

CREATIVITY AND ANXIETY IN THE LATE MIDDLE CHILDHOOD

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Summary

This research project is part of a sub-division of an inter-university research project regarding resilience in children in the South African context and concepts related to it. The title of the project is: *Resilience in children in the South African context*. This study focused on the nature of creativity as well as the nature of anxiety in late middle childhood. The study also attempted to determine if there is a relationship between creativity and anxiety in the late middle childhood.

Regions and schools were identified to make the project as broad as possible. Urban and rural areas, as well as different race groups, languages and socio-economic groups were used in this study. The children completed the **Torrance Test of Creative Thinking** as well as the **Piers-Harris Children's Self Concept Scale**. The parents completed the **Child Symptom Inventory – 4**.

The processing of the data was done by the Statistical Consultation Service of the Potchefstroom University for Christian Higher Education. The Torrance Test of Creative Thinking was scored by the researcher and other project members. The Cronbach Alpha Coefficient was used to determine the reliability of the measuring instruments and factor analysis was used to determine the validity of the measuring instruments. To determine the nature of creativity and anxiety in children, averages, standard deviations, variance of coefficient, skewness and kurtosis was used. Lastly, in order to determine the relationship between creativity and anxiety, the Pearson Correlation Coefficient and Cohen's Effect Size were used to measure statistical significance and practical significance.

The results showed that the measuring instruments do have good reliability. However, some of the instruments showed better results than others with regards to validity. A possible reason was that some of the measuring instruments may not be appropriate for test circumstances in South Africa. Poor creativity results were obtained by the Torrance Test of Creative Thinking. It seemed as if the

children were able to provide responses, but the quality of the responses was not creative, but rather ordinary. The anxiety scores showed that the child does not experience anxiety to the full, but rather only symptoms of anxiety are experienced. The probable reasons were that the children's problems do not seem to occur in excess, but are rather situation-bound and that the child may be able to adapt to the high risk situation. The relationship between creativity and anxiety showed that, if anxiety should increase, creativity will decrease.

A problem experienced in the research was that when the group was compared to other groups in other circumstances, the research group performed poorer. The developing of South African norms could possibly solve this problem. Race differences may also have played a role in the results. This could probably be prevented by the translation of the measuring instruments into African languages.

From this study it appears that creativity may be lacking in South African children in the late middle childhood. The development of programmes might be useful in order to improve creativity in the late middle childhood. The programmes could also deal with identifying and coping with anxiety.

Keywords: creativity, anxiety, middle childhood

Opsomming

Die navorsingstudie maak deel uit van 'n inter-universiteitsnavorsingsprojek wat handel oor die weerbaarheid van kinders in 'n Suid-Afrikaanse konteks en konsepte wat hiermee gepaard gaan. Die titel van die projek heet :”Psigologiese weerbaarheid in kinders in 'n Suid-Afrikaanse konteks”. Die studie fokus op die aard van kreatiwiteit, asook angs tydens die laat–middel kinderjare. Die moontlike verwantskap tussen kreatiwiteit en angs in die laat-middel kinderjare word ook ondersoek.

Skole in verskeie provinsies is geïdentifiseer om die projek so omvattend moontlik op 'n breër vlak te maak. Stedelike- sowel as plattelandse gebiede, verskillende rasse groepe, tale en sosiaal-ekonomiese groepe is gebruik tydens die studie. Die kinders is gevra om die *Torrance test of Creative Thinking*, sowel as die *Piers-Harris Children Self Concept Scale* te voltooi. Die *Child Symptom Inventory-4* is deur die ouers voltooi.

Die verwerking van die data is deur die Statistiese Konsultasiediens by die Potchesfroomse Universiteit vir Christelike Hoër Onderwys gedoen. Die *Torrance Test of Creative Thinking* is nagesien deur die navorser en mede-projeknavorsers. Die Cronbach Alpha Koëffisiënt is gebruik om die betroubaarheid van die meetinstrumente vas te stel terwyl die faktoranalise gebruik is om die geldigheid van die meet instrumente vas te stel. Die aard van kreatiwiteit en angs in kinders is ondersoek aan die hand van gemiddelde, standaard afwykings, variasiekoëffisiënt, skeefheid en kurtose. Laastens, is Pearson se korrelasie koëffisiënt en Cohen se effekgroottes gebruik om die verwantskap tussen kreatiwiteit en angs te ondersoek wat statistiese- en praktiese beduidenheid meet.

