	6	5	5
3	4	4	4	3	4	3	4	3	2	4	4	3	4	4	3	4	4	4
4	4	5	3	4	3	4	4	3	2	4	5	3	5	5	2	4	5	5
5	4	2	4	3	4	3	4	3	5	6	6	2	4	2	5	4	4	4
6	2	4	2	5	2	5	2	5	2	2	2	1	2	1	6	2	3	
7	1	5	5	2	4	3	5	2	1	1	3	1	1	6	1	1	1	1
8	1	5	2	5	1	6	1	6	1	5	2	1	3	3	4	1	3	2
9	4	3	3	4	3	4	3	4	4	5	3	3	4	1	6	3	4	4
10	2	2	3	4	3	4	3	4	2	2	2	2	2	5	2	1		
11	2	2	2	5	2	5	2	5	3	2	2	2	2	4	3		3	2
12	1	1	6	1	3	4	3	4	1	2	1	1	1	6	1	2	2	2
13	4	4	3	4	3	4	4	3	4	5	5	6	6	2	5	5	2	2
14	1	3	2	5	1	6	1	6	5	6	2	2	1	6	1	5	6	6
15	5	2	2	5	5	2	2	5	5	6	6	1	6	1	6	6	6	6

INSTITUTION B

	C1	C2	C3	C3R	C4	C4R	C5	C5R	C6	C7	C8	C9	C10	C11	C11R	C12	C13	C14
0	3	4	3	4	2	5	2	5	4	4	3	2	4	3	4	2	4	3
1	2	5	5	2	6	1	6	1	2	2	2	1	3	5	2	1	2	2
2	2	2	5	2	5	2	5	2	2	2	2	2	2	5	2	4	2	2
3	2	4	4	3	3	4	2	5	3	3	3	1	2	3	4	3	3	3
4	2	3	3	4	3	4	4	3	2	3	2	1	2	3	4	2	2	2
5	2	5	2	5	2	5	1	6	3	2	2	2	3	3	4	2	4	4
6	1	1	5	2	3	4	5	2	2	2	4	1	1	3	4	1	2	2
7	4	4	4	3	4	3	3	4	3	4	4	3	3	4	3	3	3	3
8	2	4	3	4	2	5	2	5	2		2	2	2	5	2			3
9	2	2	5	2	5	2	4	3		2	2	2	2	5	2	2	2	2
10	1	1	6	1	6	1	6	1	2	2	2	1	1	5	2	5	2	2
11	1	1	6	1	6	1	6	1	1	1	1	2	2	5	2	2	2	2
12	3	5	2	5	2	5	2	5	2	5	5	2	3	2	5	2	2	2
13	2	2	5	2	5	2	5	2	5	2	2	2	2	5	2	2	2	2
14	2	2	6	1	5	2	5	2	2	2								

	C1	C2	C3	C3R	C4	C4R	C5	C5R	C6	C7	C8	C9	C10	C11	C11R	C12	C13	C14
16	2	3	2	5	2	5	2	5			1	2	2			2	5	5
17	3	5	3	4	3	4	4	3	3	3	3	2	2	5	2	2	2	2
18	2	2	5	2	5	2	5	2	3	3	5	1	2	6	1	1	2	2
19			2	5	2	5	2	5	1									
20																		
21	2	2	5	2	5	2	5	2	2	2	2	1	2	6	1	1	2	2
22	6	5	1	6	1	6	2	5	5	6	3	2	5	2	5	3	5	5
23	2	2	5	2	4	3	4	3	3	3	4	2	3	4	3	3	4	4
24	5	5	2	5	3	4				5				2	5		5	5
25	2	2	5	2	5	2	5	2	2	2	2	2	2	2	5	3	3	3
26	2	2	2	5	2	5	4	3	2	5	5	1	2	2	5	2	2	5
27	1	6	5	2	5	2	5	2	1	3	1	1	1	6	1	1	5	3
28	2	3	4	3	4	3	5	2	2	3	2	1	2	3	4	3	2	2
29	2	5	3	4	2	5	4	3	2		3	1	3			2	4	4
30	2	3	3	4	3	4	3	4	1	4	1	1	1	1	6	1	6	6
31	5	5	2	5	4	3	4	3	4	4	4	6	5	2	5	4	2	2
32	1	1	2	5	2	5	6	1	6	1	2	1	1	5	2	2	1	1
33	5	6	1	6	1	6	1	6	5	6	5	5	6	2	5	6	3	4
34	1	1	4	3	3	4	4	3	2	3	1	1	1	6	1	4	2	2
35	3	3	3	4	3	4	3	4	2	3	4	3	4	3	4	3	3	4
36	5	5	6	1	2	5	2	5	2	5	4	3	3	2	5	5	4	4
37	5	5	5	2	5	2	2	5	6	5	6	2	5	5	2			
38	2	2	5	2	5	2	5	2	3	3		1	1					
39	5	6	1	6	1	6	1	6	2	5		1	3					
40	2	2	4	3	3	4	5	2	2	4	2	2	2	4	3	4	3	3
41	2	2	3	4	3	4	3	4	2	2	3	2	3	5	2		2	2
42	2	3	4	3	5	2	4	3	2	4	3	2	3	4	3	2	3	3
43	1	1	1	6	4	3	5	2	2	2	1	1	1	5	2	2	3	3
44	1	1	5	2	5	2	5	2	4	4	4	2	2	4	3	1	2	2
45	2	4	2	5	2	5	3	4	1	5	3	1	3	1	6	1	1	1
46	3	3	1	6	1	6	1	6	4	6	1	1	1	1	6	4	3	3
47	2	3	2	5	2	5	3	4	2	2	2	2	2	3	4	3	3	3
48	2	5	1	6	1	6	1	6	1	5	2	1	3	1	6	4	3	5
49	2	3	4	3	1	6	2	5	2	2	2	2	2	1	6	1	2	5
50	5	2	1	6	1	6	2	5	3	6	2	2	2	4	3	3	2	2

