

CHAPTER 1 INTRODUCTION TO THE PROBLEM AND ITS SETTING

1.1 INTRODUCTION TO THE RESEARCH

The last decade and a half constituted a period of great discovery and change for business all over the world, opening a new frontier in management thinking (Kanter, 1997). The knowledge, skills and leadership qualities, essential for the success of today's leaders and managers of change, differ significantly from what they were during a time of more stability and predictability.

The reason being that in today's turbulent business environment, companies need to be able to count on a change-adept organisation, which can respond and adapt effectively to changing demands. The discontinuous changes that alter our competitive landscape are overwhelming. World population has reached 6000 million and the associated problems of population exposure are starting to surface (Cawood, 1992). Prahalad (1999) reported that more than half the population of the world lives in poverty and resides within the underdeveloped and developing nations of the world. The growing importance of small developing countries such as India, South Africa and Brazil as well as large developing countries like China will have a significant impact on the decisions of business leaders.

The same challenges that are confronting business around the world are relevant to the South African business context. Naidoo (1998) asserted that about eighty percent of the South African population lives in poverty. Deregulation as a force of change of some industries such as the Telecommunications, Healthcare and Water and Power has an impact on the way we do business. The re-admission of South Africa into the global arena has an impact on South African business leaders and the decisions that they make regarding their competitive advantage. The following are major challenges that South African business leaders have to face in future and to mention a few are:

- the growing impact of Aids on organisations,
- growing urbanisation,
- educating the work force in order to increase the literacy rate and the development of competencies,
- resource shortages,
- the impact of crime on business,
- the convergence and emergence of new technologies that are changing the way we work and play,
- increased involvement of and dictation by the government in the business sector,
- a diverse and divided work force in which morale and working ethics are alarmingly low,
- pressures from the world arena for improved quality and adherence to global standards, and



- maybe most important of all, the huge amount of unutilised potential in the country and business.

Cawood (1992) argues that if we were to survive the impact of current challenges and future changes, then we would require people that have the ability to lead the masses. Kanter (1997:29,30) agrees with Cawood (1992) and asserts that for companies to survive, they should pay attention to human factors. The methods and skills required for managing small, medium and large organisations will be different from those of the past three decades. All the concepts and tools such as power, structure, hierarchy, ownership, and incentives that has dominated and shaped our thinking, will have to be re-examined (Cawood & Gibbon, 1985)

Cawood *et al.*, (1989) states that South Africa lags far behind in leadership and high-level manpower availability when compared to the developed nations of the world. They further argue that the ratio of leadership / management to manpower in South Africa is 1:52 compared with the developed Western countries that have ratios of 1:9 and 1:17. The need for more effective and greater leadership in South Africa becomes even more urgent when one considers the findings of the latest World Economic Forum report on world competitiveness where it was reported that South Africa ranks thirty-three out of fifty nine countries (World Economic Forum competitive report, 2000). According to this report South African businesses invested in infrastructure but not in manpower development.

1.2 NATURE OF THE PROBLEM AND NEED FOR THE STUDY

Transformational Leadership and creativity have been studied extensively but separately; it seems that there is a void in the literature with regard to the correlation between the two (Kirkpatrick, 1991). Furthermore, research on the importance of leadership as a key cornerstone to success in business has been established (Roodt, 2001) and Schlechter (2001) proved that creative traits could explain increase in profits, decrease in stock losses and also labour turnover. Based on personal experience the researcher has found that one of the biggest challenges in leadership development is to identify specific development needs, and focus training accordingly. Even more problematic is the selection of creative people.



If a positive correlation could be found between creativity and leadership style then the question arises whether some leadership styles are more creative than others.

The researcher thus believes if a correlation between the behaviour and creative traits of the Transformational, the Transactional and the Laissez faire leadership style exists, organisations would then be able to:

- Select creative people,
- Focus training and development initiatives, and

- Enhance a performance culture in organisations.

The behavioural and creative correlates of Transformational and Transactional Leadership were selected as the topic for this research to illustrate how organisations could utilise the findings in order to focus leadership training and select creative people. The research question is:

- What is the correlation between Transformational and Transactional Leadership?

and the creativity traits namely:

- Associational fluency of thought and
- Originality (discussed in chapter 2).

1.2.1 The sub-problems

The following sub-problems then constitute the total problem:

1.2.1 Sub- problem 1

Identifying the correlation between Transformational Leadership and creativity.

1.2.2 Sub- problem 2

Identifying the correlation between non-Transformational Leadership and creativity.

1.2.2 Objectives of the research

The objectives of the research could be stated as follows:



- To provide a literature overview on the Transformational-, Transactional- and Laissez faire leadership styles and creativity with specific reference to associational fluency of thought and originality.
- To identify the correlation(s) between leadership style and creativity.
- To provide recommendations on (a) how organisations could utilize the outcome of this research and (b) how future research could add value to this investigation.

1.3 REVIEW OF RELATED LITERATURE

Schroder, Cockerill, and Hunt (1993), Covey (1989) and Senge (1994) who did extensive research on leadership development identified the following behaviours, attitudes, knowledge and skills that are critical requirements for successful leadership:

- Objective formulating skills (must be able to set objectives and goals)
- Communications skills (must be able to communicate with others, share ideas, objectives)
- Conceptual skills (concept formation, problem solving)
- Purpose building skills (create purpose for followers to follow)
- Cross functional teamwork (team player that achieves objectives through the synergy of teamwork)
- Information gathering (collect the appropriate information)
- Public speaking (convey information to followers)
- Organisational skills (organise self and resources to fulfil objectives)

- Motivation (inspire followers to attain vision)
- Team building (create team unity among member teams / groups)
- Conflict management (neutralise conflict among followers)
- Presentation skills (present data, strategy, vision, objectives clearly and professionally)

Schroder *et al.*, (1993) like Covey (1989) argued that these skills are necessary for high performance leadership competence.

Problem solving skills is therefore seen as a prerequisite for high leadership competence (Covey, 1989) as well as an element of creativity (Sternberg, 1999:394).



Newell, Simon and Shaw (1962) believe a creative solution must satisfy one or more of the following conditions:

- The product of the thinking has novelty or value.
- The thinking is unconventional in the sense that it requires modification or rejection of previously accepted ideas.
- The thinking requires high motivation and persistence.
- The problem as initially posed was vague and ill defined, so that part of the task was to formulate the problem itself.

Greeno (1978) argues that understanding of the problem has two component skills: firstly, the ability to apprehend relations and secondly, the ability to

generate an integrated representation of the problem. This ability to apprehend relations means that creative thinking is the association of concepts in such a way that combinations are formed. The creator discovers an unexpected likeness between phenomena that were hitherto considered to be unrelated. Haefelo (1962) talks of 'the ability to formulate new combinations from two or more concepts already in the mind', and Mednick (1962) refers to 'the forming of associative elements into new combinations'.

Recent research (Ackerman *et al.*, 2000) using a variety of methods has made it clear that successful leaders are not like other people. The evidence indicates that there are certain core traits, which significantly contributes to a business leaders' success. Furthermore it appears from the literature that Transformational Leadership as conceptualised by Burns (1978), has made a come back and is currently a major focus area. According to Ackerman *et al.*, (2000:58) Transformational Leadership probably serves as the most appropriate style in managing the contemporary changes taking place in South African organisations. Most leaders face certain dilemmas at work on a daily basis. Schroder, Cockerill, and Hunt (1993), Covey (1989) and Senge (1994) furthermore state that creativity, as a trait is one of the requirements of successful leadership when managing change. Most contemporary views of creativity recognise its multifaceted nature (Getzels, 1964; Runco and Okuda, 1988). Kneller (1967) defines fluency of thought and originality as traits of a creative person and he believes that traits can be acquired.


Thus, if Transformational Leadership and creative traits are necessary, what is the statistical correlation? This question underpins the purpose of this research.

As mentioned in the introduction of this chapter, the shift towards Transformational Leadership is directly linked to the rapidly changing environments in which organisations function in. The factor structure of Bass's Multifactor Leadership Questionnaire (MLQ) can be replicated in the South African environment (Ackerman *et al.*, 2000). The questionnaire is a reliable (0.944 according to Cronbach's alpha coefficient) and valid instrument that can be used to identify the Transformational Leadership and Transactional Leadership styles and will be used in this research.

Creativity could enhance organisational performance. Mednick (1964:590,591) argues that the definition of the creative process has suggested a way of testing for individual differences in creativity. The same author developed the Remote Associates Test (hereafter referred to as RAT) where the testee is required to perform creatively. Although criticism exists against the RAT (as will be discussed in chapter 2), the researcher believes that the RAT could be used as a measure of creativity. The fact that the RAT requires respondents to combine three seemingly unrelated concepts constitutes creativity. Thompson (1993) developed remote associate items for the Australian context. No evidence could be found that similar tests have been developed for the South African context.

Thompson's test will be used in this research. As an alternative to this type of test for creativity Chand and Runco (1993) conducted an investigation in which students were given divergent thinking tests. The task in these divergent thinking exercises required that the respondents would list problems that they face and then generate solutions. Fluency and originality scores were then calculated. The reliability of the divergent thinking tests was assessed with Cronbach's alpha. The alpha coefficient for fluency was 0.83 and for originality was 0.53. Divergent thinking exercises will also be used in this research. As the sample for this research comprise of students it would be more feasible to identify specific problems and ask students to generate alternatives.

1.4 HYPOTHESES



The purpose of the study is to identify the behavioural and creativity correlates of Transformational Leaders. The nil hypotheses will not be formulated for this research. The researcher postulates that there is a statistical positive correlation between Transformational Leadership on the one hand and creativity on the other in this specific sample. It is important to note that Transformational Leadership comprises four components: charisma or idealised influence, inspirational motivation, Intellectual stimulation, and Individualised consideration (Bass & Avolio, 1997). But, although the Transformational Leader may have the ability to behave according to these four components it can not be taken for granted that this leadership style will also have a high IQ and be creative at the same time. Although a Transformational Leader may behave

according to the four components, this person will still not be effective if the person does not have a high IQ and has the ability to be creative as well. From a selection point of view it becomes important to be able to identify the cognitive (IQ) ability, the behavioural component (four I's), and the personality component (creativity).

1.5 DEFINITION OF TERMS

- Transformational Leadership

Transformational Leadership consists of a range of leadership styles that contribute to generating outcomes of leadership. Some of these outcomes might be is extra effort from subordinates; individual; group and organisational effectiveness; and satisfaction with the leader (Bass, 1985, 1994, 1999). Gibson *et al.*, (1997:314) defines Transformational Leadership as a leader that motivates followers to work for transcendental goals instead of short term self interest and for achievement and self-actualisation instead of security. The employee's reward is internal; the leader's vision provides the follower with motivation for hard work that is self- rewarding. The Transformational Leader will overhaul the entire philosophy, system and culture of the organisation. He therefore encourages followers to be creative.

From least effective to most effective these styles are:

- Laissez- Fair: the leader is not actively involved in the follower's work and;

- Transactional: the leader permits followers to work on the task and doesn't intervene unless goals aren't being accomplished in a reasonable time and at a reasonable cost (Gibson, 1997).
- Divergent thinking

Couger (1995:123) defines divergent thinking as thinking in different directions, or searching for a variety of answers to questions that may have many right answers.

- Fluency of thought



Fluency of thought is the number of solutions that fit the requirements of the problem (Couger, 1995:158). According to Guilford (1962) fluency in thinking involves three factors: Ideational fluency (the rapid listing of ideas to meet meaningful requirements), associational fluency (the ability to list words that bear relation to a given word), and expressional fluency (the ability to put words into organised phrases and sentences).

- Originality of thought

Cougar (1995:158) defines originality of thought as the number of unusual or unique solutions that are generated by very few other people.

1.6 ASSUMPTIONS

The first assumption is that all the elements of the research process would have conformed to the necessary empirical principles, thereby rendering the findings of this research project a true reflection of the current situation.

1.7 METHODOLOGICAL APPROACH AND COMPOSITION OF THE STUDY

1.7.1 Research Design

In deciding on the research methodology to be pursued, it is important to distinguish between the quantitative or qualitative nature of the research process. Creswell (1994:2) defines quantitative study as "an inquiry into a social or human problem, based on testing a theory composed of variables, measured with numbers and analysed with statistical procedures, in order to determine whether the predictive generalisations of the theory holds true." In contrast, he defines a qualitative study as "inquiry process of understanding a social or human problem, based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting." These two definitions highlight the distinguishing characteristics of each approach. The quantitative research process is applicable to this research.