Die resultate het getoon dat die meetinstrumente wel betroubaar is. Betreffende die geldigheid van die meetinstrumente het sekere resultate egter verskil van mekaar. 'n Moontlike rede hiervoor mag wees dat sekere van die meetinstrumente nie geskik is vir toetsingaangeleenthede in Suid-Afrika nie. Swak kreatiwiteits resultate is deur die *Torrance Test of Creative Thinking* verkry. Dit wil voorkom asof die kinders wel terugvoering kon gee, maar dat die kwaliteit van die terugvoering aan kreatiwiteit ontbreek het en gevolglik baie gemiddeld was. Die angstellings het getoon dat die kind nie die uiterste graad van angs ervaar nie, maar wel simptome van angs. Moontlike redes mag wees dat die kind se probleme nie in oormaat voorkom nie, maar eerder situasie gebonde is en dat die kind homself by hoë risiko situasies kan aanpas. Die verwantskap tussen kreatiwiteit en angs toon dat, wanneer angs toeneem, kreatiwiteit afneem.

Probleme wat tydens die navorsing ondervind is, was wanneer die groep met ander groepe vergelyk is wat met ander omstandighede te doen gehad het en die groep bevind is om swakker te funksioneer. Die ontwikkeling van Suid-Afrikaanse norme kan moontlik hierdie probleem oorbrug. Rasseverskille mag ook 'n rol in die resultate gespeel het. Dit kan moontlik oorbrug word deur die vertaling van die meet instrumente in 'n swart taal.

Die studie toon dat dit wil voorkom asof kreatiwiteit tot in mindere mate by kinders in hul laat-middel kinderjare waargeneem kan word. Die ontwikkeling van programme kan handig wees deur die kreatiwiteit in die laat-kmiddel kinderjare te ontwikkel. Die program kan ook vir die identifisering en hantering van angs gebruik word.

Sleutelwoorde: kreatiwiteit, angs, middel kinderjare

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Chapter 1

Problem Statement and Aims

1.1 Introduction

In this chapter, the problem statements regarding various aspects of this study, as well as the aims of this study, will be discussed. The hypotheses regarding the study will also be highlighted. The preview of investigation, as well as the ethical considerations will also be discussed. In the preview of investigation, the research design and sample group will be explained. Further information regarding the following chapters will be summarized in the last section of this chapter, namely, in the summary and preview.

1.2 Problem Statement

According to Masten and Coatsworth (1998) psychological resilience can be defined as one's ability to overcome adversity, so that one can achieve good developmental outcomes. A resilient child is capable of effectively coping with internal stressors of their vulnerabilities, as well as coping with external stressors. Internal stressors are, for example, that of unusual sensitivities and developmental imbalances, while external stressors refer to illness and major losses. Some children are able to emerge from these stressors and develop a healthy, as well as a stable, personality (Werner & Smith, 1982).

Resilient children, according to Werner (1984) (in Joseph, 1994) have four central characteristics, namely:

1. These children will have a proactive approach to problem-solving and will, therefore, be able to take charge of their own life situation.
2. They are able to construe their experiences in a positive and constructive way.
3. They are also good-natured and easy to deal with.
4. Finally, they know that they have some control over what happens in life. Antonovsky (1979) calls it coherence, and this coherence will help the resilient child to be strong in difficult times.

Self-esteem is also important for the development of a productive and healthy personality. One should also have an internal locus of control, so that one cannot only control oneself, but also accept responsibility for one's decisions and ultimately the consequences thereof. There are three factors that will help promote resilience in children, viz. nurturance, structure and good role models. This will help the child to develop his/her self-esteem. Roles and chores will also promote resilience, because external structures will promote internal structure and the child will, therefore, learn self-control from expectations and rules. By giving the child structure, the child will be able to develop self-control and develop a sense of responsibility (Joseph, 1994).

Creativity is a component of resilience and even though creativity is such a complex human performance and occurrence, humans desire this highest level of performance and accomplishment (Taylor, 1988). Various attempts have been made to define creativity and even though it is difficult to define creativity precisely, Torrance (1988) sees creativity as infinite and says that it involves sight, smell, hearing, feeling and taste. He further states that it is often unseen, non-verbal and even unconscious. According to Mooney (1963) there are four major approaches to creativity, viz.: creativity is viewed in terms of *environment, product, process and person*. According to research, it was found that creative product and