	C1	C2	C3	C3R	C4	C4R	C5	C5R	C6	C7	C8	C9	C10	C11	C11R	C12	C13	C14
15	2	2	6	1	6	1	6	1	2	2	2	2	2	6	1	2	2	2
16	2	3	3	4	3	4	3	4	2	3	2	2	2	3	4	2	2	2
17	1	2	1	6	1	6	1	6	1	6	1	1	1	6	1	6	6	6
18	2	1	6	1	6	1	5	2	2	3	2	1	1	6	1	1	2	2
19	3	5	2	5	1	6	1	6	1	2	1	1	1	3	4	1	1	1
20	3	4	1	6	1	6	2	5	1	2	3	2	2	2	5	5	5	4
21	5	5	2	5	2	5	2	5	2	5	4	2	3	2	5	3	3	3
22	2	2	5	2	5	2	5	2	4	4	4	2	3	3	4	4	3	3
23	2	2	5	2	5	2	5	2	2	3	3	2	2	5	2	2	2	2
24	1	3	3	4	6	1	6	1	3	2	5	1	3	4	3	1	1	1
25	2	2	6	1	6	1	6	1	3			1	1	6	1		1	
26	2	2	4	3	3	4	3	4	4	3	5	1	3	5	2	2	2	3
27	5	3	2	5	2	5	2	5	4	5	5	1	6	2	5	3	4	4
28	2	2	3	4	3	4	2	5	2	2	2	1	1	4	3	2	1	2
29	2	1	2	5	3	4	4	3	2	3	2	5	3	3	4	5	3	3
30	3	2	1	6	1	6	1	6	1	5	2	1	3	1	6	4	2	2
31	2	2	2	5	2	5	2	5	2	2	2	2	2	2	5	2	2	2
32	2	2	5	2	4	3	5	2	3	2	3	1	2	3	4	1	3	2
33	2	1	2	5	4	3	4	3	3	5	5	2	5	4	3	6	3	3
34	2	2	5	2	3	4	5	2	2	3	2	2	2	4	3	5	4	4
35	3	6	3	4	3	4	2	5	3	4	2	1	1	4	3	3	4	3
36	1	1	6	1	6	1	5	2	1	1	3	1	1	6	1	1	1	1
37	2	3	4	3	4	3	3	4	2	3	2	1	2	5	2	3	2	2
38	3	6	2	5	2	5	2	5	1	3	2	3	3	4	3	4	5	5
39	2	3	5	2	6	1	3	4	6	3	3	1	2	3	4	4	2	2
40	2	2	5	2	4	3	4	3	3	2	2	1	1	5	2	1	1	1
41	3	4	3	4	4	3	4	3	3	3	3	2	3	4	3	2	3	3
42	4	2	2	5	3	4	2	5	1	6	6	6	6	2	5	5	3	5
43	2	2	3	4	4	3	2	5	2	3	3	1	2	3	4	4	4	3
44	2	6	2	5	3	4	5	2	1	2	2	1	1	4	3	1	1	1
45	6	6														1	1	1
46																		
47	2	2	5	2	4	3	5	2	4	4	5	2	2	5	2	2	2	2
48																		
49	2	4	3	4	2	5	2	5	2	4	2	2	3	5	2	2	5	5

51	1	1	1	6	1	6	1	6	1	1	5	5	5	5	2	1	5	5
52	2	2	3	4	3	4	3	4	2	2	2	1	1	5	2	2	2	2
53	5	4	3	4	4	3	4	3	5	4	3	2	3	5	2	3	3	3
54	2	3	3	4	3	4	2	5	2	4	3	2	3	4	3	4	5	5
55	5	5	1	6	2	5	2	5	5	5	5	3	3	2	5	4	5	5
56	6	6	1	6	2	5	2	5	6	6	6	5	6	1	6	6	6	6
57	3	2	3	4	2	5	3	4	2	3	3	3	3	5	2	2	2	2
58	3	4	5	2	6	1	6	1	6	6	6	3	2	25		2	4	4

INSTITUTION C

	C1	C2	C3	C3R	C4	C4R	C5	C5R	C6	C7	C8	C9	C10	C11	C11R	C12	C13	C14
1	1	6	3	4	3	4	2	5	1	6	1	1	2	5	2	4	2	2
2	2	2	1	6	3	4	1	6	1	2	2	2	5	2	5	2	2	1
3	3	3	3	4	3	4	3	4	2	3	3	3	3	3	4	3	3	3
4	2	3	2	5	1	6	1	6	2	3	2	2	3	1	6	2	3	3
5	2	3	3	4	3	4	2	5	3	3	3	1	2	2	5	2	2	2
6	2	2	2	5	2	5	2	5	2	5	5	2	3	3	4	4	5	5
7	5	5	1	6	1	6	2	5	4	4	4	2	4	4	3	3	3	3
8	2	3	2	5	2	5	2	5	3	1	2	1	3	2	5	2	3	3
9	3	3	2	5	2	5	1	6	1	3	4	2	4	3	4	3	5	5
10	3	3	3	4	2	5	2	5	4	4	3	2	3	3	4	3	4	4
11	2	2	2	5	2	5	3	4	1	4	3	1	2	2	5	2	3	3
12	3	3	1	6	1	6	1	6	6	3	3	1	4	1	6	3	5	5
13	6	6	6	1	1	6	1	6	1	1	6	1	6	6	1	6	6	6
14	2	2	5	2	5	2	3	4	2	2	2	1	2	5	2	2	2	2
15	5	5	2	5	1	6	2	5	6	6	3	4	4	3	4	4	6	6
16	2	3	2	5	2	5	2	5	5	5	5	2	5	5	2	5	6	5
17	3	3	3	4	3	4	3	4	4	3	3	2	3	4	3	3	2	2
18	2	2	2	5	2	5	2	5	5	5	2	2	4	4	3	2	2	2
19	2	4	3	4	3	4	2	5	3	4	2	2	3	3	4	3	3	3
20	3	3	4	3	3	4	2	5	5	4	4	4	4	2	5	3	3	3
21	1	1	1	6	1	6	1	6	5	5	1	2	5	2	5	6	5	5
22	2	2	5	2	5	2	5	2	2	2	4	6	3	3	4	2	3	3
23	3	3	3	4	2	5	2	5	2	6	3	2	3	3	4	3	4	3
24	3	6	2	5	2	5	2	5	3	3	2	1	2	5	2	2	2	2
25	4	4	3	4	3	4	3	4	3	4	4	1	4	3	4	3	6	6

INSTITUTION D

	C1	C2	C3	C3R	C4	C4R	C5	C5R	C6	C7	C8	C9	C10	C11	C11R	C12	C13	C14
1	2	3	4	3	4	3	4	3	2	3	3	1	1	5	2	2	3	3
2	3	3	5	2	5	2	5	2	2	3	3	1	2	5	2	2	2	2
3	2	2	3	4	3	4	4	3	2	2	4	1	2	3	4	4	4	4
4	3	4	4	3	3	4	3	4	3	3	3	4	3	4	3	4	4	4
5	2	3	4	3	4	3	4	3	2	2	3	2	3	4	3	2	2	2
6	2	2	3	4	5	2	3	4	2	4	3	4	5	3	4	5	1	3
7	4	4	6	1	6	1	6	1	4	4	5	1	2	6	1	4	1	1
8	2	3	2	5	3	4	2	5	2	3	2	2	3	4	3	4	3	3
9	2	2	2	5	2	5	2	5	2	2	2	2	2	5	2	2	2	2
10	1	1	5	2	6	1	6	1	3	3	3	1	3	6	1	4	6	6
11	4	4	5	2	3	4	3	4	3	3	3	2	3	3	4	3	3	3
12	2	3	2	5	3	4	3	4	2	5	2	1	3	4	3	1	2	2
13	3	3	6	1	6	1	5	2	6	1	3	1	2	6	1	2	3	3
14	2	6	2	5	1	6	1	6	5	3	1	2	1	6	1	2	2	2
15	2	2	5	2	5	2	6	1	5	3	3	1	1	6	1	2	2	2
16	2	2	5	2	5	2	5	2	5	3	4	2	3	5	2	2	2	2
17	2	4	4	3	4	3	4	3	2	2	2	2	2	5	2	5	2	2
18	3	3	2	5	2	5	3	4	2	4	2	2	4	5	2	4	4	4
19	2	1	3	4	5	2	5	2	1	5	2	1	1	3	4	5	5	5