1.7.2 Location of the data

All students currently enrolled for their MBA and M.Com. Degrees will compose a population of interest. The unit of study (Cooper, 1998:215) will be students that are busy with master degrees in three different universities in the Gauteng area (South Africa). The sample size (N) is 181.

The sampling method used is non-probability sampling as defined by Cooper (1998:237). Cooper (1998:241) states that the population can be divided into groups purposively selected for the study. For the purpose of this research judgement sampling was used as type of purposive sampling method. The researcher selected sample members to conform to some criterion. The most common attribute of masters' students is their work experience on managerial level. The researcher believes that although the use of students may imply homogeneous groups, this sample is more heterogeneous due to the fact that the respondents have managerial experience as a common attribute. The sample variance is therefore greater.

1.7.3 Measuring instruments

Transformational Leadership will be measured by the Multi- Factor-leadership questionnaire (MLQ) developed by Bass and Avolio (1985). The MLQ measures the broad range of leadership from laissez-fair to idealised influence. The MLQ

consists of 45 items with four factors that represented the meaning of each construct of the Full Range Model. These measures of leadership style represent the independent variable.

Associational fluency of thought will be measured by the RAT developed by Thompson (1993), as well as two divergent thinking exercises similar to those developed by Chand and Runco (1993). These measures of creativity represent the dependent variable.

The dependent and independent variables are:

$O_a = O_b$ where O_a is the independent variable; leadership style and O_b is the dependant variable; creativity.



1.7.4 Research procedure

Respondents will be asked to complete the MLQ leader answer sheet. It will take approximately 20 minutes to complete the questionnaire. Respondents will then complete the RAT. Completing the questionnaire will take approximately 20 minutes. Respondents will then complete the two divergent thinking exercises. Time allocated will be three minutes for each test. All three sets of tests will be stapled together for each respondent. Independent raters and the researcher will then evaluate the divergent thinking tests. All four tests will be sent to the Statistical Consultation Service at RAU. This procedure will be

repeated with different groups of MBA and M.Com. These students are all currently enrolled at three universities in Gauteng, South Africa.

1.7.5 Statistical analysis

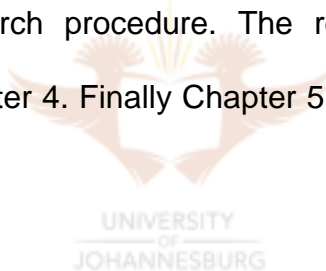
The 45 items of the MLQ will be subjected to a principal factor analysis. The items will be inter-correlated and the eigenvalues of the unreduced inter-correlation matrix will then be computed. In order to overcome the effect of differential skewness of items, sub-scores in respect of each factor will be computed by adding the items with high loadings on a factor together. The sub-scores will then be inter-correlated and subjected to a principle factor analysis. The factor matrix will then be rotated to a simple structure by means of a Direct Oblimin Rotation. The resulting scales will then be analysed for reliability.



The 4 creativity tests will also be subjected to a factor analysis. The scores will be inter-correlated and the Eigenvalues of the unreduced inter-correlation matrix will be computed. The scale will then be analysed for reliability. Correlations, i.e. Pearson's Product Moment correlation between all sub-scales will be calculated. In order to gain further insight about the relationship between the dependent and independent variables a regression analysis will be computed.

1.7.6 Outline of the Chapters of the study

Chapter 1 gives an introduction to the research and provides background and reason for the research. The research problem and sub-problems are given together with the purpose and objectives of the research. The literature review is covered in Chapter 2. The literature review comprises two subsections: Leadership with specific reference to Transformational and Transactional Leadership styles and creativity with specific reference to fluency of thought and originality as a personality trait. Chapter 3 covers the research methodology and includes discussions on research design, location of the data, measuring instruments and the research procedure. The results and findings of the research presented in Chapter 4. Finally Chapter 5 consists of conclusions and recommendations.



1.8 DELIMITATIONS OF THE STUDY

- Literature constraints

Leadership, creativity and problem solving have been discussed extensively as separate topics in literature. However correlations between them does not boast an array of literature generated.

- Field data constraints

Student classes normally comprises of about 50 students per class. Therefore the completion of the measuring instruments will have to be completed several times as to ensure the sample will be representative of the population of interest. Chapter 2 provides a literature overview of the research problem.



CHAPTER 2 LITERATURE OVERVIEW ON LEADERSHIP AND CREATIVITY.

2.1. INTRODUCTION

The purpose of the study is to establish whether there is a correlation between personality and behaviour correlates of Transformational Leaders. Therefore this Chapter discusses the concept of leadership and leadership theories with specific reference to Transformational and Transactional Leadership styles. The elements in the creative problem solving process will be discussed. This includes divergent thinking, associational fluency, and originality.

2.2. LEADERSHIP

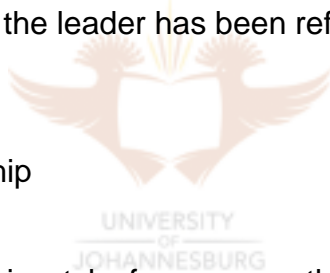


Various writers define leadership differently. Kreitner and Kinicki (2001) agree with McShane and Von Glinow (2000) when they describe leadership as the process of influencing people and providing an environment for them to achieve team and organisational objectives. The construct of leadership is defined as the degree to which the behaviour of a group member is perceived as an acceptable attempt to influence the perceiver regarding his or her activity as a member of a particular group or the activity of other group members. Calder (1977) has pointed out, leadership is an attribution that one person makes about other persons. Therefore, for the purpose of this research, the author will proceed on the assumption that this implicit definition holds.

2.2.1 Trait theory of leadership

Dubbed the 'great person theory', this approach in effect says that some people are born leaders (Penrod, 1983). While none of the traits reviewed by Stogdill (1948, 1974) were found in all studies to be associated with leadership, the consistency with which some traits were found to be associated with leadership and the magnitudes of these associations is impressive. For example, the traits that show the most consistently high correlations with leadership are intelligence (Mann 1959); dominance (Dyson, Fleitas and Scioli, 1972; Rychlak, 1963); self-esteem (Bass, 1957); task ability (Marak, 1964, Bass 1961); and sociability (Kaess, Witryol and Nolan, 1961). IQ was reported by Stogdill (1948) to have an insignificant or negative relationship to leadership in 10 of 33 studies. The mixed feelings concerning leadership traits reported by Stogdill (1948, 1974) can be reconciled by consideration of the populations studied, the measures used, or the results of more recent research. This interpretation leads the researcher to conclude that the study of leadership traits should not be abandoned. Kreitner and Kinicki (2001: 555) states that we can no longer afford to ignore the implications of leadership traits because traits play a central role in how we perceive leaders. Kirkpatrick & Locke (1991) states that there is less clear evidence for traits such as creativity, originality and flexibility. These authors believe that the key leader traits help the leader acquire the necessary skills; formulate an organisational vision and an effective plan for pursuing it; and take the necessary steps to implement the vision in reality.

As interest in the trait approach to leadership declined, researchers focussed their attention on the actions of leaders, rather than their attributes. The approach led to the emergence of behaviourist theories and research began during World War 11 as part of an effort to develop better military leaders (Kreitner and Kinicki, 2002: 557). The behavioural perspective of leadership focuses on the type of behaviours that make leaders effective (McShane & Von Glinow, 2000). It was believed that the leader behaviour directly affected work group effectiveness. These leadership theories emphasise that leadership is an exchange process. The leader thus rewards followers when they accomplish agreed upon objectives. The leader helps followers accomplish these objectives (Gibson, 1997). The exchange role of the leader has been referred to as 'transactional'.



2.2.2 Transactional Leadership

The Transactional Leadership style focuses on the interpersonal transactions between managers and employees. Leaders are seen as engaging in behaviours that maintain a quality interaction between themselves and followers (Kreitner and Kinicki, 2001: 567). According to Gibson (1997:313) the leader helps the follower identify what must be done to accomplish the desired results: better quality output, more sales or services, reduced cost of production. In helping the follower to identify what must be done, the leader takes into consideration the person's self-concept and esteem needs. The transactional approach uses the path – goal concepts as its framework. House (1974) originated the path goal theory of leadership. This theory is based on the expectancy theory of motivation

(Vroom 1964). The expectancy theory proposes that motivation to exert effort increases as one's effort to performance to outcome expectations improve. The focus is therefore how leaders influence follower's expectations. According to the path-goal theory, leader behaviour is acceptable when employees view it as a source of satisfaction or paving the way to future satisfaction. In addition leader behaviour is motivational to the extent that it

- (1) reduces roadblocks that interfere with goal accomplishment;
- (2) provides the guidance and support needed by employees; and
- (3) ties meaningful rewards to goal accomplishment.

House (1974) sees the leader's main job as helping employees stay on the right paths to challenging goals and valued rewards. Gibson (1997) states that a natural outflow of this is therefore that the transactional leader relies on contingent reward and on management by exception. Contingent reward is then defined by Gibson (1997:315) as 'the leader informs followers about what must be done to receive the rewards they prefer' and management by exception is defined as 'the leader permits followers to work on the task and doesn't intervene unless goals aren't being accomplished in a reasonable time and at a reasonable cost'. Bass (1985) states that Transactional Leadership depends on contingent reinforcement and this could be either positive contingent reward (CR) or the more negative active or passive forms of management-by-exception (MBE-A or MBE-P). In MBE-A the leader arranges to actively monitor deviances from standards and to take corrective action if necessary. MBE-P implies waiting

positively for deviances and to take corrective actions as necessary. Bass (1985) provides the following model on Transactional Leadership as seen in Figure 2.1.

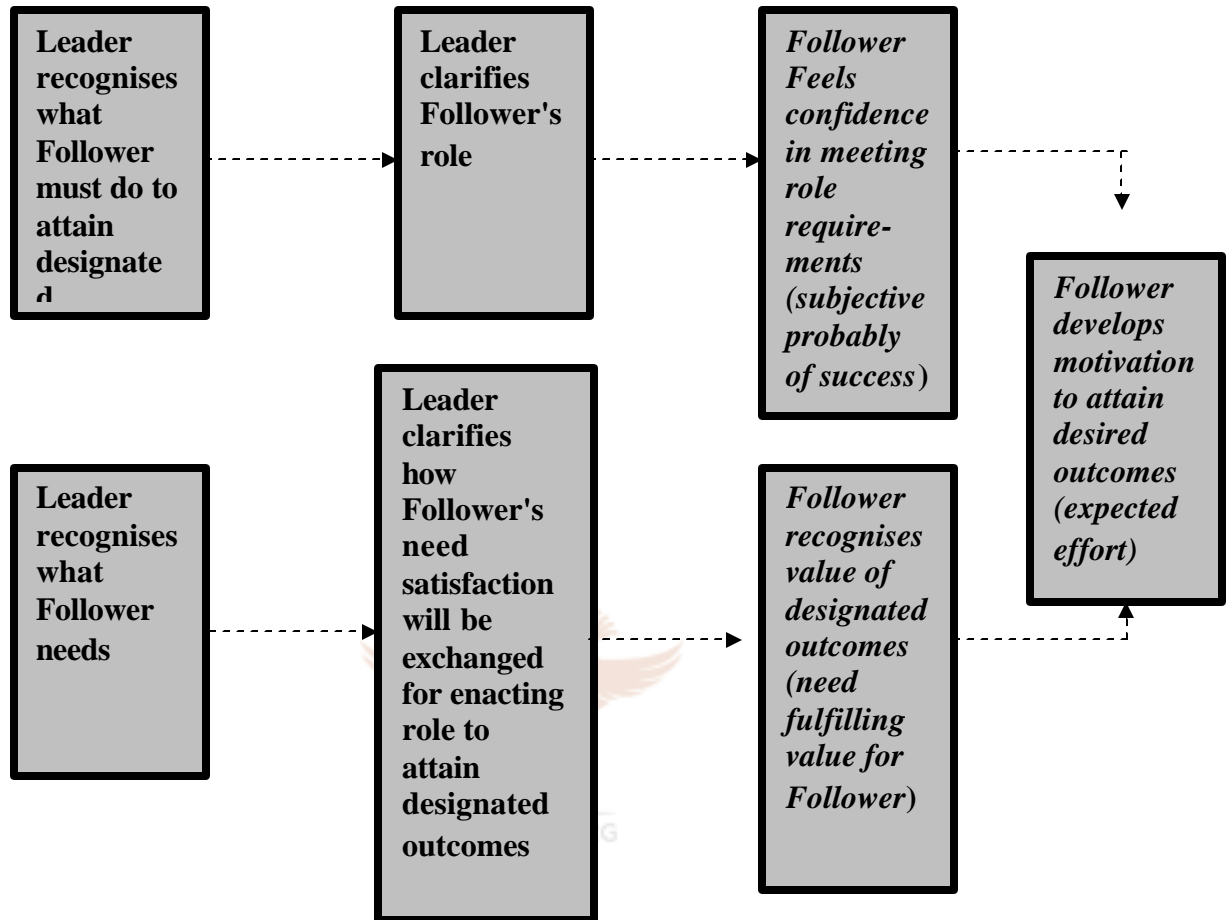


Figure 2.1 Transactional Leadership

Source; Bass, B.M. (1985) Leadership and performance beyond expectations, New York: Free Press, p.12.