creative process have been seen as the criteria of creativity, while the creative person is the main basis of the predictor, the environment is the modifier in the equation and the stimulus situation is the activator of the inner creative process (Taylor, 1988). Creativity can also be defined as a person's capacity to produce new or original ideas, have insight, restructure, invent, or create artistic objects (Vernon, 1989). According to Eiffert (1999), creativity is seen as a process, which will expand one's choices and will release your potential into a form of expression. Creativity can, therefore, be seen as a comprehensive concept which, according to Van der Berg (1993), incorporates the body and the psyche (the cognitive, affective and conative aspects thereof) that is, the total person. Van der Berg (1993) further explains that creativity is, therefore, the ability of the person to create something that was previously unfamiliar. The creative process is a process that has a beginning, a course and an end-phase (Van der Berg, 1993). This creative process, according to Torrance (1994), may lead to many products, verbal and non-verbal, concrete and even abstract. For the child, the product may be in the form of discovering new relationships in nature, a song, or even a gadget (Torrance, 1994). According to Botha, van Ede & Piek (1991), creative thinking refers to flexible, divergent, imaginative and productive thinking. Creative children will, therefore, create their own theories and will look at things differently. Maslow said that for one to be creative, one's mental health is important. He explained that a healthy person can let him-/herself go and isn't too concerned about his/her inner conflicts. This individual can therefore be spontaneous and enjoy him/herself. The person will also be willing to take a chance and even try different approaches, while those who lack mental health, may be incapable of the aforementioned. Mentally healthy persons are also capable of flights of imagination and do not have to limit their inventiveness (Haefele, 1962). Just as mental health is important, cognitive, as well as motivational traits, are necessary if one is to be creative (Martindale, 1989).

Emotions can be defined as a complex state and can be seen in the activation of the central, as well as the autonomic nervous systems (Plug, Meyer, Louw & Gouws, 1988). According to Haefele (1962), the entire creative process is charged with emotion and all emotional dispositions do, in fact, influence the creative imagination. Haefele (1962) mentions four creative stages and their affective complements, viz.: preparation, in which the individual has the desire to solve; incubation, where the individual may experience frustration; thirdly, insight, which implies the thrill of solution and the anxiety of separation and fourthly, verification, which indicates development and proof.

The right hemisphere of the brain is involved in the creative process. The right hemisphere can be connected to colour, intuition, connecting the pieces, imagination and it designs new symbols and patterns. The processes involving the left hemisphere are much slower, devoid of emotions and associated with objective processes (Eiffert, 1999). Creativity draws on many cognitive processes which means that some may be executed better by the left hemisphere and others by the right hemisphere (Katz, 1997). Reviews by Hines (1991) and Gardner (1982) (in Katz, 1997), state that in high-level creative performance, both hemispheres of the brain are involved and that different creative activities will demand different cognitive skills and these skills will, in turn, call on the two hemispheres differently. It can, therefore, be said that, based on literature on people who exhibit creative performance in real life activities, the cognitive responses, in which the right hemisphere is most specialized, may play a privileged role in creativity. This role is, however, integrated and co-ordinated with cognitive activities subserved by the left hemisphere. The left and right hemisphere dominance may also, therefore, depend on the type of creative activity that is being performed (Katz, 1997).

For the purpose of this research, children in the middle childhood period were used. The developmental phase between six and twelve is known as the middle childhood years in which this period is relatively calm and stable. According to Freud, this period is known as the psychosexual latency period, while Erikson calls it the period of industry versus inferiority (Louw, Schoeman, van Ede & Wait, 1991). In the former, being that the child will start to associate with other children of the same sex and will imitate sex-appropriate behaviour. Erikson describes the latter period by saying that during this period, the child will strive to master skills required for adult life, play with his/her peers and compete against friends of the same sex. The mastering of these skills will ultimately lead to efficiency (Meyer & van Ede, 1991).

This middle childhood phase (6-12/13 years), is important because it is characterized by the development of the child's cognitive, social, emotional and self-concept. During this period, the child portrays a much slower growth rate compared to that of the earlier preschool period and will learn and refine his/her psychomotor skills. According to Piaget, the child is capable of concrete operational thinking. That means that the child will think in a concrete manner and not in an abstract manner. The child will think logically and see things from the perspective of others. This period is specifically characterised by the child developing his/her personality, becoming capable of developing skills needed for writing, drawing and playing musical instruments, and developing socially. The child's self-esteem may also increase (Louw, Schoeman, van Ede & Wait, 1991). During this period, the child may also experience anxiety, so the study will also focus on this aspect to determine whether it may or may not affect creativity.

Anxiety, according to Barlow & Durand (1995), can be explained as a sense of unease and a set of behaviour (e.g. anxious, worried) or even a physiological response which originates in the brain and can be seen in an increased heart rate

and even muscle tension. Anxiety can, however, be viewed in a positive or a negative light. If one experiences anxiety in a positive way, one will, for example, perform much better, because our physical and intellectual performance is driven and enhanced by experiencing anxiety. On the other hand, if one experiences too much anxiety, one's performance can suffer as a result (Barlow & Durand, 1995). Specific neurobiological processes (brain functions) which operate on specific related brain circuits are linked to anxiety. For example, low levels of the neurotransmitter Gamma Amino Butyric Acid (GABA), causes a high level of anxiety in individuals. Other neurotransmitter systems, such as the noradrenergic and serotenergic systems, are also involved in anxiety. The limbic system, as well as the increased blood flow, which increases activity in the brain, is involved in anxiety (Barlow & Durand, 1995).