	C1	C2	C3	C3R	C4	C4R	C5	C5R	C6	C7	C8	C9	C10	C11	C11R	C12	C13	C14
26	2	4	2	5	1	6	1	6	2	3	5	2	4	4	3	4	4	4
27	3	4	1	6	1	6	1	6	2	4	2	1	3	2	5	3	5	5
28	3	6	1	6	3	4	3	4	1	6	4	1	6	6	1		5	5
29	4	4	3	4	2	5	1	6	1	1	1	1	1	2	5	4	4	4
30	2	2	2	5	1	6	2	5	2	6	5	1	4	4	3	6	2	2
31	3	3	4	3	3	4	3	4	2	3	3	1	2	3	4	3	2	2
32	2	4	5	2	4	3	5	2	2	4	4	2	2	5	2	2	2	2
33	2	1	4	3	3	4	3	4	5	5	4	1	2	2	5	5	4	4
34	1	1	4	3	4	3	3	4	4	4	4	6	4	4	3	6	6	6
35	6	6	6	1	1	6	1	6	4	6	6	3	6	1	6	4	6	6
36	6	6	1	6	1	6	1	6	1	6	4	1	6	1	6	6	1	1
37	2	2	2	5	4	3	3	4	1	5	2	1	3	5	2	5		
38	2	3	6	1	6	1	5	2	1	1	2	1	1	5	2	1	1	1
39	2	2	4	3	4	3	3	4	3	4	2	2	3	4	3	2	4	4
40	5	4	2	5	2	5	2	5	5	5	3	3	5	5	2	4	2	2
41	4	4	6	1	6	1	5	2	2	2	2	2	2	5	2	6	2	2
42	3	3	2	5	1	6	2	5	4	5	2	3	4	1	6	4	3	4
43	2	3	4	3	4	3	2	5	5	4	3	1	3	4	3	3	2	2
44	3	3	2	5	2	5	2	5	3	3	4	1	5	4	3	3	3	3
45	2	2	4	3	4	3	1	6	1	5	4	1	5	2	5	3	5	5
46	2	2	5	2	2	5	3	4	6	3	4	1	4	5	2	2	2	2
47	2	2	2	5	2	5	1	6	3	5	1	1	2	3	4	2	2	2
48	3	3	2	5	2	5	2	5	4	3	3	1	4	4	3	3	4	4
49	5	1	4	3	4	3	4	3	2	4	5	2	5	3	4		3	3
50	3	3	4	3	4	3	4	3	3	3	3	2	3	4	3	3	3	3
51	3	4	4	3	4	3	4	3	4	4	3	3	4	4	3	4	3	3
52	1	1	5	2	5	2	6	1	2	2	5	2	3	3	4	2	2	2

FREQUENCIES

Freq	Inst	Fun	Fac	Serv	Qua	B1	B2	B3	B4	B4R	B5	B6	B7	B8	B9	B10	B11	B12	B13	B13R	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30
1	19	9	29	70	5	5	58	18	55	3	47	15	39	31	39	23	19	15	17	11	40	33	21	12	7	21	10	24	20	4	22	23	13	5	3	13	21
2	52	58	48	31	36	5	40	24	69	7	52	34	49	30	71	56	30	28	49	23	51	35	25	26	17	47	16	50	37	21	63	50	24	13	4	26	40
3	58	52	39	33	73	3	29	22	30	11	40	37	30	31	31	37	28	43	58	20	32	27	15	20	27	40	47	41	39	32	42	32	34	30	4	31	45
4	50	11	31	21	60	1	17	18	11	30	16	34	18	22	21	19	32	28	20	58	15	23	21	29	28	31	27	20	26	26	32	22	23	33	1	31	35
5	0	13	0	23	0	1	28	61	7	69	14	42	32	49	15	28	41	46	23	49	30	43	43	56	56	30	59	32	42	59	15	37	60	62	2	53	27

6	0	1	0	0	0		5	35	3	55	9	17	11	16	2	8	29	19	11	17	9	17	51	35	43	10	19	12	13	35	4	15	25	35	1	23	8
7	0	35	2	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0
8	0	0	7	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0
9	0	0	7	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0
10	0	0	15	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0
Missing	0	0	1	1	5		2	1	4	4	1	0	0	0	0	8	0	0	1	1	2	1	3	1	1	0	1	0	2	2	1	0	0	1		2	3
Total	179	179	179	179	179	17	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	17	179	179

B31	B32	B33	B34	B35	B36	B37	B38	B39	B40	B41	B41R	B42	B43	B43R	B44	B45	B46	B47	B48	C1	C2	C3	C3R	C4	C4R	C5	C5R	C6	C7	C8	C9	C10	C11	C11R	C12	C13	C14
8	13	36	10	15	14	10	18	31	21	12	21	28	9	15	30	47	7	9	11	21	20	21	15	28	15	26	12	31	10	15	77	29	15	20	24	15	13
10	24	60	15	10	15	9	26	52	45	48	37	38	38	31	23	63	16	22	14	85	51	47	32	39	23	49	30	66	37	57	66	50	28	40	50	59	59
31	34	31	19	24	31	35	30	34	37	29	30	33	49	35	37	33	30	31	18	33	42	35	25	42	28	32	25	29	44	43	16	48	34	33	33	39	38
37	42	19	24	23	29	19	21	22	35	30	29	36	35	49	17	10	30	25	15	12	26	25	35	28	42	25	32	19	31	26	4	21	33	34	31	24	24
68	54	21	60	68	56	62	56	25	29	37	48	28	31	38	48	15	50	68	65	17	19	32	47	23	39	30	49	18	29	20	4	14	40	28	1	20	23
23	9	8	44	36	32	41	25	12	10	21	12	14	15	9	22	8	42	23	55	7	17	15	21	15	28	12	26	9	19	9	6	11	20	15	13	12	11
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	3	4	7	3	2	3	3	3	2	2	2	2	2	2	2	3	4	1	1	4	4	4	4	4	4	5	5	7	9	9	6	6	9	9	14	10	11
179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179

Percentages																																						
1		10.61	5.03	16.20	39.11	2.79	28.49	32.40	10.06	30.73	1.68	26.26	8.38	21.79	17.32	21.79	12.85	10.61	8.38	9.50	6.15	22.35	18.44	11.73	6.70	3.91	11.73	5.59	13.41	11.17	2.23	12.29	12.85	7.26	2.79	20.11	7.26	11.73
2		29.05	32.40	26.82	17.32	20.11	32.96	22.35	13.41	38.55	3.91	29.05	18.99	27.37	16.76	39.66	31.28	16.76	15.64	27.37	12.85	28.49	19.55	13.97	14.53	9.50	26.26	8.94	27.93	20.67	11.73	35.20	27.93	13.41	7.26	22.35	14.53	22.35
3		32.40	29.05	21.79	18.44	40.78	20.67	16.20	12.29	16.76	6.15	22.35	20.67	16.76	17.32	17.32	20.67	15.64	24.02	32.40	11.17	17.88	15.08	8.38	11.17	15.08	22.35	26.26	22.91	21.79	17.88	23.46	17.88	18.99	16.76	24.02	17.32	25.14
4		27.93	6.15	17.32	11.73	33.52	6.70	9.50	10.06	6.15	16.76	8.94	18.99	10.06	12.29	11.73	10.61	17.88	15.64	11.17	32.40	8.38	12.85	11.73	16.20	15.64	17.32	15.08	11.17	14.53	14.53	17.88	12.29	12.85	18.44	9.50	17.32	19.55
5		0.00	7.26	0.00	12.85	0.00	7.82	15.64	34.08	3.91	38.55	7.82	23.46	17.88	27.37	8.38	15.64	22.91	25.70	12.85	27.37	16.76	24.02	24.02	31.28	31.28	16.76	32.96	17.88	23.46	32.96	8.38	20.67	33.52	34.64	16.20	29.61	15.08
6		0.00	0.56	0.00	0.00	0.00	3.35	2.79	19.55	1.68	30.73	5.03	9.50	6.15	8.94	1.12	4.47	16.20	10.61	6.15	9.50	5.03	9.50	28.49	19.55	24.02	5.59	10.61	6.70	7.26	19.55	2.23	8.38	13.97	19.55	6.15	12.85	4.47
7		0.00	19.55	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8		0.00	0.00	3.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9		0.00	0.00	3.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10		0.00	0.00	8.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Missing		0.00	0.00	0.56	0.56	2.79	0.00	1.12	0.56	2.23	2.23	0.56	0.00	0.00	0.00	0.00	4.47	0.00	0.00	0.56	0.56	1.12	0.56	1.68	0.56	0.56	0.00	0.56	0.00	1.12	1.12	0.56	0.00	0.00	0.56	1.68	1.12	1.68
Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