Podsakoff *et al.*, (1982, 810-821) argues that research showed that when contingent reinforcement is used, followers exhibit an increase in performance and satisfaction; followers believe that accomplishing objectives will result in their receiving desired rewards. Gibson (1997:314) disagrees with Podsakoff *et al.*

(1982) and states that Transactional Leadership does not reduce desired results in organisations due to a number of reasons. Unreliable performance appraisal systems, subjectively administered rewards, poor managerial skills in showing employees the pay for performance link, and conditions outside the manager's control are some of the reasons. Also, managers provide rewards that aren't perceived by the followers to be meaningful or important. A small pay increase, a personal letter from the boss, or a job transfer may not be what the employee wants in the form of contingent reward. Until managers understand what the employee desires, administer rewards in a timely manner, and emphasise the pay- performance link, there is likely to be confusion, uncertainty and minimal transactional impact in leader-follower relationships. Contingent reinforcement has been found to be reasonable effective, although not as much as the 4I's in motivating others (Bass, 1987). Transformational Leadership is thus viewed as a special case of Transactional Leadership; the employee's reward is internal contrary to the external rewards promised by Transactional Leaders (Gibson, 1997).

2.2.3 Transformational Leadership

According to Bass and Avolio (1985) Transformational Leaders motivate others to do more than they originally intended and often even more that they thought possible. They set more challenging expectations and typically achieve higher performance. Transformational Leaders do more with colleagues and followers

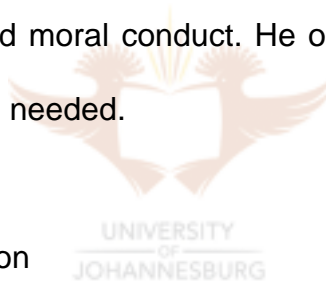
than set up simple exchange agreements. They behave in ways to achieve superior results by employing one or more of the following 'Four I's':

- Idealised influence

Transformational Leaders behave in ways that result in them being role models for their followers. The leaders are admired, respected and trusted. Followers identify with the leaders and want to emulate them. Among the things the leader does to earn this credit is considering the needs of others over his or her own personal needs. These leaders share risk with followers and are consistent rather than arbitrary. He or she can be counted on to do the right thing, demonstrating high standards of ethical and moral conduct. He or she avoids using power for personal gain and only when needed.

- Inspirational motivation

Transformational Leaders behave in ways that motivate and inspire those around them by providing meaning and challenge to followers' work. Team spirit is aroused. Enthusiasm and optimism are displayed. The leader gets followers involved in envisioning attractive future states. The leader creates clearly communicated expectations that followers want to meet and also demonstrates commitment to goals and the shared vision. Gibson (1997) agrees with Bass and argues that Transformational Leaders will therefore make major changes in the firm's or unit's mission, way of doing business, and human resource



management to achieve their vision. This leader will overhaul the entire philosophy, system and culture of the organisation.

- Intellectual stimulation

Bass *et al.*, (1987) and Avolio (1985) further argue that Transformational Leaders stimulate their followers' efforts to be innovative and creative by questioning assumptions, reframing organisational problems, and approaching old situations in new ways. Creativity is encouraged. There is no public criticism of individual members' mistakes. New ideas and creative problem solutions are solicited from followers, who are included in the process of addressing problems and finding solutions. Followers are encouraged to try new approaches, and their ideas are not criticised because they differ from the leaders' ideas.



- Individualised consideration

Transformational Leaders pay special attention to each individual's needs for achievement and growth by acting as a mentor. Followers and colleagues are developed to achieve successively higher levels of potential. Individualised consideration is practised as follows: new learning opportunities are created along with a supportive climate. Individual differences in terms of needs and desires are recognised. The Transformational Leader demonstrates acceptance of individual differences. A two-way exchange of communication is encouraged

and ‘management by walking around’ is practised. Interactions are personalised and effective listening takes place. The Transformational Leader delegates tasks as a means of developing people. Tasks are then monitored to see if followers need additional direction or support and to assess followers’ progress; ideally followers do not feel that they are checked on (Bass, 1999). Waldman and Yammarino (in Kreitner and Kinicki, 2001) summarises this leadership style as depicted in Table 2.1:

Table 2.1 A Transformational model of leadership

Leader behaviour	Effects on followers and work groups	Outcomes
<ul style="list-style-type: none"> • Leader establishes a vision • Leader establishes high performance expectations and displays confidence in him / herself and the collective ability to realise the vision • Leader models the desired values, traits, beliefs, and behaviours needed to realise the vision. 	<ul style="list-style-type: none"> • Increased intrinsic motivation, achievement orientation and goal pursuit • Increased identification with the leader and the collective interests of organisational members • Increased self-esteem, self-efficacy and intrinsic interests in goal accomplishment • Increased role modelling of Transformational Leadership 	<ul style="list-style-type: none"> • Personal commitment Self-sacrificial behaviour • Organisational commitment • Task meaningfulness and satisfaction • Increased individual and group and organisational performance

Source: Kreitner, R., Kinicki, A. (2001) *Organisational Behaviour*. 5th Ed. New York, Mc Graw -Hill, p569.

Kreitner and Kinicki (2001) state that Transformational Leadership or charismatic leadership positively affects employee motivation. One way in which this occurs

is by increasing the intrinsic value of an employee's effort and goals. Leaders do this by emphasising the symbolic value of effort; that is, these leaders convey the message that efforts reflect important organisational values and collective interests. Followers come to learn that their level of effort represents a moral statement. For example, high effort represents commitment to the organisation's vision and values, whereas low effort reflects a lack of commitment. Transformational Leadership also increases employees' effort to performance expectancies by positively contributing to employees' self esteem and self-efficacy. Leaders also increase the intrinsic value of goal accomplishment by explaining the organisation's vision and goals in terms of the personal values they represent. This helps employees to personally connect with the organisation's vision. Transformational Leaders further increase the meaningfulness of actions aimed toward goal accomplishment by showing how goals move the organisation toward its positive vision, which then gives followers a sense of 'growth and accomplishment', both of which are important developers to a positive self-concept.

2.2.4. Leadership development

Bass (1991:27) states that despite conventional wisdom to the contrary, leadership is a widespread phenomenon...'it can be learned and it should be the subject of management training and development'. Research has shown that leaders on all levels can be trained to be charismatic in both verbal and non-

verbal aspects of leadership. The subject of Transformational Leadership is also part of leadership courses in the United States Air Force Academy and Transformational Leaders serve as role models to cadets. Bass (1991) states that leadership development for too long has been seen mainly as a matter of skills development, but lately it is widely regarded as an art and a science, which can be taught effectively.

Bass (1991:25) asserts that candidates showing promise of transformational leaders will be attracted to an organisation whose chief executive officer is charismatic and enjoys a public image as confident, successful and dynamic. An organisation with a large group of Transformational Leaders conveys to its stakeholders an image that is forward looking and planning the future.



2.3 CREATIVITY

Although there is seemingly less clear evidence of creativity as a trait that leaders possess, an abundance of research has been done on creativity as a concept itself (Getzels, 1964; Greeno 1978; Sternberg, 1999). According to Chand and Runco (1992) most contemporary views of creativity suggest that creative performance requires problem finding, divergent thinking and the evaluation of solutions. Divergent thinking is then defined by Cougar (1995:113) as thinking in different directions, or searching for a variety of answers to a question that may have many right answers. (Cougar 1995:113) defines

evaluation as reaching decisions about the accuracy, goodness, or suitability of information. Ansburg (2002) states that creativity involves linking ideas previously seen as unrelated. The creative thinker must attend to elements that are relevant to the current problem while recording seemingly irrelevant information that may lead to insight. These remote associations are a required component of divergent thinking that characterises creative thought (Finke, 1992). During the measurement of divergent thinking, solutions to problems are most often scored for two factors: fluency and originality (Cougar, 1995). Fluency is then the number of solutions that fit the requirements of the problem and originality as the number of unusual or unique solutions. These theories could be diagrammatically described as seen in Figure 2.2:

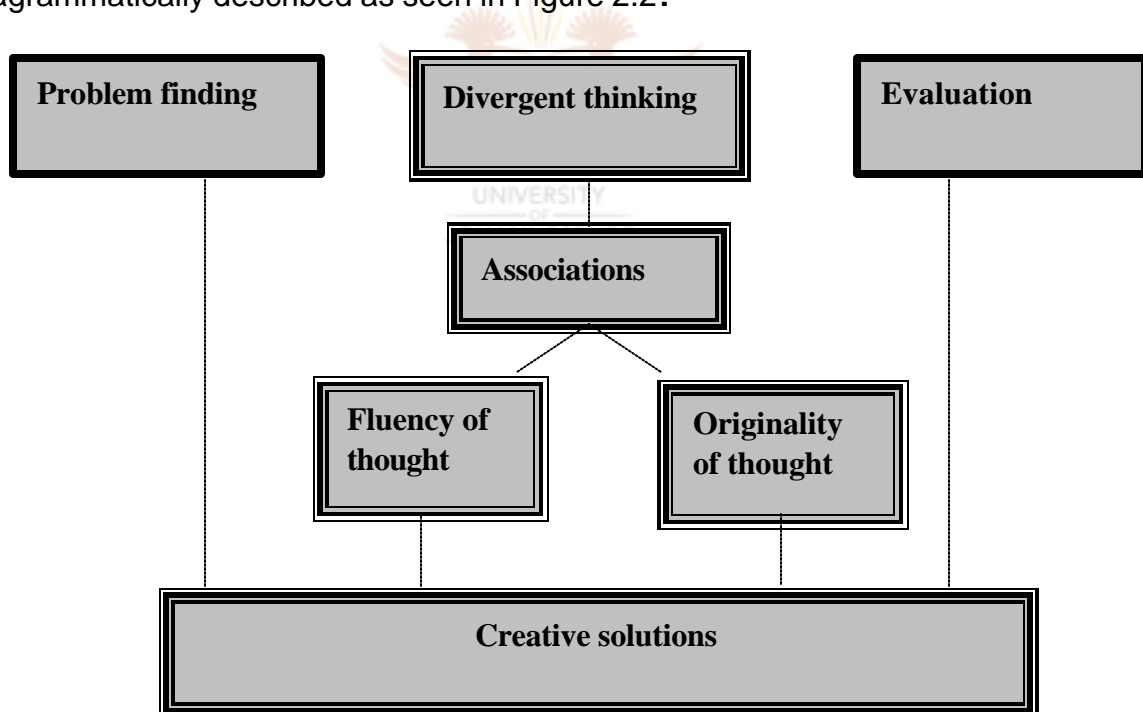
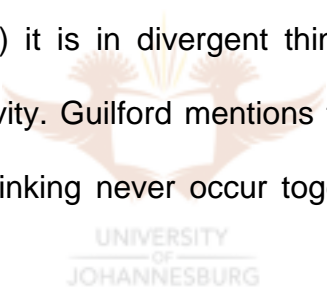


Figure 2.2: Creative performance theory

2.3.1 Divergent thinking and ideational fluency of thought

Guilford (1957) explains the production aspects of creative thinking and distinguishes between convergent and divergent thinking. Guilford argues that with some productive factors, and the tests that measure them, thinking must at some stage 'converge' toward one right answer; the significant type of thinking involved has been called 'convergent thinking'. With other productive-thinking factors and their tests, thinking need not come out with a unique answer; in fact, going on in different directions contributes to a better score in those tests. This type of thinking and these factors come under the heading of 'divergent' thinking. According to Guilford (1957) it is in divergent thinking that we find the most obvious indications of creativity. Guilford mentions that this does not mean that divergent and convergent thinking never occur together. They frequently do, in total acts of problem solving.