According to Riedel, Taylor and Melnyk (1983), in general, humanistic psychologists pointed out that anxiety might be produced by creative activity. They also stated that, during or immediately after a creative activity, anxiety could increase, while a decrease in anxiety can be noted after a successful and completed creative activity. This was based on the integrated conception of creativity by both humanistic and psychoanalytic theories. Little effort, according to Okebukola (1986), has been made to establish systematic and interpretable relations between creativity and a variable, such as anxiety.

Therefore, based on the above-mentioned, it has been deemed necessary, as well as important, to do more research regarding the relationship between creativity and anxiety. These results may, in turn, be valuable in enhancing creativity, as well as developing future creativity programmes and the prevention and remediation of anxiety. One can, therefore, hypothesize that creative children will show characteristics of resiliency and be able to cope with life stressors, solve problems, and tend not to have unacceptably high or low anxiety levels.

Given this context, the central research questions that this research will focus on, are:

1. Are the measuring instruments used in this research valid and reliable?
2. What is the nature of creativity found in middle childhood?
3. What is the nature of anxiety found in middle childhood?
4. What is the relationship between anxiety and creativity in middle childhood?

1.3 Aims

The aims of this study are:

- 1.3.1 To determine the construct validity and reliability of the measuring instruments which will be used in this research.
- 1.3.2 To determine the nature of creativity found in middle childhood.
- 1.3.3 To determine the nature of anxiety found in middle childhood.
- 1.3.4 To determine what the relationship between anxiety and creativity is.

1.4 Hypotheses

- ◆ The hypothesis for the first research aim is that the measuring instruments used in this research have the necessary reliability and validity.
- ◆ No hypothesis can be made regarding the second and third objectives, as the research in this area is still exploratory.
- ◆ There will be a negative correlation between creativity and anxiety.

1.5 Preview of investigation

This research is part of a sub-division of an inter-university research project regarding resilience in children in the South African context and concepts related to it. The research is done under the guidance of Mrs E. van Rensburg from the PU for CHE and Dr Roelf Beukes, from UFS. The title of the project is: *Resilience in children in the South African context*.

A cross-sectional design is used. The population consists of children in their late middle childhood (grade 4 to grade 7) from schools in the Vaalpark and Bloemfontein – Free State; Potchefstroom – North West; Badplaas – Mpumalanga; Krugersdorp and Kempton Park – Gauteng; Kimberley – Northern Cape and Durban regions. A random sample is drawn from these, consisting of between 684 and 925 primary school children, who are representative of the various races and socio-economic strata in these regions.

1.6 Ethical Considerations

Consent was obtained by the parents of the subjects, as the research subjects ranged from grade 4 to 7. Participation in the project was voluntary and subjects could withdraw at any time. Parents were informed that they could obtain the results of the findings if they so desired. No harm due to participation in the research was anticipated.

1.7 Summary and Preview

There are two main components in this study, namely creativity and anxiety. Each will be studied separately in order to get a clear picture of both.

Creativity will be discussed in Chapter 2, in which various definitions will be

provided and ultimately a collective definition will be given. The creative child will also be discussed as the essence of this research. Other aspects such as the characteristics of a creative person will be explored, as well as what factors affect creativity. The creative process and theories, as viewed by many, will also be discussed in detail. Aspects, regarding resilience and creativity will also be looked at.

Chapter 3 examines anxiety. Once again, definitions, as well as a collective definition, will be provided. The main focus will be on the nature of anxiety, the factors that influence anxiety, various theories of anxiety and how anxiety influences creativity. However, other aspects will also be discussed in the chapter.

The methods of research will be discussed in Chapter 4, in which the results of the research are described and interpreted.

The results and a discussion thereof will be found in Chapter 5.

This research will be concluded in Chapter 6, in which a conclusion and recommendations will be provided.

Chapter 2

Creativity

"If man is to become free, he must learn to develop his creativity"

- W.A. Sadler, Jr. (1969) -

2.1 Introduction

In this chapter, creativity will be defined in terms of creativity itself, as well as the creative process and creative thinking. Various researchers will be mentioned in this regard. The roots of creativity and components of creativity will be explored. Secondly, the nature of creativity will be explored. Once again, different views will be looked at. Various theories will be discussed and this chapter will also discuss how the hemispheres and creativity are linked, as well as the relationship between creativity and resilience.