4.47	7.26	20.11	5.59	8.38	7.82	5.59	10.06	17.32	11.73	6.70	11.73	15.64	5.03	8.38	16.7	26.26	3.91	5.03	6.15	11.73	11.17	11.73	8.3	15.64	8.38	14.53	6.70	17.32	5.59	8.38	43.02	16.20	8.38	11.17	13.41	8.38	7.26	4.88	4.0	6.25	2.22	7.14	7.41	5.00	18.60	0.00
5.59	13.41	33.52	8.38	5.59	8.38	5.03	14.53	29.05	25.14	26.82	20.67	21.23	21.23	17.32	12.8	35.20	8.94	12.29	7.82	47.49	28.49	26.26	17.8	21.79	12.85	27.37	16.76	36.87	20.67	31.84	36.87	27.93	15.64	22.35	27.93	32.96	32.96	7.32	2.0	15.63	8.89	10.71	18.52	50.00	27.91	11.11
17.32	18.99	17.32	10.61	13.41	17.32	19.55	16.76	18.99	20.67	16.20	16.76	18.44	27.37	19.55	20.6	18.44	16.76	17.32	10.06	18.44	23.46	19.55	13.9	23.46	15.64	17.88	13.97	16.20	24.58	24.02	8.94	26.82	18.99	18.44	18.44	21.79	21.23	17.07	16.00	37.50	13.33	10.71	37.04	30.00	20.93	61.11
20.67	23.46	10.61	13.41	12.85	16.20	10.61	11.73	12.29	19.55	16.76	16.20	20.11	19.55	27.37	9.5	5.59	16.76	13.97	8.38	6.70	14.53	13.97	19.5	15.64	23.46	13.97	17.88	10.61	17.32	14.53	2.23	11.73	18.44	18.99	17.32	13.41	13.41	29.27	14.00	18.75	17.78	28.57	25.93	10.00	20.93	16.67
37.99	30.17	11.73	33.52	37.99	31.28	34.64	31.28	13.97	16.20	20.67	26.82	15.64	17.32	21.23	26.8	8.38	27.93	37.99	36.31	9.50	10.61	17.88	26.2	12.85	21.79	16.76	27.37	10.06	16.20	11.17	2.23	7.82	22.35	15.64	7.82	11.17	12.85	31.71	50.00	21.88	26.67	21.43	7.41	5.00	6.98	0.00
12.85	5.03	4.47	24.58	20.11	17.88	22.91	13.97	6.70	5.59	11.73	6.70	7.82	8.38	5.03	12.2	4.47	23.46	12.85	30.73	3.91	9.50	8.38	11.7	8.38	15.64	6.70	14.53	5.03	10.61	5.03	3.35	6.15	11.17	8.38	7.26	6.70	6.15	9.76	14.00	0.00	31.11	21.43	3.70	0.00	4.65	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.12	1.68	2.23	3.91	1.68	1.12	1.68	1.68	1.68	1.12	1.12	1.12	1.12	1.12	1.12	1.1	1.68	2.23	0.56	0.56	2.23	2.23	2.23	2.2	2.23	2.23	2.79	2.79	3.91	5.03	5.03	3.35	3.35	5.03	5.03	7.82	5.59	6.15	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	11.11
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	10	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

ANNEXURE E

TUKEY HSD TESTS

Factor 1: Lack of freedom/autonomy

Tukey HSD test; variable Bf1
Approximate Probabilities for Post Hoc Tests
Error: Between MS = .91151, df = 172.00

Inst	D	C	A	B
	4.2105	3.7106	4.2132	4.3031
D		0.205924	1.000000	0.984315
C	0.205924		0.030803	0.010419
A	1.000000	0.030803		0.963323
B	0.984315	0.010419	0.963323	

Factor 2: Unchallenging work

Tukey HSD test; variable Bf2
Approximate Probabilities for Post Hoc Tests
Error: Between MS = 1.1054, df = 172.00

Inst	D	C	A	B
	4.4474	3.5946	4.5877	4.6094
D		0.01323	0.958178	0.941452
C	0.013238		0.000012	0.000016
A	0.958178	0.00001		0.999584
B	0.941452	0.00001	0.999584	

Factor 3: Insufficient resources

Tukey HSD test; variable Bf3
Approximate Probabilities for Post Hoc Tests
Error: Between MS = 1.0703, df = 172.00

Inst	D	C	A	B
	3.7974	2.8385	3.3450	3.9156
D		0.00307	0.350271	0.974791
C	0.003070		0.052121	0.000009
A	0.350271	0.05212		0.025139
B	0.974791	0.00000	0.025139	

Factor 4: Lack of supervisory encouragement

Tukey HSD test; variable Bf4
Approximate Probabilities for Post Hoc Tests
Error: Between MS = 1.5572, df = 172.00

Inst	D	C	A	B
	4.4947	3.7462	4.1307	4.5194
D		0.11315	0.688779	0.999860
C	0.113153		0.374618	0.010582
A	0.688779	0.37461		0.384184
B	0.999860	0.01058	0.384184	

Factor 5: Lack of team unity

Tukey HSD test; variable Bf5
Approximate Probabilities for Post Hoc Tests
Error: Between MS = 1.3637, df = 172.00

Inst	D	C	A	B
	4.3509	3.3237	3.9675	4.3597
D		0.00570	0.601859	0.999992
C	0.005709		0.021062	0.000061
A	0.601859	0.02106		0.316123
B	0.999992	0.00006	0.316123	

Factor 6: Lack of organisational support

Tukey HSD test; variable Bf6
Approximate Probabilities for Post Hoc Tests
Error: Between MS = .99694, df = 172.00

Inst	D	C	A	B
	3.6667	2.8141	3.6481	3.6458
D		0.00769	0.999877	0.999837
C	0.007691		0.00084	0.000130
A	0.999877	0.00084		0.999999
B	0.999837	0.00013	0.999999	