The logo of the University of Johannesburg is centered in the background of the text. It features a stylized sun with rays rising above two hands that are reaching upwards, symbolizing growth and human achievement. Below the graphic, the text 'UNIVERSITY OF JOHANNESBURG' is written in a clean, sans-serif font.

Consideration of the definition by Cougar (1995) of divergent thinking has suggested an operational statement of the definition in the form of a test. A series of problems were developed by Torrance (1984) as a part of his well - known Torrance test of creative thinking. These problems measure an intellectual skill that correlates to what Guilford (1957) has called divergent thinking - thinking that moves outward from a problem in many possible directions, such as required in "List all the uses for a brick". Divergent thinking tests therefore require individuals to produce several responses to a specific prompt. The more responses the

individual produces, the higher the ideational fluency ability of the person (Guilford, 1962).

2.3.2 Associational fluency of thought

Guilford (1957) mentions that associational fluency refers to the ability to list words that bear relation to a given word. Deese (1962) provides an example of words that constitute a category of associative meaning: moth, insect, wing, bird, fly, bug, cocoon, bees and butterfly (in Vinacke 1974:364). He argues that it is easy to see how they could be related to each other. This led Deese (1965:165) to the conclusion that contrast and groupings are conceptions of relations among ideas.



These laws may be stated as follows:

- (1) elements are associatively related when they may be contrasted in some unique and unambiguous way and
- (2) elements are associatively related when they may be grouped because they can be described by two or more characteristics in common (in Vinacke 1974:364).

Creative thinking has been similarly viewed by Mednick (1962) as the recombining of associative elements that either meet specified requirements or are in some way useful. Mednick (1962) agrees with Deese (in Vinacke 1974:364) that solutions may occur through mediation (combination via common

elements). Mednick further (1967) argues that the greater the number of associations that an individual has to the requisite elements of a problem, the greater the probability of his reaching a creative solution. From this it may be deduced that when required to display his reservoir of associations to single stimulus words the highly creative individual will have greater access to less probable associates and therefore produce a greater number of solutions. Consideration of the definition of the creative process has suggested an operational statement of the definition in the form of a test. To assess creativity, Mednick (1962) devised the Remote Associates test (RAT). His Remote Associates test consist of 30 three - word associations and a common associate provides the solution word. Items such as:

Out dog cat

Rat blue cottage

The subject is therefore required to respond with a single word, which is associatively related to all three of the stimulus words. Thus the answers for the above items are 'house' and 'cheese' respectively. Mednick carried out two studies on architectural and psychology graduate students. In both cases positive correlations were obtained between RAT scores and ratings of creativity. The significance of these results is somewhat reduced by the fact that the samples were small (N=21 and 35 respectively). Other studies (Datta, 1964 and Andrews, 1965) concluded that the production of remote verbal associations is not an important component of behavioural creativity for engineers. The failures of the RAT do not, in the author's opinion, disprove the theory of associating remote

concepts in creative performance. This opinion is based on the fact that it is still creative when two or more seemingly unrelated elements are combined to form a new concept or idea.

2.3.3 Originality of thought

Originality of thought is defined by Cougar (1995:370) as the capacity to produce unusual ideas, solve problems in unusual ways, and use things and situations in an unusual manner. Originality constitutes uniqueness, nonconformity in thought of action. Barron (1955) argues that the original must be defined relative to the usual, and the degree of originality must be specified in terms of incidence of occurrence. Thus the first criterion of an original response is that it should have a certain stated uncommonness. When measuring originality responses could be scored for infrequency. A second criterion that must be met if a response is to be called original is that it must be to some extent adaptive to reality. Sternberg (1999:450) states that there appears to be consensus that the two defining characteristics of creativity are originality and usefulness.

2.3.4 Creativity and Problem solving

Guilford (1957) argues that creative steps are necessary in solving new problems. A problem only exists because the situation presents the necessity for new production of some kind. Factors are abstractions of components from total

activities. Some of the components are being recognised as being more creative than others, for example, qualities of originality and fluency. The research of Patrick (1935,1937,1938) and Eindhoven and Vinacke (1952) support the above-mentioned finding of Guilford. The significant implication of this finding of Patrick and Eindhoven & Vinacke is that the same stages of creativity appeared in problem - solving efforts of all their subjects. Creativity is therefore not a gift possessed by rare and exceptional individuals (though some components are undeniably more creative), but all individuals are creative to some extent.

2.3.5 Enhancing creativity

It seems that there is no easy step-wise method that is guaranteed to enhance creativity to a nontrivial degree. The observation was made by Rubin (1968) more than 30 years ago that the research evidence unfortunately does not suggest that by using a prescribed scheme we can produce creativeness at will. What it rather suggests is that virtually everyone has more creativity than he makes use of, that different conditions flush it forth in different individuals, and that a given procedure tends to nurture a part of one's creative capacity. Creativity (Sternberg, 1999) and how to foster it remain less well understood than we would like. On the other hand, research has revealed many promising leads as to what is worth trying and much useful guidance to those who wish to enhance creativity - their own or others - and are prepared to work at it

consistently over a long period of time. The approaches described in what follows are among these:

- Brainstorming and Creative problem solving

This technique (Osborn, 1953) was designed specifically for use by groups, involves attempting to evoke ideas by providing a social context that gives free reign to imagination and reinforces the use of it. The approach is intended to lower ones tendency to be self-critical during the idea production stage and to allow for the generation of a lot of alternatives (fluency of thought).

- The CoRT Programme



CoRT stands for the cognitive Research Trust, a British organisation that was founded by Edward de Bono. De Bono (1992) distinguishes lateral thinking from vertical thinking. One of the lessons focus explicitly on creativity and offers suggestions of strategies that may be used to help generate ideas that might not normally be brought to mind (originality of thought). One of the strategies is to ask participants to think of two unrelated situations and the elements that make up the situation and then try to use a combination of these elements to solve a problem. An example of this is: We need to get education more interesting for pupils in primary schools. Think of a) a circus and b) a zoo. Think of the elements that make up a circus and a zoo and try to combine them in some way in order to come up with an original idea for schools.

- Project intelligence

This programme involves a structured effort to enhance several aspects of thinking through classroom instruction. This programme has a section that deals directly with creativity - inventive thinking development by Perkins and Laserna (1986). The results support the idea that creativity can be enhanced by a modest amount of classroom instruction that has been carefully prepared with that objective in mind (Sternberg, 1995).

- Motivation

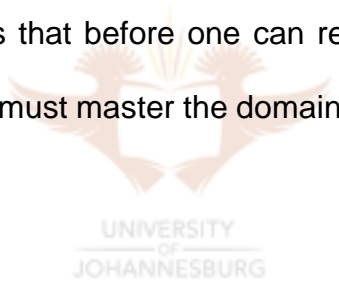
There seems to be agreement among researchers that internal motivation is a more effective determinant of motivation than external motivation (Amabile, 1990; Golan, 1962). According to these authors a person is externally motivated when a person consider his involvement in some activity to be under someone else's control. This has application for the effectiveness of external evaluation of creative activities. It implies that there is a need for caution when evaluating creative efforts (Amabile, 1990). Other authors like Torrance (1965) and Sternberg (1995) have recognised the possibility of creativity being externally motivated in a more positive light. These authors argue that what is more important is whether the motivator focus attention on the task or goal; internal motivators typically focus attention on the task, whereas external ones focus on the goal, and creativity suffers in the latter case. Sternberg (1999) disagrees and

concludes that a person who strongly wishes to be creative is far more likely to be so than a person who lacks this desire. The goal should therefore be to reinforce internal motivation and to use external motivation to that end.

- Encouraging acquisition of Domain-Specific Knowledge

Hayes (1989) has presented evidence that classical composers who today are recognised for their creative influence on music seldom produced masterworks until they had been composing for at least 10 years. Sternberg (1999) believes that domain-specific knowledge as a determinant of creativity is generally underestimated. He believes that before one can reasonable hope to change a domain, in other words, one must master the domain, as it exists.

- Other efforts



Several investigators have suggested structured aids to achieve idea generation. Attribute listing (Crawford, 1954) and morphological synthesis are some of these structured aids (Koberg and Bagnall, 1974).

- Establishing purpose and intention

Dudek and Cote (1994) has stressed the importance of purpose and intention: "the creative vision is more likely to be the result of a slow personal development

on both cognitive and emotional levels. These authors state that to achieve a novel point of view may necessitate years of continuing development.

- Encouraging confidence and willingness to take risks

Fear is seen as a major reason why people hesitate to express their ideas, especially unconventional ones (Freeman, 1983). This includes fear of exposing one's limitations, and the fear of ridicule, are powerful deterrents to creative thinking, or at least to public exposure of products of creative efforts. Crutchfield (1962) writes that people who are highly susceptible to conformation tend to be less creative. These researchers have stressed the role of success as a motivator for further effort, and of failure as a demotivator.

- Promoting supportable beliefs about creativity

Sternberg (1999: 415) argues that people need to belief that creativity is determined by motivation and effort to a significant degree. People need to know that few creative products of lasting value have been generated quickly and with little effort.

Sternberg (1999) concludes that creativity and how to foster it remain less well understood than one would like. On the other hand research has revealed many promising leads as to what is worth trying and much useful guidance to those

who wish to enhance their creativity- their own or others- and are prepared to work at it persistently over a long period of time.

2.3.6 How to measure creativity

An overview of the literature highlighted provided six different approaches to the measurement of creativity, namely: psychometric (Torrance, 1984), experiential (Sternberg and Davidson, 1995), biographical (Gruber and Wallace, 1993), biological (Mednick, 1962), computational (Boden, 1994) and contextual (Csikszentmihalyi, 1996).

For the purpose of this research emphasis will be on the psychometric measures of creativity. Psychometric approaches to the study of creativity are those in which creativity is viewed as a mental trait that can be quantified by appropriate measurement instruments. The underlying view is of creativity as a mental trait: Creativity is best understood as a measurable human factor or characteristic. The most important characteristics of this approach are quantitative measurement, so that creativity of a person can be summarized as a number, controlled environments, so that testing takes place in artificial contexts, and ability-based analysis, so that human creativity depends on the level of the component abilities of the reasoner. It seems that the starting point for psychometric measures of creativity started with tests of divergent thinking that was refined by Torrance (1984). When focusing on describing creativity, the

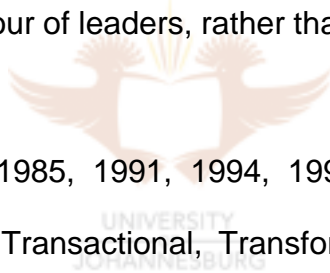
psychometric approach deals with the development of instruments to measure the amount of creative ability possessed by individuals. When focusing on making comparisons, the psychometric approach compares people who score low with people who score high on tests of creativity. This approach also examines the relation between measure of creativity and other measures, for example, creativity and intelligence (Sternberg, 1995). Critics (Renzulli, 1976) argue that divergent thinking tests do not really measure or predict creative thinking, are too specific, and have added little to cognitive theory or educational practice. Sternberg (1999) disagrees with this and states that it seems more reasonable to recognise both the strengths and the weaknesses of the psychometric approach and should be used where appropriate as one of several viable methodologies. The author is also of the opinion that divergent thinking tests are central to creativity research and will therefore also be used in this research. Sternberg (1999:452) describes it as "the generation of numerous novel solutions to problems as opposed to a single correct answer". Examples include listing possible uses for an object, such as a brick, or listing consequences of a given situation, such as people having six fingers instead of five. Scoring is then based on the originality and fluency of the process.

2.4 SUMMARY

The trait theory of leadership says that some people are born leaders (Penrod, 1983). While none of the traits reviewed by Stogdill (1948, 1974) were found in

all studies to be associated with leadership, the consistency with which some traits were found to be associated with leadership and the magnitudes of these associations is impressive. According to the research of Kirkpatrick & Locke (1991) states that there is less clear evidence for traits such as creativity, originality and fluency. These authors believe that the key leader traits help the leader acquire the necessary skills; formulate an organisational vision and an effective plan for pursuing it; and take the necessary steps to implement the vision in reality.