2.2 Definitions of creativity

Many attempts have been made to define creativity, but according to Torrance (1988), creativity defies precise definition. What does creativity therefore mean? Ochse (1989) explains that the word 'create' is derived from the Latin word 'creare' and means to bring into being. Although there are many definitions of creativity, Ochse (1989) suggests that many researchers explain creativity that involves the bringing into being of something that is original as well as valuable.

Torrance (1988) states that creativity is infinite and that it involves sight, smell, hearing, feeling and taste. It is often unseen, non-verbal and even unconscious. Barron and Harrington (1981) state that creativity cannot be seen as a single,

unitary characteristic, but rather as an imprecise category of behaviour. Snow (1986:1033) says, "creativity is not a light bulb in the mind, as most cartoons depict it. It is an accomplishment born of intensive study, long reflection, persistence and interest". According to Guilford (1950), creativity refers to one's abilities and this creative ability will determine whether the individual is able to exhibit creative behaviour. The individual's motivational and temperamental traits will, in the end, determine if the individual will produce results of a creative nature, even if the person has the required abilities. Creativity can also be seen as a process, which, according to Eiffert (1999), will expand one's choices and release one's potential into a form of expression. Creativity, therefore, provides one with new knowledge and new inventions that can improve one's quality of life (Baron, 2001).

Even though various definitions are given to define creativity, Simonton (2000) believes that, amongst all human activities, creativity can be seen as the most important and pervasive. It is also a good attribute for one to possess. It is, however, important to differentiate between creativity, creative process (cf. 2.5.2) and creative thinking. Torrance (1988) describes creative thinking as a process of not only sensing difficulties, problems, gaps in information, missing elements, something askew, but also to make guesses and formulate hypotheses about these deficiencies. Then, evaluate and test these guesses and hypotheses, and possibly revise and retest them, and finally, communicate the results.

The researcher will make use of a combined definition for creativity in that creativity, for this research study, will be seen as ***infinite, which combines all of one's senses and can be found on different levels, such as non-verbal and even unconscious. Creativity will also be seen as an ability one has and as a process that enables one to release one's potential into a form of expression. It will also be seen as being able to sense difficulties and problems and being able to make guesses and formulate hypotheses.***

2.3 Theories regarding creativity

Even though there is a common thread through the theories of creativity, there are definite differences. Differences may be due to the fact that the theorists have approached creativity from the view of various psychological traditions, such as i.e. psychoanalytic, behaviourist, gestalt, humanistic, etc. (Busse & Mansfield, 1980).

2.3.1 Psychoanalytic theories

Even though Sigmund Freud did touch on creativity, more elaborated theories regarding creativity were provided, amongst others, by Ernst Kris (Busse & Mansfield, 1980).

The first to provide a theory of the creative act was Freud (1910; 1924; 1947). The process of sublimation, according to Freud, provides the energy for all cultural accomplishments, including creativity. Daydreaming was said to be a continuation and substitution for childhood play, a result of unconscious conflicts of drives and needs sublimated, through the ego's effort, into outcomes which are useful to both society and creator. It was also said that creativity is a substitute for achieving satisfaction and thereby avoiding reality's hardship. It is further said that reality is turned into fantasy by the creative child and the will give full play to erotic

wishes. The individual will then mould the fantasies into reality that becomes creative. Therefore, the creative process originates from within the person and the creation actually mirrors the unconscious imagery after being processed through the ego. Adler (Ansbacher & Ansbacher, 1956) differed from Jung and Freud in that Adler believed that creativity is from man's consciousness, not unconsciousness. All other aspects of man, according to him, are subordinated to the creative power of the individual and those who are more creative are more useful. Thus creativity is of supreme usefulness.

According to Kris (1952), creativity consists of two phases. They are the **inspirational phase** and the **elaborational phase**, in which, during the inspirational phase, the ego will loosen its control of thinking processes temporarily and this will allow regression to a preconscious level of thinking. Therefore, when the individual is in this state, the ego is more receptive to drive-related impulses and ideas. In this process, thinking will predominate. Pleasurable thinking occurs due to a discharge of neutral energy and this constitutes a motivating force that underlies creativity.

Otto Rank (1932) extended psychoanalytic theory to cover creative production. He defines *will* as the integration of self concept and made it a central issue in ego-psychology. For Rank, man moves through existence, from the trauma of the womb to the trauma of the tomb. There are two fears. The fear of life and the fear of death. The fear of separation, of differentiation and of being oneself, can be seen as the fear of life, while the fear of integration, joining with others and losing one's personality defines the fear of death. While fear of life drives man to union with others, assertion of oneself is due to the fear of death. When an individual can constructively integrate these two polar opposites, the individual develops.