Factor 7: Organisational hindrances/bureaucracy

Tukey HSD test; variable Bf7
Approximate Probabilities for Post Hoc Tests
Error: Between MS = .88095, df = 172.00

Inst	D	C	A	B
	3.2339	2.6704	3.2706	3.2931
D		0.11267	0.998855	0.995568
C	0.112675		[illegible]	[illegible]
A	0.998855	[illegible]		0.999347
B	0.995568	[illegible]	0.999347	

Factor 8: Workload pressure

Tukey HSD test; variable Bf8
Approximate Probabilities for Post Hoc Tests
Error: Between MS = 1.0775, df = 172.00

Inst	D	C	A	B
	2.8868	2.5212	2.7079	2.8885
D		0.55383	0.915329	1.000000
C	0.553839		0.784314	0.288738
A	0.915329	0.78431		0.810933
B	1.000000	0.28873	0.810933	

Factor C: Use of prescriptive strategic planning

Tukey HSD test; variable C
Approximate Probabilities for Post Hoc Tests
Error: Between MS = .64524, df = 172.00

Inst	D	C	A	B
	2.7632	3.4178	3.3405	2.7376
D		[illegible]	[illegible]	0.999423
C	[illegible]		0.958660	[illegible]
A	[illegible]	0.95866		[illegible]
B	0.999423	[illegible]	0.000756	

ANNEXURE F

HE THROUGHPUT RATES

Institution	Headcount	Number of graduates	Throughput percentage	3-year average
A	**1998**	**2001**	**23 %**	**23.41 %**
	17 610	4 002		
	1999	**2002**	**25 %**	
	16 849	4 162		
	2000	**2003***	**23 %**	
	18 068	4 135		
B	**1998**	**2001**	**35 %**	**27.6 %**
	26 684	9 379		
	1999	**2002**	**26 %**	
	37 800	9 880		
	2000	**2003***	**24 %**	
	38 611	9194		
C	**1998**	**2001**	**10 %**	**12.33 %**
	14 490	1499		
	1999	**2002**	**12 %**	
	14 654	1 789		
	2000	**2003***	**14 %**	
	14 659	2111		
D	**1998**	**2001**	**14 %**	**14.96 %**
	12 770	1795		
	1999	**2002**	**15 %**	
	12 200	1882		
	2000	**2003***	**15 %**	
	12 455	1923		

* Statistics only available until 2003

Source: DOE (2004a)

ANNEXURE G

HE RESEARCH OUTPUTS

Institution	Year	Year	Year	Total
A	**2000 ***	**2001***	**2002***	**3-year average**
Unit outputs	666.19	709.52	632.89	
Number of relevant staff members	1120	1162	1197	57.73 %
Total % outputs	59.48 %	61.06 %	52.87 %	
B	**2000***	**2001***	**2002***	**3-year average**
Unit outputs	832.75	882.21	954.18	
Number of relevant staff members	1800	1844	1695	49.99 %
Total % outputs	46.26 %	47.84 %	56.29 %	
C	**2000***	**2001***	**2002***	**3-year average**
Unit outputs	10.78	8.94	16.22	
Number of relevant staff members	384	409	406	2.99 %
Total % outputs	2.81 %	2.19 %	3.99 %	
D	**2000***	**2001***	**2002***	**3-year average**
Unit outputs	9.14	7.4	12.58	
Number of relevant staff members	476	469	463	2.07 %
Total % outputs	1.92 %	1.58 %	2.72 %	

* Statistics only available until 2002

Source: DOE (2004b)

ANNEXURE H

RESPONSES TO OPEN-ENDED QUESTIONS

INSTITUTION A

(These reflect verbatim responses of individuals with regard to the three open-ended questions in Section D. **Note** - some missing values were encountered)

	QUESTION 1	QUESTION 2	QUESTION 3
	What is the single most important factor supporting creativity in you current work environment?	***What is the single most important factor inhibiting creativity in your current work environment?***	***What is the single most important suggestion that you have for improving the climate for creativity in your daily work environment?***
1	Ability to choose which field to work in, e.g. research interests, and a certain amount of flexi-time.	Lack of encouragement from line manager and any kind of modelling of the kind of work that is expected and where to get the financial resources.	Change the line manager to someone who is people oriented. Organisational planning alone won't do it. A university, and quality research, needs team work.
2	There is a lot of freedom to pursue you own ideas and interests in teaching and research – you can set your own agenda in these areas.	Financial constraints limit staff which makes time pressure a constant issue – lots could be done if the money were available	Top management needs to encourage more structure analysis of the financial constraints and set up ways of tackling these
3	It is assumed that I am competent, and that I am able to deliver the goods – I feel "believed in". My performance is assessed by the results I produce	Time – I have a huge lecturing timetable, very large class sizes – so the marking loads and contact time is huge. I have little I-time left over to extend my studies	I need a realistic workload
4	The quality of the students that we still are expected to turn into useful teachers in 4 years, when they have to teach in an educational environment where standards and values and practices are different to those they experienced at school.	I am bogged down with data capturing and "donkey work" that could be reduced with admin help but there is no money for that.	More time to do the reading and thinking side to my work.
5	My "line manager" values my knowledge and skills and takes up my suggestions.	The group/department I work in don't share the same vision in enough detail to provide momentum	Spending lots of time to come to a shared understanding of what we want to achieve
6	The autonomy to make decisions, to be allowed to within reason do individual research.	Not enough time and support – too many lectures and too much course administration. Too few personnel, lack of funding and other resources. Lack of support from management	Give specific time for thinking, discussing and implementing ideas. Sharing workloads more effectively. Improve collegiality amongst staff members.
7	Open door policy with head of School.	Time constraints due to heavy teaching load	Lighten the teaching load via tutor programmes.
8	The scope of our research.	Resources	Resources
9	I am given much freedom to develop, test, implement and strategise for the functions delegated to me personally.	Pressure of administrative, day-to-day issues and "covering" for others.	Don't wait for (or expect) someone else to make suggestions or "guide" you. Do the background research and get on with the job.
10	Academic freedom, flexi-time.	Politics, racial issues	Fire people not working hard enough.
11	General freedom to structure year programme with little hindrance.	Funding	Increased input from all staff members across years. No sacred cows!
12	My own ideas, resources experience to do my work effectively	Poor institutional support that is consistent and realistic	Appreciate my abilities and achievements, support me in my vision for my Dept.
13	Highly supportive colleagues and line manager	The work burden	All I need is more time but that's a forlorn hope and not a suggestion. The people to whom I could/do delegate are similarly overburdened.
14	The enthusiasm and innovative thinking of colleagues (academic)	Lack of finance/resources. The increasingly bureaucratic form of top management	Less bureaucracy and administrative work. More resources. More time.
15	Continued academic discussion and debate with colleagues	Intense teaching load	Accredit creative arts since there are many people in my school whose creativity is directed towards the arts rather than academic articles.