As interest in the trait approach to leadership declined, researchers focussed their attention on the behaviour of leaders, rather than their traits.



According to Bass (1975, 1985, 1991, 1994, 1999) there are three different behavioural styles, namely Transactional, Transformational and Laissez faire. The Transactional Leadership style emphasises the transactions taking place among leaders, colleagues, and followers, when the leader discusses with others what is required and specifies the conditions and rewards associated with the fulfilment of those requirements. The Transformational Leadership style motivates others to do more than they originally intended and often even more than they thought possible. Transformational Leaders do a lot more than setting up simple agreements. They achieve superior results by employing one or more of the Four I's:

- *Idealised influence*- the leader is a role model for his followers, sharing risks with them and being consistent in his behaviour;
- *Inspirational motivation*- provide meaning and challenge to their follower's work and arouse a team spirit;
- *Intellectual stimulation*- through innovative and creative approaches to old situations, they encourage creativity; and
- *Individualised consideration*- paying special attention to individuals' needs for achievement and growth by acting as a coach.

Research on creativity suggests that creative performance requires problem finding, divergent thinking and the evaluation of solutions. The creative thinker must attend to elements that are relevant to the problem while recording seemingly irrelevant information that may lead to insight. These are known as remote associations and are a required component of divergent thinking that characterises creative thought. The better the remote association ability of a person, the better the associational fluency. The divergent thinking tests require individuals to produce several responses to a specific prompt. The more responses the individual produces, the higher the ideational fluency ability of the person.

The psychometric methodologies on the quantitative measurement argue that creativity can be summarised as a number. During the measurement of divergent thinking, solutions to problems are most often scored for two factors,

fluency and originality where fluency is the number of solutions and originality as the number of unusual solutions. Psychometric approaches to the study of creativity are those in which creativity is viewed as a mental trait that can be quantified by appropriate measurement instruments like the Remote Associates Test and divergent thinking exercises. Research has also revealed many promising leads as to how creativity could be enhanced.

2.5 CONCLUSION

The researcher concludes that the study of leadership traits should not be abandoned. It is however not clear whether a correlation exists between creativity as a trait and the Transactional and Transformational Leadership style. If the key leader traits, such as fluency of thought and originality as elements of creativity

- help the leader acquire the necessary skills,
- formulate an organisational vision and an effective plan for pursuing it,
and
- take the necessary steps to implement the vision in reality; these traits should be enhanced.

The first basic feature of the creativity theories reported above is the frequently stressed idea that new ideas are the result of existing ideas. Despite the fact that theories fail to even speculate on how or why such combinations may take place,

the author is of the opinion that there is an associative aspect to the creative process. The second basic idea is that divergent thinking tests require individuals to produce several responses to a specific prompt. The more responses the individual produces, the higher the ideational fluency ability of the person. Ideational fluency is scored for two factors, namely fluency and originality, where fluency is the number of solutions, and originality as the number of unusual solutions. The author therefore believes that there is also an ideational fluency aspect to creativity. In order to measure creativity, both ideational and associational fluency should be measured.

The researcher agrees with the psychometric methodologies on the quantitative measurement of creativity where the creativity of a person can be summarised as a number. In order to establish whether there is a correlation between fluency of thought, (i.e. ideational fluency and associational fluency) and leadership style, respondents will therefore have to complete divergent thinking exercises as well as the Remote Associates Test in a controlled environment.

The basic feature of the behavioural leadership theory of (Bass, 1975, 1985, 1991, 1994, 1999) is that there are different types of behaviours that make leaders effective. The types of leadership behaviour are Transformational, Transactional and Laissez faire.

Furthermore, it cannot be taken for granted that a person with a specific leadership style will be creative. From a selection point of view it becomes important to be able to identify the behavioural component (leadership style), and the personality component (creativity). An attempt has been made by this study to establish whether a correlation exists between personality factors (creativity) and behaviour (leadership style).

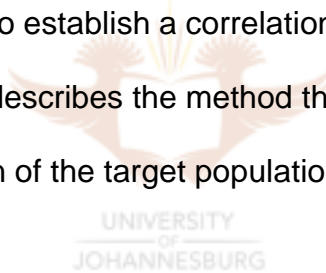


CHAPTER 3 RESEARCH METHODOLOGY

3.1 INTRODUCTION

Whenever research is conducted, it is for a specific reason, to answer a specific question, to solve a particular controversy or issue. Research is such an interesting phenomenon as it can be challenging on the one hand, yet frustrating on the other. It can be exhilarating and very stimulating, however, it can also be time consuming and tedious (De Poy and Gitlin, 1994).

The purpose of the study is to establish a correlation between leadership style and creativity. This chapter describes the method that was employed in the study, including a description of the target population, raters, instruments and data analysis.



3.2 PURPOSE OF THE RESEARCH

Today managers are faced with a number of challenges in their organisations due to concerns pertaining to changes in employee and customer needs, and due to changing economic, social and political environments. Research becomes of importance during situations such as these. A need arises for sound information that is to the manager's disposal. In order for managers to clearly understand the complexity within their organisations, they need to take as

many variables as possible into account (Van der Colff, 1999). There are a number of reasons why managers should be involved in the research process. According to De Poy *et al.*, (1994), through systematic investigation, professionals are given answers to questions they have within their organisations. This assists in the organisation's scientific advancement. Knowledge obtained through research is critical in guiding legislators and regulatory bodies on the best possible policies and is also effective in improving the quality of life of the people that benefit from the investigation.

In establishing whether the Transformational and transactional leader is in fact creative would aid organisations to:

- provide focused, purposeful training in order to develop specific traits, and
- enhance a performance culture in organisations.

If Transformational Leaders were creative; then creativity training would be a waste of resources for the organisation. If non-Transformational Leaders are less creative; then training in creativity could enhance their performance.

3.3 THE RESEARCH PROCESS

The research process consists of eight phases and is summarised by way of a diagram as seen in figure 3.1 (Van der Colff, 1999). Phase 1 is the input to the

research. It covers the choice of the research topic and the need to formulate and clarify the topic. The topic must have issues that have a clear link to theory.

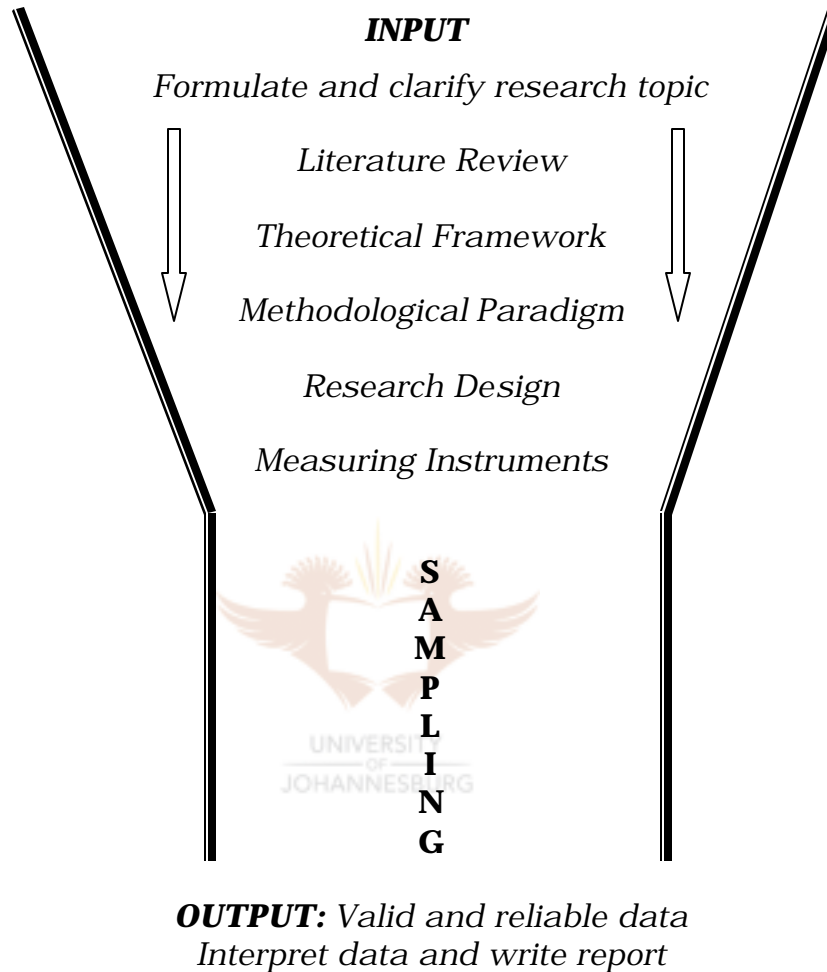


Figure 3.1: The Research Process (Source: Van der Colff, L. (1999): *Consultancy Dissertation*, Johannesburg: Milpark Business School)

Phase 2 deals with literature review and focuses on the generation of the initial research concepts. Concepts are the building blocks of theories and hypotheses in that they are “abstract ideas which are used to classify together things sharing one or more common properties” (Krausz and Miller in Gill and Johnson, 1991).

Literature review, according to Van der Colff (1999), forms the foundation on which the research is built. It is a description and critical analysis of what other authors have written about a particular topic (Jankowitz, 1991). Friedman (in Gill *et al.*, 1991), refer to theories gathered as 'filing systems', which allow observations to be used for predicting and explaining events. They create expectations. According to Gill *et al.* (1991), theories influence what people see and what people take to be factual observations. This means that the nature of observation is theory-laden and that there is no actual separation between theory interpretation and data. The literature review discussed (chapter 2) in this research focuses on Transactional Leadership style, Transformational Leadership style as well as associational fluency and originality of thought as elements of creativity.



Phase 3, as seen in figure 3.1 deals with the theoretical framework, as discussed in chapter two of this report. Phase 4 and 5 as seen in figure 3.1 deal with the methodological paradigm and research design respectively (Van der Colff, 1999). The methodological paradigm, which includes the research design, will deal with the choice between the qualitative and quantitative paradigms. The application to this research is discussed in the next section.

3.4 RESEARCH DESIGN

The purpose of the study is to establish whether there is a correlation between leadership style and creativity. In deciding on the research methodology to be

pursued it is important to distinguish between the quantitative or qualitative nature of the research process. Creswell (1994:2) defines quantitative study as 'an inquiry into a social or human problem, based on testing a theory composed of variables, measured with numbers and analysed with statistical procedures, in order to determine whether the predictive generalisations of the theory holds true'. In contrast, he defines a qualitative study as 'inquiry process of understanding a social or human problem, based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting'. These two definitions highlight the distinguishing characteristics of each approach. The quantitative research process is applicable to this research.



Phase 6 according to figure 3.1 constitutes the measuring instruments.

3.5 MEASURING INSTRUMENTS

There are many different measuring instruments that can be used each with its own advantages and disadvantages. They are used to quantify the variables and indicators that are being researched. Questionnaires are used often in situations where the researcher is doing either descriptive or explanatory research. They help the descriptive researcher to identify and describe the variable in different phenomena. Explanatory research aims to examine and explain relationships

between different variables. They differ according to how they are administered and the researcher's level of contact with the respondents (Van der Colff, 1999).

- Transformational Leadership was measured by the Multi-Factor Leadership Questionnaire (MLQ) developed by Bass and Avolio (1985). The MLQ measures the broad range of leadership from laissez-fair to idealised influence. The MLQ consists of 45 items with four factors that represented the meaning of each construct of the Full Range Model. Associational fluency and originality were measured by two (see Appendices A and C) divergent thinking exercises similar to those developed by Chand and Runco (1993).

The first test assessed ideational fluency and originality of thought for a concrete concept i.e.

- List the uses of a paper clip, and

The second test assessed ideational fluency and originality of thought of an abstract concept i.e.

- List the possible solutions for crime in SA.

Associational fluency of thought/originality (see Appendix B) was measured by the RAT as developed by Thompson (1993).