Will is at first experienced as a negative counter to parental demands during the autonomy period, while during the initiative period, guilt and immobilization can be found due to that negative counter. The adaptive type child is the child who gave up the fight there and adapts to the laws of school and society. Such a child can be described as bland, placid, sterile and conforming. However, when giving up is the easiest solution to the problem, creativity is lost. Others, on the other hand, wage uncertain warfare in this area and are less bound by parental and societal demands. They have, however, not given up and even though they suffer pangs of conscience, they are not completely guilt-immobilized. The price they pay for being ambivalent and lacking resolution, is neuroticism. Rank (1932) states that until the neurotic problem has been allayed, the individual's creative gifts are denied and remain latent. The third type, is the one with both will and deed, and according to Rank, is the true creative artist. He/she is imaginative and has not only the energy, but the thrust to get his/her ideas accomplished (Rank, 1932).

Many writers have adopted the view of the neo-Freudians which states that Oedipal crisis during the narcissitic period is the genesis of creative function (Gowan, 1972).

Besdine (1970), for example, states that a particular style of mothering will contribute to the development of creativity in the child and, because of the intelligent mother's need for emotional intimacy and intellectual contact with an only child or oldest son, an intense mother-child attachment is formed which feminizes the son. This will open up for him more idea-striving, imagination and more interest in literature and art.

According to Gowan (1965), boys between four and seven who are close to their mothers and girls also in that period, but who are close their fathers, will become

more creative than others. Warmth of the opposite sexed parent promotes creativity in the young child (Sears, 1968). The preconscious, according to many, is also regarded as the source of man's creativity and its development (Gowan, 1972). Happich (1932), for example, mentions that the symbolic consciousness, which lies between consciousness and unconsciousness, is the point of departure for all creative production and also for the healing process. According to a survey done by Rossman (1931), many inventors say that it is due to the subconscious mind than they can formulate mental patterns.

2.3.2 Gestalt theories

Productive thinking and problem solving are the terms used by the gestalt psychologists for creative thinking. They believe that a problem's structural features determine the process of restructuring, which ultimately leads to a solution. Their view is applicable to convergent problems that have either one, or a few, right answers and not to divergent problems (Busse & Mansfield, 1980).

According to Olivier (1978), gestalt psychologists believe that creativity is primarily the reconstructing of forms or gestalts that were structurally incomplete or insufficient. He further explains that they believe that creative thoughts begin in a situation which is problematic. The individual will then solve the problem holistically.

2.3.3 Humanistic theories

There are three conditions which, according to Rogers (1954), are associated with creativity. They are:

- (a) one has to be open to experience
- (b) an internal locus of evaluation
- (c) the individual has to be able to toy with both elements and concepts.

Taylor (1975), explains that humanism actually stems from the psychoanalytic approaches and that the concept related to creativity is self-actualisation. Self-actualisation is the motivating drive for creativity and humanists believe that everyone possesses creative potential.

Only after reaching inner maturity when projection and distortion are reduced, will one experience creativity (Fromm, 1959). Fromm further explains that one must accept oneself and not reject the evil parts of oneself or evaluate different experiences as they occur. Flexibility between rational and emotional, objective and subjective experiences are the requirements for creativity. His view is that by accepting human sensuality, one is brought to a state of awareness and to a readiness for creativity and by rejecting sensual orientation, one's capacity to be alive and creative is reduced.

Maslow (1959) mentions that a healthy and creative individual may, at times, be childlike and at other times grownup, rational and critical. Therefore a creative person may, at the same time, be both childlike and mature. In general, people are afraid to learn about their inner processes, so they do not become self-actualised, but creative people overcome this fear. This results in the individual expressing and integrating aspects of the self, so that it can contribute to their integrity, wholeness and creativity. Maslow believes that self-actualising creativity may be an essential characteristic of humanness. The self-actualising personality can be expressed by boldness, courage, spontaneity and self-acceptance, while secondary to the self-actualising creativity of the personality, is problem-solving and product-making. The self-actualised, creative individual can be described as independent, autonomous and self-directed.

2.3.4 Cognitive-developmental theories

Here, the theory of David Feldman (1974) will be looked at. The point of departure for his theory are the theories of Jean Piaget.

Surprise is often the reaction to a solution and once the solution has been achieved, it is often obvious. When the individual is busy working on the problem, he/she is often drawn towards the solution and once it has been achieved, it is irreversible. These are the four similarities Feldman (1974) observed between the Piagetian stage advances and the creative accomplishments at all levels. Feldman, therefore, proposed that creativity be viewed as a more general intellectual advance, including development through the Piagetian stages (Feldman, 1974).