	QUESTION 1	QUESTION 2	QUESTION 3
16	Lecturing styles that encourage a lot of student participation are encouraged.	Lack of time for preparation. Not enough lecture periods	Reduce the number of courses students are required to take so that more in-depth learning can take place.
17	My research group	Too much admin and teaching	Replace the head of school.
18	Research is a top priority in our school and creative ways of doing this right, from conceptualising, obtaining funding, networking, etc. are encouraged.	The teaching workload is high and a lot of time spend in administrative duties.	A method to enable more time to be available for creative work – less administrative and teaching (although teaching requires some creativity as well)
19	My students	Directives at faculty level	Clear strategy and direction and an indication of value from faculty level
20	Student needs	Time pressures	A more realistic workload
21	My research	Workload and travel	Allow for brainstorming ideas at each level of the institution: e.g. dept, faculty, etc.
22	Freedom	Time	Freedom
23	Teaching programmes	Teaching on too many timetables	Streamlining the teaching and reducing the number of courses
24	I can't think of any, except meetings where ideas are brainstormed as occasion demands.	Schedules and deadlines – doing most things the way they've always been done. Older people don't like change.	Departmental "thinking" retreats every 3 months or so, with a commitment by management to assist with implementing ideas generated.
25	A team of like-minded colleagues with suggestions and a supportive, helpful approach.	Lack of time	Long-term planning before implementation with a group of colleagues (planning of a new curriculum, new practicals and tutorials.
26	Being able to decide my own research directions.	Poor, inconsistent management – it makes the work environment unpleasant and de-motivates me.	Better management.
27	Self-determination	Lack of integration	Communication
28	We are able to change/alter the course content/direction or outcomes on an annual basis.	Creativity is taking limited resources or opportunities and maximising the creative outcome = the annual timetable is restricting.	Being able to access a greater number of teaching "tools" in the department.
29	The imperative to publish.	Lack of resources/people	Remunerate research in line with the effort it requires.
30	Chemical that is available so that I can experiment with new ideas and techniques.	Workload	Less teaching for researchers and more teaching for people that teach only.
31	The interaction with students	The constant pressure due to too many students per staff member	To be able to work closer and more intensively with other committed staff members and students.
32	Discussions with other lecturers	Attitude of top management	Listen more!!
33	Encouragement and reward for doing research.	Too much administration and teaching drudge work – e.g. marking.	Less admin required from academic staff.
34	Room for taking initiatives. My supervisor is not constantly on my back to check on what I am doing and how far I am with that. I always come up with what I've done in a certain period. Being allowed to study further (for free) if we want.	Problems with mail systems (computers). E-mails, printers ... they are forever out of network or not working and this can delay you.	Better systems (technologically)
35	Exchange with colleagues.	Too much admin/bureaucracy, to many meetings	Less bureaucracy
36	Meetings are specifically called in order to gather new ideas to help move the school forward.	Putting ideas in practice	Improved communication channels which encourage new suggestions on a regular basis.
37	Financial recognition as research grants.	Lack of peer group	2 or more people working on the same project/research
38	Support to enact it. Not too much interference.	Administrative paths. Lack of external funding. Impeded by rules that have nothing to do with the work itself	Creative blocks of time to act on creative ideas

	QUESTION 1	QUESTION 2	QUESTION 3
39	Self-motivation and challenges posed by post-graduate students.	Administrative and management tasks coupled with meetings and discussions related to admin/management	Increased delegation where possible.
40	I can't think of one.	Too much teaching and admin. Way too much unequal workloads.	Acknowledge that teaching loads are too high. More and more administration devolved to me.
41	Department has number of working artists who were all provided by a zealous head over a decade ago and they fight to do creative work, although the not famous often then carry the teaching, supervision, admin load.	Excessive teaching, excessive admin, excessive and Americanised notions of what constitutes a university/functionalist paradigm within research.	More resources (including human) and rethinking what African university is.
42	On-line journals.	Heavy teaching loads, poor academic planning. Too much administrative work. Heavy weights who control all the money	Transparency, more funds
43	At present I cannot think of one.	Lack of time, due to inordinate and often meaningless administration. Driven by bureaucrats who have no idea how an academic operates/works	Develop a collegial atmosphere in its truest sense.
44	My boss – direct supervisor.	Internal politics, hidden agendas and overly individualistic tendencies	Build a positive diverse culture and climate of collegiality and academic freedom.
45	There are a few lecturers who do research and require assistance from other lecturers, thus creating new ideas by sharing experience.	We don't have senior lecturers in all fields of study. Need better incentives to do more projects	Better accessibility to current and new research projects underway. Mentors needed to assist junior lecturers to start up their own projects.
46	Encouragement from head of school.	Procedural inflexibility within the education system.	Greater flexibility within university structures and organisations
47	Freedom of choice in terms of research direction.	Lack of research funds. Poor quality of students. Too much administration and lecturing	Decrease admin load on academics
48	The fact that I do not operate under a line manager – I have autonomy.	No effective administrative support – have to do most things myself, even if just tedious routine.	More proactive administration and management at school and faculty level that set out to make things as simple as possible for academic staff. Unfortunately the opposite is the case in general (in my experience).
49	Discussion with my colleagues.	Being paid significantly below my market value and therefore relying on extra income	Sound and inclusive strategy processes.
50	Coffee time with colleagues	Functional silos. Lack of resources. Over stretched	Appoint a new head of School!
51	Fast changing external and client environment.	Tight budget constraints	Less consulting work by many (or most) colleagues.
52	The requirement to conduct research	Heavy and unrealistic workloads	Employ more competent and well-qualified staff.
53	I was able to design an elective course that learners enjoyed attending.	There are no meetings held or feedback given about my work so I do not know what my superiors think of what I am doing	Constant peer evaluation on the work we do as a team so as to see where a person has to improve.
54		Lack time – too much non-academic/non-teaching demands	Develop clear policies to allow substantial time to do creative research.

INSTITUTION B

(These reflect verbatim responses of individuals with regard to the three open-ended questions in Section D. **Note** - some missing values were encountered)

	QUESTION 1	QUESTION 2	QUESTION 3
	What is the single most important factor supporting creativity in you current work environment?	***What is the single most important factor inhibiting creativity in your current work environment?***	***What is the single most important suggestion that you have for improving the climate for creativity in your daily work environment?***
1	Development opportunities for new enterprises with outside organisations	Too much administrative work – not enough time for creative research	Move away from "one-size-fits-all" and adapt work (type of work) to strength of each individual
2	Top management expect people to do creative work	People are not willing to help each other	Work, think and plan together as a team
3	Money. The support of staff members	Lack of support, lack of trying new ideas, doing it the way "they" are comfortable with	A project that would help students help themselves
4	Freedom to pursue my own research ideas	Lack of time	More time for research (less marking of papers, and few students should free up some time).
5	My head of our department	Administrative issues, employee morale, no recognition for excellent performance, poor financial compensation for the effort	Less bureaucracy and more recognition of good performance
6	The drive to become internationally competitive in education and research	Too much work and not enough resources	Reduce the workload that lecturers can take time to develop new ways of doing things and experiment in the class
7	Time/freedom	Workload	Socialising
8	New courses to develop	Time and student numbers	Better departmental relationships
9	People with the same mindset – positive individuals	People that is always negative	People must work together
10	The freedom to explore your capacity	Racism	Equality and autonomy
11	Incentives to do research and quality lecturing	Too little time – the universal problem	Balance time spent teaching and doing research
12	Freedom of movement and activities	Management's lack of appreciation for creativity	More respect and encouragement for workforce
13	Openness by management and the strive to balance workloads	Lack of group commitment. Too much individualism	Better acknowledgement
14	Freedom to do my own thing	Lack of openness of management to invest in exploring something new	Challenge assumptions, especially ones that seem unchallengeable
15	Academic freedom of research	Nothing	We should keep going on as we have done it so far.
16	Possibility to do things how we think best	Lack of funds	Funds to be able to get the material and physical help needed to accelerate the completion of own project
17	No factors	Public servant mentality	Elimination of public servant mentality and what is entailed by this stupid way of thinking
18	Mind orientated reasoning	Ego	Change our mode of recycling old information
19	There is an "innovation" incentive/competition, but I do not know much about it – my view is that my direct HOD will be blocking any efforts of mine to take part	HOD is very "dictorial" - many rules and regulations – professional jealousy (this might only be my perception)	Trust in our capabilities as persons, in our abilities. Respecting our areas of expertise. More openness and transparency.