3.6. RESEARCH PROCEDURE

The research procedure followed the following steps:

- The researcher administered the questionnaire in person.
- Respondents were told that confidentiality would be kept.
- Respondents were asked to complete the MLQ leader answer sheet. It was explained to the respondents that the questionnaire consists of statements about typical leadership behaviour and asked to indicate how often they behave in a certain way. The items required that the respondents should indicate how strongly they identify with the behaviour. Because of the fact that the questionnaire is self-explanatory respondents did not have to provide their names. This took 20 minutes.
- Respondents then completed the RAT. A number of practice examples were given before beginning the test. Time allocated for the RAT was 20 minutes.
- Respondents then completed the two divergent thinking exercises. Explicit instructions were given in order to ensure that respondents understand that alternatives generated should be different from each other. Respondents were asked to be as creative as possible when generating alternatives. Time allocated was three minutes for each test.
- All four sets of tests were stapled together for each respondent.

- The researcher and two independent raters then evaluated the divergent thinking tests in order to establish originality of thought. A five-point scale for individual components was used where 1= very common, 2= somewhat more common than original, 3= equally common and original, 4= somewhat more original than common and 5= very original.
- The researcher evaluated the RAT.
- All four tests were sent to the Statistical Consultation Service at RAU.

3.7 THE RATERS

Two colleagues (at Eskom and Midrand Graduation Institute) with numerous years of practical experience were recruited to evaluate the divergent thinking exercises in order to avoid personal bias and contamination by the researcher. The raters were not informed which leadership style the respondent has.

The first rater obtained her master's degree from UNISA and was employed in the Human Resource Department at Eskom for 20 years. She worked with skills development in the organisation. The second rater obtained his doctorate from the University of Pretoria and has 25 years experience in Organisational Development and Training and Development within various industries. These colleagues' practical and skills development experience qualified them to evaluate the divergent thinking exercises.

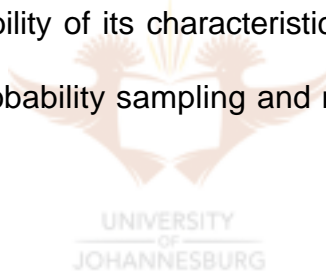
3.8 STATISTICAL ANALYSIS

The 45 items of the MLQ as well as the four creativity tests were subjected to a principal factor analysis. The reliability of two of the four scales was below .7. From this, the number of scales was reduced to 3 scales on the MLQ and one scale on the creativity tests. The reliability of the criterion measures were determined by Cronbach's alpha coefficients and accepted. This was the result of the item analysis which were conducted using the NP-50 Programme. Correlations, i.e. Pearson's Product Moment correlation between all sub-scales of the MLQ and the creativity tests were calculated. In order to gain further insight about the relationship between the dependent and the independent variables a regression analysis was computed. This process (Cooper, 1998:527) also allowed the researcher to make simple predictions regarding the regression of X on Y. The regression of the independent variable (X) on the dependent variable (Y) were computed where X=predictors and Y=criterion. As discussed in chapter 1, the dependent variable is creativity and the independent variable is leadership style in the case of this research. The SPSS-_Windows programme was utilised. The statistical information is available at the Statistical Department of the Rand Afrikaans University.

Phase 7 as seen in Figure 3.1 deals with the sampling process

3.9 THE TARGET POPULATION AND STUDY SUBJECTS

Sampling is the technique of observing a portion of some total set of events or phenomena (Oswald *et al.*, 1997). It is used where the researcher wishes to make assertions about a total population, but is unable to survey the entire population. A good sampling procedure fulfils two basic criteria. The first one being that the sample should be representative (Goode and Hatt in Boon, 1996). This means that the total population, the observations and the significant relationships between them should be carefully defined. The second one is that the sample should be adequate (Goode and Hatt in Boon, 1996) so that sufficient confidence exists in the stability of its characteristics. The designs that describe sampling procedures are probability sampling and non-probability sampling (Van der Colff, 1999).



All students currently enrolled for their MBA and M.Com. Degrees composed a population of interest. The unit of study (Cooper, 1998:215) were students that are busy with these master degrees in three different universities in the Gauteng area in South Africa. The sampling method used is non-probability sampling as defined by Cooper (1998:237). Cooper (1998:241) states that the population can be divided into groups purposively selected for the study. For the purpose of this research judgement sampling was used as type of purposive sampling method. The researcher selected sample members to conform to some criterion. The most common attribute of masters' students is their work

experience on managerial level. The researcher believes that although the use of students may imply homogeneous groups, this sample is more heterogeneous due to the fact that the respondents have managerial experience as a common attribute. The sample variance is therefore greater. The sample size (N) is 181.

3.10 VALIDITY AND RELIABILITY

Phase 8 according to figure 3.1 is the output, which tests the validity, reliability of data then interprets and writes the report. Criteria to be used in evaluation are internal validity, external validity and reliability (Gill *et al.*, 1991). External validity refers to how far can generalisation apply beyond the immediate research sample. External validity is subdivided into population validity and ecological validity. Population validity refers to generalisation to a wider population and ecological validity extends to other social contexts and settings beyond the research. The researcher believes that due to the heterogeneity of the sample the findings of this research could be generalised to wider population. Reliability refers to the consistency of results obtained in the research. The reliability, according to Cronbach's alpha coefficient (Cooper, 1999:171) of two of the subscales of the MLQ, as well as on the sub-scale of creativity was more than 0,7.

3.11 SUMMARY

This chapter deals with the research methodology that was employed in this research. To explain this, the research process in Figure 3.1 was followed.

The results obtained from this research will be presented and discussed in the next chapter and based on these results the researcher will make certain recommendations.



CHAPTER 4 RESEARCH FINDINGS AND INTERPRETATION

4.1 INTRODUCTION

The purpose of the study was to establish whether there is a statistical correlation between leadership style and fluency originality of thought as elements of creativity. Two categories of instruments were used. Firstly, the MLQ was used in order to identify leadership style and secondly, three creativity measuring instruments which measured fluency and originality of thought. The findings of the two main measuring instruments are discussed in this chapter.



4.2 THE MLQ FACTOR ANALYSIS

Two different types of instruments were used. Firstly the MLQ was used to identify leadership style and secondly, three creativity measuring instruments, measuring fluency and originality of thought were used. The 45 items of the MLQ were subjected to a principal factor analysis. As a first step, the items were inter-correlated and the eigenvalues of the unreduced intercorrelation matrix were computed. As fifteen of the eigenvalues were greater than unity, fifteen factors were extracted and rotated to simple structure by means of a Varimax rotation.

To overcome the effect of differential skewness of items, subscores in respect of each factor were computed by adding the items with high loadings on a factor, together. The subscores were then intercorrelated and subjected to a principal factor analysis. The eigenvalues of the unreduced intercorrelation matrix are presented in Table 4.1

TABLE 4.1 EIGENVALUES OF UNREDUCED INTERCORRELATION MATRIX IN RESPECT OF THE MLQ

Root	Eigenvalue	% of Variance	Cumulative %
1	3,911	26,071	26,071
2	1,411	9,406	35,477
3	1,233	8,218	43,695
4	1,182	7,881	51,576
5	0,958	6,384	57,960
6	0,910	6,069	64,029
7	0,787	5,247	69,276
8	0,769	5,128	74,405
9	0,730	4,865	79,270
10	0,648	4,319	83,588
11	0,628	4,188	87,776
12	0,575	3,835	91,611
13	0,483	3,217	94,829
14	0,434	2,892	97,721
15	0,342	2,279	100,000

Trace 15,00

Four factors were extracted, as four of the eigenvalues were greater than unity. Factor 1 had substantial loadings on 16 items and Factor 4 on 19 items yielding Cronbach Alphas of 0,767 and 0,885 respectively. Factors 2 and 3 were poorly determined, having loadings on four and six items respectively. The reliability of the corresponding scales were 0,55 for Factor 2 and 0,479 for Factor 3. Accordingly a three-factor solution was tried. Factors 3 and 4 combined into a single factor with a reliability of 0,84. No items were lost. The reliability of Factor

4 fell, however, from 0,88 to 0,847. The obtained factor matrix was rotated to simple structure by means of a Direct Oblimin Rotation, as given in Table 4.2.

TABLE 4.2 ROTATED FACTOR MATRIX OF THE MLQ (DIRECT OBLIMIN ROTATION)

VARIABLES	ITEMS	K	FACTOR 1	FACTOR 2	FACTOR 3	h ² j
Subtest 10	5,29	2	0,635	-0,252	0,178	0,679
Subtest 8	9	1	0,577	0,018	-0,003	0,349
Subtest 5	19,23,6	3	0,526	0,080	0,070	0,023
Subtest 7	2,8,25	3	0,489	0,077	0,030	0,435
Subtest 9	18,40	2	0,450	0,095	0,204	0,312
Subtest 2	13,11,14,33,1	5	0,439	-0,040	0,222	0,428
Subtest 15	7	1	-0,116	0,085	-0,066	0,253
Subtest 4	12,28,20	3	-0,209	0,578	-0,087	0,329
Subtest 14	3	1	0,061	0,511	-0,109	0,339
Subtest 13	17	1	0,034	0,191	0,139	0,424
Subtest 6	41,42	2	0,056	-0,030	0,623	0,416
Subtest 1	31,36,44,16, 37,35,30,38,32, 34,43,45,39	13	0,336	-0,050	0,593	0,225
Subtest 12	15	1	-0,070	-0,112	0,489	0,060
Subtest 11	10,26,21	3	0,240	-0,090	0,486	0,260
Subtest 3	27,22,24,4	4	0,018	0,034	0,141	0,035
Number of items per factor		45	17	5	23	4.547

Note: Factor 3 has been reflected

Table 4.2 shows that three factors are reasonably well determined, with substantial loadings on all three. However, from an inspection of the communalities it is apparent that several of the subscores share only a small proportion of their variance with the other subscores. In order to identify the obtained factors, the items associated with each factor were grouped into categories as given by Bass (1999). Bass's classification (1999) is presented in Table 4.3.

TABLE 4.3 ITEMS ASSOCIATED WITH THE THREE FACTORS OF THE MLQ

ITEMS	FACTOR 1	FACTOR 2	FACTOR 3
Transformational leadership	9, 10, 15, 21, 25, 26, 30, 31, 32	13 (with a negative loading)	2, 6, 8, 14, 18, 19, 23, 29, 34 and 36
Transactional leadership	16, 25	3, 4, 12, 20, 22, 24 and 27	1, 11 and 17
Non-Transactional leadership	None	5, 7 and 33	28
Leadership outcome	37, 38, 39, 40, 41, 42, 43, 44 and 45	None	None
Total number of items	20	11	14

Note: Categorisation of items according to Bass (1999)

Table 4.3 shows that Factor 1 is strongly representative of items categorised as Transformational Leadership and Leadership Outcome. There are only two items categorised as Transactional Leadership. Factor 1 can therefore be identified as Transformational Leadership / Leadership outcome.

Factor 2 is representative of items categorised as Transactional Leadership and Non-Transactional Leadership (Laissez Faire). There is also one item with a

negative loading, categorised as Transformational Leadership. The items listed as Transactional Leadership, all deal with failure to take action when required, and keeping track of mistakes, irregularities, failures and complaints. Factor 2 was identified as Non-Transactional Leadership.

Factor 3 is representative of items categorised as Transformational Leadership. There are three items categorising as Transactional Leadership. Factor 3 is therefore identified as *Transformational / Transactional Leadership*.

For the purpose of this research the items in respect of each factor were compared to the items as given in Table 4.3. The three factors of this research differ from those of Bass (1999) in the sense that the factor analysis revealed some differences in the items grouped under the different factors. Although this research also postulated three factors, the items that make up the three factors differ in minor ways:

- Bass (1999) argues that Factor 1 represents Transformational Leadership / Leadership outcome. The items are similar to Factor 3 of this research.
- According to Bass's research (1999), Factor 2 represents the Laissez Faire leadership style (a finding confirmed by this research). However, the fact that only five items remained in Factor 2 (after the three factor solution was done) decreased the reliability coefficients of both Factors 2 and 3. These items focus more on the leaders' ability to solve problems and rectify mistakes. When problems are solved and mistakes rectified, the

leader achieves an outcome. These items therefore do not focus on any specific leadership style.

Bass (1999) states that his Factor 3 represents the Transformational / Transactional Leadership style. The items are similar to Factor 1 of this research. It is interesting to note that 65% of the items under Factor 1 represent the Transformational Leadership style in its pure form. The researcher came to the conclusion that the three factors of this research produced essentially the same categories of information as those produced by Bass (1999) on leadership i.e. Transformational / Transactional, Laissez faire and Transformational / Leadership outcome. The intercorrelations between the factors are presented in Table 4.4.