2.3.5 Interactionist model

The behaviour of an organism at any point in time, according to an interactionist perspective, is a complex interaction of the situation and something else. The nature of the organism itself is that something else. In order to understand the organism in its environment, the situation and organism, as well as the interaction that unfolds, must be fully explained. From an interactionist's point of view, there is always more to understanding behaviour than just the described, observed behaviour (Woodman & Schoenfeldt, 1989).

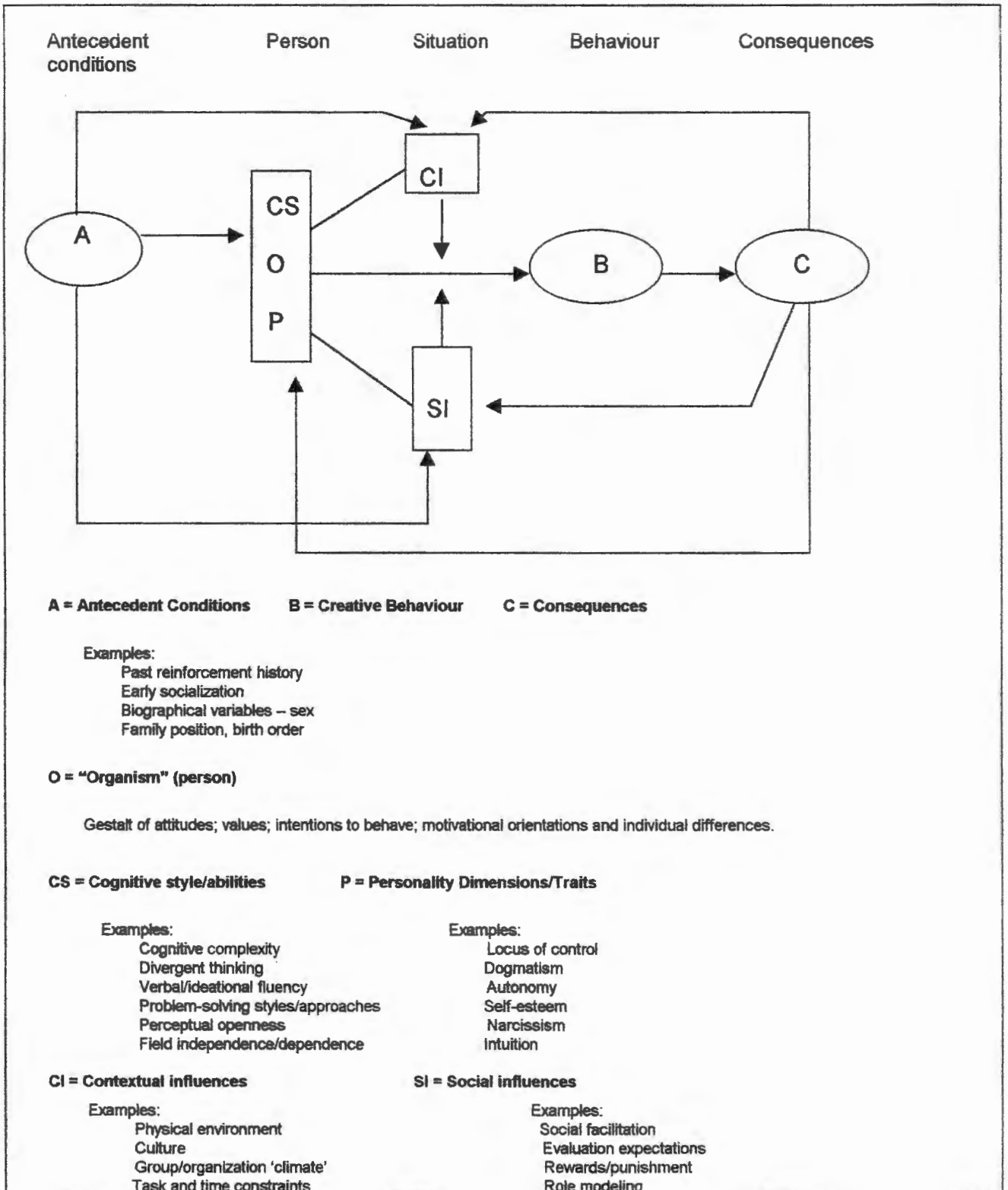


Figure 1. An interactionist model of creative behaviour (Woodman & Schoenfeldt, 1989:81)

As can be seen in the figure, the interactionist perspective can be used to explain human behaviour in complex social settings. The figure incorporates elements such as personality, cognitive and social psychology, which explain creativity. Various researchers from differing theoretical perspectives seem to emphasize different aspects of the figure when trying to explain creativity (Woodman & Schoenfeldt, 1989).