	QUESTION 1	QUESTION 2	QUESTION 3
20	Study leave. We look forward to time during which we can do solid research. The institution does not give us much leave, but without time away from the University we function like robots.	Teaching load: we have heave teaching loads when compared to time off for research. Highly authoritarian university culture and heavy-duty top management	Need instilling of a more democratic work environment with structured space for research and related activities.
21	The challenge to be a good lecturer.	Time and money	Less administration
22	I am in a new field and very little has been done in terms of developing course material, *etc.*	The numbers of students (huge)	More staff
23	A few brilliant committed and "open" colleagues	Time pressure	Appoint more technical assistants to take up some of the "donkey work"
24	The need to do research	Too much work; too little time (time pressures – allocating resources for what the organisation say is NB, like research)	Creativity should be encouraged
25		Time pressure	Ready access to ICT technology in lecture halls and relevant video/dvd material to use for application, etc. of theory.
26	Having study leave	Financial support, lack of staff and research assistants	Transparency from top management
27	Personal interest	No clear reward	Reward it
28	The fact that one is to a certain extent free to choose your own research field of interest	The fact that the head of the department is prescriptive in terms of field of interest and academic approach	Make room for the different interests and talents within the parameters of that particular discipline.
29	The fact that we are free to choose our field of research	Certain conflicts in the workplace	Improved communication
30	My line manager is flexile, approachable and supportive	Top management is rigid and demanding	Stop cutting staff to the bone so we have time to step aside from admin and teaching.
31		Lack of financial resources. Time (too much work must be done by too few people)	Extra staff to share in the workload.
32	Research expectations	Paper work	Team work
33	Freedom to choose your field of research	The organisation's capitalist/market driven responses	Strategic planning from broader organisational management (i.e. not the department/ should span more than 3 years.
34	Support of individuality	Lack of resources	Creative thinking workshops at appropriate hours.
35	None	1st year teaching and related administrative overload and input into weak students	Appointing more skilled staff to leave everybody with more free time for creative thinking, reading *etc.*
36	The ability of the organisation (dept) to allow any research that I as researcher want to do	None	I do not have any as everything already encourages this.
37	Freedom	Lack of time	Encouragement and incentives for creativity
38	Intelligent, enthusiastic colleagues; also work pressure and high expectations force individuals to implement creative solutions	Top-down management structure, head of department who sacrifices staff members for her own career advancement and therefore discourages ideas that "go against the grain"	Increased trust between members of department; strong supportive leadership from dept. executive committee and HOD.
39	Doing research	Administrative work	Doing less administrative work and more research
40	I am a play therapy lecturer and am encouraged to be as creative as possible. An equipped playroom is available for the training I give.	Time	Less administrative responsibilities.
41	My field allows freedom to be creative	The workload	Create opportunity for creativity.
42	The pressure to make the department viable and continue to exist	Lack of resources, particularly library resources, research material and funding	We need financial support for our work and commitment from the head of Faculty

	QUESTION 1	QUESTION 2	QUESTION 3
43	Good leadership from my line manager	Lack of resources	Better team work and interpersonal skills
44		There is a lack of initiative due to (proven) non-interest. Non-communication between colleagues. Financial restraints	Communication in the department.
45	Freedom – I can plan my courses as I please to a large extent	Class size and time constraints – too many students to do different types of workshops	More open discussion of possibilities and sharing of resources
46	Knowing that if I succeed I can get a new job/responsibilities.	Members in top management more concerning with teaching than research	Change focus from teaching (in the high school sense) to doing research.
47	Supportive co-workers and supervisors	Rules/regulations/funding	Recognition for creativity
48	Enough time but unfortunately too interrupted to be of much use	Too much marking	Allow us to work at home on a day where we do not lecture – like at Wits
49	Freedom to choose the content of work.	Lots of administration and unclear guidelines about future activities. Top-down structure and short-term decisions without a clear vision.	

INSTITUTION C

(These reflect verbatim responses of individuals with regard to the three open-ended questions in Section D. **Note** - some missing values were encountered)

	QUESTION 1	QUESTION 2	QUESTION 3
	What is the single most important factor supporting creativity in you current work environment?	***What is the single most important factor inhibiting creativity in your current work environment?***	***What is the single most important suggestion that you have for improving the climate for creativity in your daily work environment?***
1	Resources (equipment)	Tunnel vision of management and no acknowledgment/recognition from first two lines of management	Open communication channels
2	Workshops and seminars	Time factor; heavy workload	Incentive bonus; reduce workloads
3	None!	We are treated like school kids and monitored all the time. Stuck to a rigid time-table	Let people make their own decisions. TRUST!
4	The nature of the lecturing job itself You have to improvise and be creative with the students	Top management. They are out of touch with what is actually going on in the classes	Getting more support and understanding from top management
5	Flexible work hours	Lack of information and bureaucracy	Regular meetings and information sessions
6	Changing technology	Time	Willingness for change
7	Well support to do further studies	I do not have proper and adequate equipment and facilities to do my work properly	To provide proper equipment to me and my students
8	Changes in syllabi	Subject matter	New teaching methods
9	People I work with, the relationships we have and positive working relationship	No resources available for classes, and actual classes/venues in bad form	Look at individual needs realistically and don't put all staff members under an "umbrella"
10	Nothing at this moment	Too much work and students and too little lecturer's and facilities and resources	Lecturers should be less involved in marking, admin, etc. and have more time for research
11	Allow staff to express their own ideas and provide them support	Limited budget	People should be open to ideas, honesty and integrity
12	The support of my co-workers	Management, line to top	Top management should think more realistically and act more responsibly
13	My colleagues!	Heat – we need aircon! Too hot!	A structure that actually works! Not only on paper but physically!
14	N/A	N/A	Strategic leadership accompanied by support that would encourage creativity from staff
15	Cultural diversity	Cultural gaps	Bridging the cultural gap
16	Using the Internet to do research	Failure of the operating systems (computer)	Positive motivating of staff by line managers
17	No mechanism for self expression to support creative thinking	Management control over all aspect of work-related issues	Open work climate for self expression to improve creative thinking process
18	Autonomy	Lack of management support	Creating the supporting infrastructure
19	The goals I set for myself	Ideas are implemented without consulting the people who have to implement it!	Management must implement strategies and consult with stakeholders
20	The freedom that I enjoy to manage the faculty	Administrative overload	Academic managers should be strategic and creative thinkers, but are currently totally overload due the demand put on higher education institutions
21	Facilitating learning rather than teaching	Venue auditing	Strategic planning sessions to be attended and scheduled at all organisational levels, *i.e.* Rectorate, faculty level and dept level (operational level)