TABLE 4.4 FACTOR CORRELATION MATRIX OF THE MLQ

FACTOR	1	2	3
1	1,000	-0,134	0,522
2	-0,134	1,000	0,010
3	0,522	0,010	1,000

Table 4.4 shows that Factors 1 and 3 are positively correlated. Three scales were formed corresponding to the three factors obtained.

To determine the reliability of these scales, they were subjected to item analysis, using the NP 50 program. The item statistics in respect of the first scale are presented in Table 4.5.

TABLE 4.5 ITEM ANALYSIS OF SCALE 1 OF THE MLQ

ITEM	N	Mean of The item — X _g	Standard deviation of the item S _g	Reliability index of item r _{gx} r _g	Item total correlation r _{gx}
A1	196.	2,526	1,139	0,407	0,345
A2	196.	2,816	0,881	0,352	0,400
A5	196.	3,393	1,064	0,482	0,453
A6	196.	2,740	1,042	0,338	0,324
A7	196.	3,439	1,008	0,290	0,288
A8	196.	3,168	0,938	0,460	0,491
A9	196.	3,184	0,904	0,493	0,545
A11	196.	2,888	1,090	0,571	0,524
A13	196.	3,291	0,896	0,547	0,610
A14	196.	3,265	0,823	0,506	0,615
A18	196.	3,087	0,927	0,365	0,394
A19	196.	3,010	1,146	0,475	0,414
A23	196.	3,143	0,911	0,560	0,615
A25	196.	3,010	0,982	0,339	0,345
A29	196.	3,464	0,774	0,372	0,481
A33	196.	2,801	1,299	0,515	0,396
A40	196.	3,051	0,802	0,464	0,578

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Cronbach alpha = 0,752
 Mean of test = 52,276
 Standard deviation of test = 7,536
 Number of items = 17

Table 4.5 shows that the obtained reliability in respect of Scale 1, is 0,752. The item total-correlations range from 0,288 to 0,615. The scale is internally consistent. No items were rejected. The reliability coefficient is sufficient for the purpose of this research. The item statistics in respect of the second scale are presented in Table 4.6. The item statistics in respect of the second scale are given in table 4.6

TABLE 4.6 ITEM ANALYSIS OF SCALE 2 OF THE MLQ

ITEM	N	Mean of item \bar{X}_g	Standard deviation of item S_g	Reliability index of item $r_{gx}r_g$	Item total correlation r_{gx}
A3	196.	1,204	1,163	0,672	0,578
A12	196.	0,582	1,032	0,693	0,672
A17	196.	1,628	1,244	0,599	0,482
A20	196.	0,888	1,197	0,752	0,628
A28	196.	0,628	0,960	0,517	0,538

Cronbach alpha = 0,494
Mean of test = 4,929
Standard deviation of test = 3,234
Number of items = 5



Table 4.6 shows that the obtained reliability, in respect of Scale 2, is 0,494. The item- total correlations range from 0,482 to 0,628. None of the items were rejected, but there are too few items. The item statistics of the third scale are presented in Table 4.7.

TABLE 4.7 ITEM ANALYSIS OF SCALE 3 OF THE MLQ

		Mean of item	Standard deviation of item	Reliability index of item	Item total correlation
ITEM	N	\bar{X}_g	S_g	$r_{gx}r_g$	r_{gx}
A4	196.	2,245	1,203	0,264	0,219
A10	196.	2,673	1,098	0,467	0,425
A15	196.	2,867	0,973	0,425	0,437
A16	196.	3,199	0,869	0,532	0,612
A21	196.	3,296	0,919	0,415	0,452
A22	196.	2,209	1,270	0,351	0,277
A24	196.	2,010	1,203	0,359	0,298
A26	196.	3,036	0,936	0,579	0,619
A27	196.	1,898	1,240	0,409	0,330
A30	196.	3,291	0,812	0,442	0,544
A31	196.	3,352	0,697	0,453	0,649
A32	196.	3,082	0,867	0,439	0,506
A34	196.	3,046	0,867	0,402	0,464
A35	196.	3,469	0,825	0,521	0,631
A36	196.	3,423	0,716	0,429	0,600
A37	196.	3,077	0,784	0,468	0,596
A38	196.	3,219	0,743	0,435	0,585
A39	196.	2,719	0,976	0,520	0,533
A41	196.	3,454	0,682	0,320	0,469
A42	196.	3,158	0,945	0,585	0,619
A43	196.	3,393	0,675	0,372	0,552
A44	196.	3,240	0,715	0,400	0,559
A45	196.	3,036	0,914	0,386	0,423

Cronbach alpha = 0,837
 Mean of test = 68,393
 Standard deviation of test = 9,971
 Number of items = 23

Table 4.7 shows that the obtained reliability of Scale 3 is 0,837. The item total correlations range from 0,219 to 0,649. None of the items were rejected. The scale consisted of 23 items.

4.3 FACTOR ANALYSIS OF CREATIVITY MEASURES

The three creativity ability tests measured fluency and originality of thought. Firstly, two divergent thinking tests measured fluency and originality of thought. Fluency of thought scores (Scores 2 and 4) was calculated by adding the number of responses and these responses were then subjected to an evaluation of originality (Scores 1 and 3) by independent raters. Four scores were derived from these ability tests.

Secondly, the Remote Associated test (RAT) measured associational fluency of thought. This ability test is divided into two sections (Scores 5 and 6) and comprises of 15 items per section. Scores are calculated by adding the correct number of responses for each item. Two scores were derived from this ability test.

The six derived scores of the creativity ability tests were subjected to a factor analysis. As a first step, the six scores were intercorrelated and the eigenvalues of the intercorrelation matrix were determined. The obtained eigenvalues are given in Table 4.8.

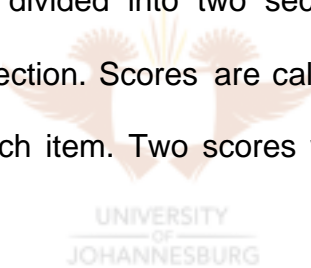


TABLE 4.8 EIGENVALUES OF UNREDUCED INTERCORRELATION MATRIX OF THE CREATIVITY MEASURES

Root	Eigenvalues	% of Variance	Cumulative %
1	2,764	46,064	46,064
2	0,943	15,723	61,787
3	0,731	12,187	73,974
4	0,609	10,147	84,120
5	0,559	9,309	93,429
6	0,394	6,571	100,000

Trace 6

From Table 4.8 it is clear that only one eigenvalue is greater than unity. Accordingly only one factor was extracted and is given in Table 4.9.

TABLE 4.9 FACTOR MATRIX OF THE CREATIVITY MEASURES.

	Factor 1	h ² _j
Score 1: Paper (originality)	0,714	0,509
Score 2: Paper (fluency)	0,678	0,459
Score 3: Crime (originality)	0,670	0,449
Score 4: Crime (fluency)	0,477	0,228
Score 5: RAT 1	0,476	0,227
Score 6: RAT 2	0,532	0,283

From Table 4.9 it is evident that all six scores have substantial loadings on the same factor. This factor represents fluency and originality of thought. Scores 1 and 3 is comparable (originality of thought). Scores 2 and 4 is comparable (fluency of thought). Scores 5 and 6 is coded. The communalities of the six scores vary from 0,227 to 0,509. Scores 4, 5 and 6 have the lowest communalities, indicating that they have less in common with the other measures, but are not necessarily poor measures of creativity.

The means and standard deviations in respect of the creativity measures are presented in Table 4.10.

TABLE 4.10 MEANS AND STANDARD DEVIATIONS IN RESPECT OF THE CREATIVITY MEASURES

	Mean	Std Dev	N
1. Paper (originality)	8,9719	4,4702	178
2. Paper (fluency)	8,8371	5,2196	178
3. Crime (originality)	6,1517	3,0018	178
4. Crime (fluency)	8,5225	3,5815	178
5. RAT 1	1,0337	0,9909	178
6. RAT 2	9,1124	3,5668	178

Cronbach alpha

= 0,735

Table 4.10 shows that the obtained reliability of the Creativity Scale is 0,735. None of the scores were rejected. The mean of the Remote Associates Test 1 was lower than that of the other measuring instruments. Fewer correct answers were found in respect of this measuring instrument. The mean of the Crime Rater total (originality) is slightly less than that of the other measuring instruments.

Table 4.11 shows the Pearson product moment (Cooper,1998) correlation coefficients between the three scales of the MLQ and the seven scores of creativity. Some of the variables are positively related and others are negatively related.

**TABLE 4.11 PEARSON'S PRODUCT MOMENT CORRELATIONS OF MLQ
AND MEASURES OF CREATIVITY**

		Correlations									
		Paperclip Rater Total	Paperclip: Total	Crime in SA Rater Total	Crime in SA: Total	Remote Associates Test 1	Remote Associates Test 2	R_TOT	MLQ_1	MLQ_2	MLQ_3
Paperclip Rater Total	Pearson Correlation	1	0,486**	0,481**	0,240**	0,339**	0,425**	0,772**	0,208**	0,006	0,025
	N	196	193	196	192	185	196	178	196	196	196
Paperclip: Total	Pearson Correlation	0,486**	1	0,391**	0,405**	0,340**	0,318**	0,792**	0,158*	0,049	-0,094
	N	193	193	193	189	182	193	178	193	193	193
Crime in SA Rater Total	Pearson Correlation	0,481**	0,391**	1	0,439**	0,295**	0,279**	0,704**	0,144*	0,040	-0,016
	N	196	193	196	192	185	196	178	196	196	196
Crime in SA: Total	Pearson Correlation	0,240**	0,405**	0,439**	1	0,175*	0,152*	0,610**	0,167*	0,105	0,001
	N	192	189	192	192	181	192	178	192	192	192
Remote Associates Test 1	Pearson Correlation	0,339**	0,340**	0,295**	0,175*	1	0,301**	0,472**	0,194**	-0,046	0,092
	N	185	182	185	181	185	185	178	185	185	185
Remote Associates Test 2	Pearson Correlation	0,425**	0,318**	0,279**	0,152*	0,301**	1	0,634**	0,225**	-0,069	0,007
	N	196	193	196	192	185	196	178	196	196	196
R_TOT	Pearson Correlation	0,772**	0,792**	0,704**	0,610**	0,472**	0,634**	1	0,263**	0,009	-0,013
	N	178	178	178	178	178	178	178	178	178	178
MLQ_1	Pearson Correlation	0,208**	.158*	0,144*	0,167*	0,194**	0,225**	0,263**	1	-0,192**	0,593**
	N	196	193	196	192	185	196	178	196	196	196
MLQ_2	Pearson Correlation	0,006	0,049	0,040	0,105	-0,046	-0,069	0,009	-0,192**	1	-0,153*
	N	196	193	196	192	185	196	178	196	196	196
MLQ_3	Pearson Correlation	0,025	-0,094	-0,016	0,001	0,092	0,007	-0,013	0,593**	-0,153*	1
	N	196	193	196	192	185	196	178	196	196	196

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Scale 1 (Transformational / transactional) of the MLQ correlated positively to all three creativity ability tests. Although this scale represents both the Transformational and Transactional Leadership styles, 65% of the items loaded on Transformational Leadership style. The lowest relation was found between Scale 1 (Transformational / Transactional) and Score 3 (Creative originality). There is a positive relation between Scores 1 and 3 ($r=0,481$; $p=0,01$). Scale 1 (Transformational / Transactional) has a positive relation with both scales of the RAT. A positive relation was also found between Scale 3 (Transformational / Leader outcome) and Scale 1 (Transformational / Transactional) of the MLQ ($r=0,593$; $p=0,01$). It is the researcher's contention that the reason for this phenomenon can be found in the fact that both the scales are made up of items that measure Transactional and Transformational Leadership styles. As would be expected the relationship between Scale 1 (Transformational / Transactional) and Scale 2 (Laissez faire leadership) is inversely related ($r= -0.192$; $p=0,01$).

Scale 3 (Transformational / Leadership outcome) is inversely related to the six fluency/originality scores. The researcher is of the opinion that the reason for this is that only 39% of the items in Scale 3 represented Transformational Leadership in its pure form.

Two stepwise regression analyses were done. In the first analysis, Scale 1 (Transformational / Transactional) of the MLQ served as the independent variable and in the second analysis Scales 1 (Transformational / Transactional) and 3 (Transformational / Leader outcome) of the MLQ were used. Table 4.12

provides the model summary of the regression analysis of the independent variable on the dependent variable.

TABLE 4.12 REGRESSION ANALYSIS OF THE INDEPENDENT VARIABLES ON THE DEPENDENT VARIABLE.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error Of Estimate
1	0,263(a)	0,069	0,064	14,132
2	0,332(b)	0,110	0,100	13,86

a Predictors: (Constant), MLQ 1

b Predictors: (Constant), MLQ 1, MLQ 3

The regression analyses indicate that only two predictor variables Scale 1 (Transformational/Transactional) of the MLQ and a combination of Scales 1 (Transformational/Transactional) and 3 (Transformational/Leadership outcome) were included in the regression equation. A multiple correlation of 0,263 was obtained in terms of the first model, which indicates that 6,4% of the variance of fluency / originality can be accounted for by the first predictor variable, i.e. MLQ 1. A multiple correlation of 0,332 was obtained in terms of the second model, indicating that 10% of the variance in fluency / originality can be accounted for by the second predictor variable, i.e. MLQ 1 and MLQ 3. The combination of Scales 1 and 3 therefore accounts for a greater proportion of the variance of creativity. Table 4.13 represents the analysis of the variance.

TABLE 4.13 ANALYSIS OF VARIANCE.

Multiple R: 0,332
R Square: 0,110
Adjusted R Square: 0,100

SOURCE OF VARIATION	DF	SUM OF SQUARES	MEAN SQUARE
Regression	2	4171,017	2085,51
Residual	175	33620,51	192,117

(F = 10.855; p (F) < 0,01 F (2,175)=10,885; p (F) < 0,01



REGRESSION COEFFICIENTS

MODEL	UNSTANDARDISED COEFFICIENTS		STANDARDISED COEFFICIENTS	t	p(t)
	B	Std Error Of Beta	Beta		
(Constant)	26,677	8,075		3,304	0,001
MLQ 1	13,269	2,850	0,407	4,656	0,000
MLQ 3	-8,319	2,932	-0,248	-2,838	0,005
Dependent variable: R TOT					
Predictors	(Constant)	MLQ	1,	MLQ	3

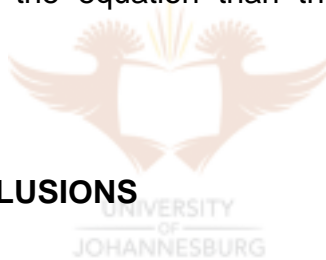
From the analysis of variance it is clear that the linear regression accounts for a statistically significant proportion of the total variance.

$F = 10,855$; $df_1 = 2$; and $df_2 = 175$; $p(F) < 0,01$.

All the regression coefficients are statistically significant. An estimate of the Transformational / Transactional and the Transformational / Leader outcome predictors can be obtained from the following regression equation:

$$Y = 26,677 + 13,269 (\text{MLQ } 1) - 8,319 (\text{MLQ } 3)$$

From the standardised regression coefficients (β coefficients) as given in Table 4.13 it is clear that Transformational / Transactional Leadership (MLQ 1) carries a greater weight in the equation than the Transformational / Leader outcome (MLQ 3) predictor.



4.4 SUMMARY AND CONCLUSIONS

The purpose of the study was to establish whether there is a statistical correlation between leadership style and creativity (fluency of thought and originality).

First the MLQ was used to identify leadership style. The 45 items of the MLQ were subjected to a factor analysis. As a first step the items were inter-correlated and the Eigenvalues of the unreduced inter-correlation matrix computed. As 14 of the Eigenvalues were greater than unity, fifteen factors were extracted and rotated to a simple structure by means of a Varimax Rotation. Four factors were

extracted, as four of the Eigenvalues were greater than unity. Factors 2 and 3 were however poorly determined. A three-factor solution was tried. All three factors were reasonably determined. In order to identify the obtained factors, the items associated with each one were classified into categories provided by Bass (1999). The 3 factors of this research differed slightly from the findings of Bass (1999) in the sense that the factor analysis computed different items under each factor. The researcher nevertheless came to the conclusion that the 3 factors identified the same categories, i.e. Factor 1 is Transformational / Transactional Leadership, factor 2 is Laissez faire leadership style and factor 3 is Transformational Leadership / leader outcome. The statistical finding of factor 1 support the conclusions of Bass (1999) that Transformational Leadership does not replace Transactional Leadership. Although Transformational Leaders can be transactional when appropriate, Transactional Leadership is often a prescription for lower levels of performance (Bass, 1999). It was however noted that 65% of the items that measured factor 1; related to Transformational Leadership in its pure form. Factors 1 (Transformational / transactional) and 3 (Transformational / leader outcome) were positively related. Three scales were formed corresponding to the three factors obtained. The reliability of the scale 1 (Transformational / transactional) and scale 3 (Transformational / leader outcome) were sufficient for the purpose of this research.

Secondly, three measuring instruments that measured fluency of thought and originality (creativity) were used. As in the case of the MLQ, the measuring

instruments were subjected to a factor analysis. Only one factor was extracted. This factor represented associational fluency / originality. The obtained reliability of this factor was sufficient.

The MLQ produced 3 scales and the three creativity - measuring instruments, produced six scales. All 9 scales were then subjected to a Pearson's Product Moment Correlation in order to reveal the magnitude and the direction of relationships.

The following conclusions were drawn:

- Conclusion 1

There is a statistically significant positive relationship between a leadership style and creativity.

- Conclusion 2

There is a statistically significant positive relation between Transformational Leadership style and creativity.

- Conclusion 3

Different reasons could have caused the lower positive relation between originality and Transformational / Transactional Leadership.

- Conclusion 4

The reason for the positive relation between Transformational / Transactional Leadership (factor 1) and Transformational / leader outcome (factor 2) can be found in the fact that both factors are made up of the items that measure the Transformational Leadership style.

- Conclusion 5

The more the inclination to behave according to the Transformational / Transactional Leadership style; the less the inclination to behave in a Laissez faire way.

- Conclusion 6

The inverse relation between the Transformational / leader outcome factor and creativity is caused by the fact that only 39% of the items in this factor represented Transformational Leadership in its pure form.

- Conclusion 7

Based on the conclusions in 1, 2, and 7 the researcher believes that there is a higher positive statistical relation between creativity and Transformational Leadership than between creativity and the other leadership styles.

Thirdly, a stepwise regression analysis was done in order to gain further insight about the relationship between the independent and the dependent variables. This process allowed the researcher to make simple predictions regarding the regression of leadership style (X) on creativity (Y). Conclusions drawn from the regression analysis are:

- Conclusion 8

Creativity (associational fluency and originality of thought) can be accounted for by the Transformational / Transactional Leadership style.

- Conclusion 9

The researcher concludes that the measuring instruments used in this research adequately measured the relationship between creativity and leadership style.

Chapter 5 focus on recommendations.



CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

Some conclusions and recommendations with regard to the measuring instruments are discussed in this chapter. Finally, the researcher draws a conclusion on the outcome and value of this research.

5.2 THE MULTIVARIATE QUESTIONNAIRE

As creativity could be accounted for by the MLQ, this measuring instrument could be recommended as a test during the selection process. It would also be worthwhile pursuing means of improving the MLQ. The MLQ items could be refined, as to ensure that those items that test Transformational Leadership in its pure form are extracted as one factor. Those items that test Leader Outcome and the intention to solve problems and rectify mistakes could then be extracted as another factor. This factor could then be used in future research on problem solving and other predictors. For the purpose of this investigation respondents were asked to rate themselves according to the items in the MLQ. It would be recommended that if similar research is done in future, the manager of the person would also complete the instrument and rate the person from their perspective. This might provide a clearer picture of the person's leadership style.

5.3 THE CREATIVITY MEASURING INSTRUMENTS.

Despite the positive results obtained with the battery of measuring instruments, certain reservations concerning them must be considered. Two of the measuring instruments were pertinent to divergent type tests. The main drawback from a psychometric point of view is that the measurement of divergent thinking necessitates an element of subjectivity in the scoring methods. Even where the actual scoring procedure is objective, a subjective assumption is made to the effect that the score so obtained provides a measure of whatever the test is supposed to measure. For example, the scoring of the ideational fluency measuring instruments (List the uses for a paperclip and Provide solutions to crime in SA) is straightforward and objective. Fluency of thought is measured according to the number of responses made in a set time. However, the assumption that the number of associations produced in a fixed time represents a true measure of fluency is hypothetical. However, much appeals to common sense.

Even more questionable is the assumption that originality can be gauged by weighting responses according to their rarity of occurrence in a population. The possibility of rater bias must be recognised. This is obviously a convenient and easy way to quantify, but it rests upon a hypothetical assumption.

With respect to the findings in this study, it cannot be assumed that specific factors of fluency and originality have been identified. The coefficients yielded by inter-correlating the measuring instruments are generally so high as to suggest

that the measuring instruments overlap to a considerable extent, and this was borne out of the general factor of creativity in the results of the factor analysis. Since the measuring instruments were not designed for factorial analysis, the finding of a general factor cannot be cited as proof that a general creativity factor exists, but it does suggest that the different instruments do not measure separate factors beyond fluency of thought and originality.

Though there is evidence that creativity is manifested in leadership style, accurate judgements of creative ability can only be made on an individual's actual output. Ideally the dependent variable should be validated against a detailed evaluation in terms of quality and quantity of the subject's products. This can only be achieved if use can be made of experts, who have the knowledge and skills required, to provide such evaluations. And even given such an opportunity, one must once again recognise the possibility of rater bias.

The Remote Associates Test has shown promise as a predictor of associational fluency as an element of creativity, as evident by the positive relationship with the other measuring instruments. The biggest problem with this measuring instrument is the difficulty of establishing an objective and reliable scoring system for the South African environment. Although this seems to be a difficulty characteristic of any measurement that involves divergent thinking, it would be worth pursuing means of improving the RAT still further for future research purposes.

As stated in Chapters one and two of this report, problem solving is a concept that relates to both leadership style and creativity. A problem solving orientation was identified by the MLQ (factor 3), but the ability to solve problems was not measured in this research as the instruments focussed on fluency of thought and originality. It would therefore be recommended that a test that measure a unique problem solving ability should be included in future research.

5.4 CONCLUSION

The purpose of the study was to establish whether there is a statistical correlation between leadership style and creativity (fluency of thought and originality).



The researcher concludes that there is a statistically significant positive relationship between a leadership style and creativity. There is a higher statistically significant positive relation between Transformational Leadership style and creativity than between creativity and the other leadership styles. Creativity (fluency of thought and originality) can be accounted for by the MLQ.

The findings in this research are valuable because of a lack of previous research on the relationship between creativity and leadership style.

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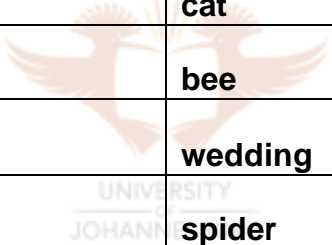
**APPENDIX B: REMOTE ASSOCIATES TEST MEASURING INSTRUMENT
INSTRUCTIONS**

FIND A FOURTH WORD THAT IS RELATED TO THE FOLLOWING THREE.

TIME: 20 MINUTES

Bald-Screech-Emblem	eagle
Curtain-Rod-Bar	window
Collander-Effort-Stress	strain
Jam-Drug-Lights	traffic
Whiskey-Tape-Thistle	scotch
Light-Rise-Way	high
Subside-Kitchen-Scuttle	sink
Hens-Torch-Artillery	battery
Wash-Cheap-Truck	dirt
Match-Ball-Fly	fire
Jump-Kill-Bliss	joy
Drink-Spirit-Priest	whiskey
Kitchen-Prevent-Dual	foil
Desert-Ice-Spell	dry
Team-Elected-Nation	member

Quack-Pond-Waddle	duck
Slither-Venomous-Bite	snake
Purr-Whiskers-Nap	cat
Pasteurised-Cow-Drink	milk
Shelf-Read-Worm	book
Dunes-Castle-Beach	sand
Tap-Spout-Fall	water
Sheep-Clip-Jersey	wool
Flushes-Coffee-Tropics	hot
Curiosity-Nap-Whiskers	cat
Honey-Swarm-Sting	bee
Bride-Reception-Ring	wedding
Funnell-Web-Bite	spider
Bark-Beware-Kennel	dog
Matches-Smoke-Bush	fire



 15

 30