	QUESTION 1	QUESTION 2	QUESTION 3
22	Personal commitment	Lack of support	Better communication
23	Moderately flexible work hours, otherwise nothing!	Lack of resources; all important decisions taken by top management which MUST simply be carried out	More freedom; more input into decision-making
24	My direct supervisor	The actual environment	Sticking to pre-determined plans
25	Educational study opportunities granted to every staff member	The lack of facilities such as e-mail and Internet. Not enough photocopying machines	Thee must be enough facilities for everybody and also to be involved in decision making in our departments
26	Interaction with colleagues	Poor physical environment (noise, overcrowding, *etc*), lack of transparency (esp concerning the activities of top management), arrogance by top management, too low formal qualifications at the level of HOD, Dean and Rector/VC.	Improve physical environment, replace Rector/VC
27	The challenge to educate our students	Time	Forget about the negative things and pre-program your thoughts with all the positive things in life. Remember your now thoughts determine your future reality
28	Access to equipment and people with skills	The support services such as Finance and IT	Streamline the purchasing process. Enable staff to buy components without frustration. It takes up to two months to buy something you need now.
29	Research is greatly supported and information provided as well as funding is good. Most of the activities around research are generally very satisfying and allows for creativity	Everyday more administrative work is dumped on the academics. Therefore not enough time to spend on creativity and research	Please less new administrative things to be implemented and changes, and movement of admin work to capable people. Need more time to be creative.
30	None	Resources	Make more resources available, as such more allocation of funds
31	Not any	There is not room for new ideas, qualifications obtained are unrecognised	Allow people to use their talents and abilities
32	Industrial partnerships	Poor infrastructural support	Provision of basic infrastructure
33	Research opportunities	Budget (dept) constraints; lack of office and lab space	-
34	The requirement to change curricula	Time constraints	Less lecturing hours
35	Research in a centre for excellence	Staff that are too insecure and not trained	Training staff to improve creative thinking. Open forum discussions on creative ideas
36	An efficient HOD who creates opportunities for one to be as innovative as possible	Lethargy by certain members of staff	Members of staff should be more forthcoming in seeking to learn from those whose experiences they can learn from
37	None, too many red tape	Working alone on a project, lack of support from finance and management	Restructure the university concerning administration and academic. Too many administrators and too few academics
38	OBE	OBE	More time to lectures more interesting and creative. We also need transport (buses) to take our students to interesting places
39	No support, non whatsoever!	Finances and time; especially time !!!	Make our contact hours with students less, then we will have more time for research. You cannot do research when you have 6 classes and give 25 hours class per week!
40	-	Too much "red tape" kind of administration work to be done	-

	QUESTION 1	QUESTION 2	QUESTION 3
41	Working with creative staff and that want to make their teaching a success and are proud of their outcomes encourages one to come up with new ideas, methods, concepts, and the student's success rate is rewarding and feedback from industry is rewarding	Time table inflexibility, red tape, administration and lack of admin supports and BUDGET CONSTRAINTS	Flexible timetables, (linked to outcomes), less meeting, less planning and more doing. Clear communication and top management that actually comes to see what is happening on the ground.
42	The fact that we can adjust and re-curriculate the content of study guides	No recognition – not appreciated, so why do it.	Stop the politics – accept all staff loyalty! Racial problems against whites
43	Given authority and transparency process	Qualified people should be place in their right positions. How could you have an under qualified "boss" lead over qualified staff.	Make positions for Deans and HOD rotational and not permanent positions. Recognise professional levels. There should be a participating process in decision making
44	-	Favouritism, no promotions	Treat all employees the same
45	My employment contract, as agreed by my supervisor and myself; tasks met to encourage creativity and innovation	I wonder if creativity is appreciated as an essential skill for organisational survival and growth, as are management skills?	I must actually do my prime job!

INSTITUTION D

(These reflect verbatim responses of individuals with regard to the three open-ended questions in Section D. **Note** - some missing values were encountered)

	QUESTION 1	QUESTION 2	QUESTION 3
	What is the single most important factor supporting creativity in you current work environment?	***What is the single most important factor inhibiting creativity in your current work environment?***	***What is the single most important suggestion that you have for improving the climate for creativity in your daily work environment?***
1	Teamwork	Bureaucracy	Team building
2	My line manager is supporting us to creatively not only think up new ideas but also to find creative solutions to current problems	The people in the administrative departments, such as client services	To do something about the client service department
3	Computer	Lack of time	Better resources/more time
4	We are encouraged to be creative and acknowledge at faculty meeting	Workload	The workload must be reduced
5	Able to design & present own coursework	Too many lecturers teaching/presenting same course (too many students!)	Fewer students (?)
6	The Internet helps, but unfortunately with the policy/rules that govern our access, we are a bit too restricted. By that I mean a proxy server is in place.	Financial resources	Resources, equipment.
7	I am the sole facilitator for a specific course offering in all the levels in the department. Specialization is encouraged as well as creativity	Big numbers of student intake leads to some of creative an interesting activities not employed because of the ratio of students to resources	Lowered number of student intake for students to get a chance to be exposed to several resources and get undivided attention as compared to when they are in big groups
8	Freedom within my specific field of work. Which enables me to think of creative ways to teach and evaluate	Work load is unrealistic and the support insufficient. Little/poor administrative support and an inability of top management to understand the specific needs of each individual programme.	Lose the rigid thinking where every decision must have a committee and 10 meetings. Make sure that support, (financial, services, admin and facilities) is provided. Do a realistic analysis of what my department really needs and give support.
9	I am responsible for running my programme, which is a small discipline with only about 30 students. This allows me more freedom, as I make most of my decisions independently	Policies and procedures which are followed down to the last detail in my department	More responsibility needs to be given to the lecturer. Policies and procedures are good, but they do not necessarily need to be enforced without some flexibility.
10	-	The lack of business minded thinking. The lack of staff strength analysis and proper utilization of staff. There are more lip service and no action.	-
11	Mission of the institution, niche market, competition	Rigid admin and financial structure	Communication with outside stakeholders and members of department.
12	Support for research	Time	Adjusting lecture load to be more reasonable to enable more time for preparation and research
13	Openness with co-workers	Lack of transparency at times	Transparency and all forms of support
14	My line manager	Time and age of lecturing staff	A younger staff complement
15	The mandate as a senior research fellow is to co-ordinate research. The process of research is creative and I help master students to choose creative and stimulating topics that we all feel enthusiastic about.	Sorry, none I can think of. Creativity has so many outlets that I feel it is not possible to constrict it	I am introducing a mentorship forum for all staff and postgraduate student to meet regularly and talk and discuss topics and issues that concern us all.

	QUESTION 1	QUESTION 2	QUESTION 3
16	The flexibility of lecturing that gives you freedom in expressing your thoughts and ideas. The increasing support from fellow colleagues	Time constraints. Having to satisfy students and industry and having to complete Master's/Doctoral studies	Perhaps with a little bit more support, I would be able to satisfy the clients and product good quality research that will positively influence my creativity in my work.
17	The ability of lecturers to interpret course work in relation to market forces – and change coursework if and when necessary	Bureaucracy	Be flexible.

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