For example, those who focus on personality differences will explain creativity by emphasizing the P-O-B (personality, organism and creative behaviour) linkages. Those with cognitive explanations will focus on CS-O-B (cognitive style, organism and creative behaviour) linkages, while the social psychologists will focus on SI-O-B (social influences, organism and creative behaviour) linkages. However, an interactionist explanation of creative behaviour will incorporate all of the linkages. The advantage of doing so is that it can help improve one's ability to understand creative persons, processes and products (Woodman & Schoenfeldt, 1989).

Antecedent conditions, cognitive style/abilities, personality, contextual and social influences will provide the framework to examine the factors which could account for, or explain, differences in creative behaviour or the capability to produce creative products (Woodman & Schoenfeldt, 1989). The following will be discussed so as to explain each of the factors.

◆ **Antecedent Conditions**

According to Woodman and Schoenfeldt (1989), antecedent conditions refer to one's background characteristics that result in differences in creativity. Past reinforcement history, early socialization and background characteristics are some of the antecedent conditions that affect creativity. Gupta (1981) found that sex differences are not significant with regards to verbal or non-verbal scores on

creativity. Gupta (1981) also observed that boys showed higher scores on verbal fluency, verbal flexibility and verbal transformations, while girls scored higher on non-verbal dimensions.

Several studies have reported different strengths in creative expression with regards to middle and lower socioeconomic level children (Gallager, 1975; Torrance, 1974 & 1977). Haley's (1984) study showed that lower socioeconomic status children are more kinetically creative, while the middle class children excelled verbally.

Antecedent conditions, according to the interactionist model, influence the cognitive and personality characteristics of the individual and help to define the situation existing for the individual. It may be possible that different background characteristics relate to different types of creativity (Woodman & Schoenfeldt, 1989).

◆ Cognitive Factors

When talking about cognitive factors, it is useful to describe Guilford's (1967) Structure-Of-Intellect (SOI) model. The model organizes factors that are developed from intellectual tests into a three-dimensional model. It involves the following categories: content, operation and product. **Content** is the organization of information used in the human cognitive process. The mental **operations** include for example, evaluation, memory and cognition and the **products** form an ascending scale from units, classes, relations, systems, transformations and implications. The essence of Guilford's work, therefore, shows that divergent production involves the cognitive processes of fluency, flexibility, originality and elaboration and all of these together are the cognitive components of creative thinking.

Cognitive style and ability, according to the interactionist model, is part of the individual and helps him/her to define and draw from contextual and social influences (Woodman & Schoenfeldt, 1989).

◆ **Personality Factors**

Woodman (1981) names three categories of theories which do not explain creative behaviour. Woodman believes that a personality theory that does not account for the creative act is incomplete.

Woodman (1981) mentions that theorists who write in the psychoanalytic tradition, such as Freud and Jung, view creativity as stemming from the preconscious or unconscious. The humanists, such as Maslow and Rogers, relate creativity to the person's quest for self-actualization and lastly, the behaviourists view creativity as novel or unusual behaviour that is, nevertheless, learned and is no different from other behaviour which can be explained in terms of stimulus-response.

The interactionists treat personality much like the cognitive style and ability model (Woodman & Schoenfeldt, 1989).

◆ **Contextual and Social Influences**

These influences on creativity include aspects such as physical environment, culture, expectations, rewards, punishments and role-models. When taken together, they are the elements of the environment and social setting in which the creative act takes place. They have the potential to either contribute or to detract from individual differences in creativity (Woodman & Schoenfeldt, 1989).

Therefore, with regards to the interactionist model, both antecedent conditions as well as social and contextual influences, can have an important impact on creativity. Individual differences are a function of the extent to which social and contextual factors nurture the creative process. (Woodman & Schoenfeldt, 1989).

2.3.6 Whole-brain creativity model

The concept regarding the whole-brain creativity model came about as a result, Hermann (1991) states of, an 'Eureka!' moment. According to this model, the limbic system is divided into two halves and endowed with a cortex that is capable of thinking. A commissure connects it.

When bending the ends up to form a circular graph, the left brain is the left cerebral hemisphere and the right brain, the right cerebral hemisphere. The left centre is the left limbic and right centre, the right limbic. As each quadrant touches the next, this reflects the connectors. The circular display represents the whole brain thinking and can be divided into four conscious modes of knowing. Each has its own behaviour.

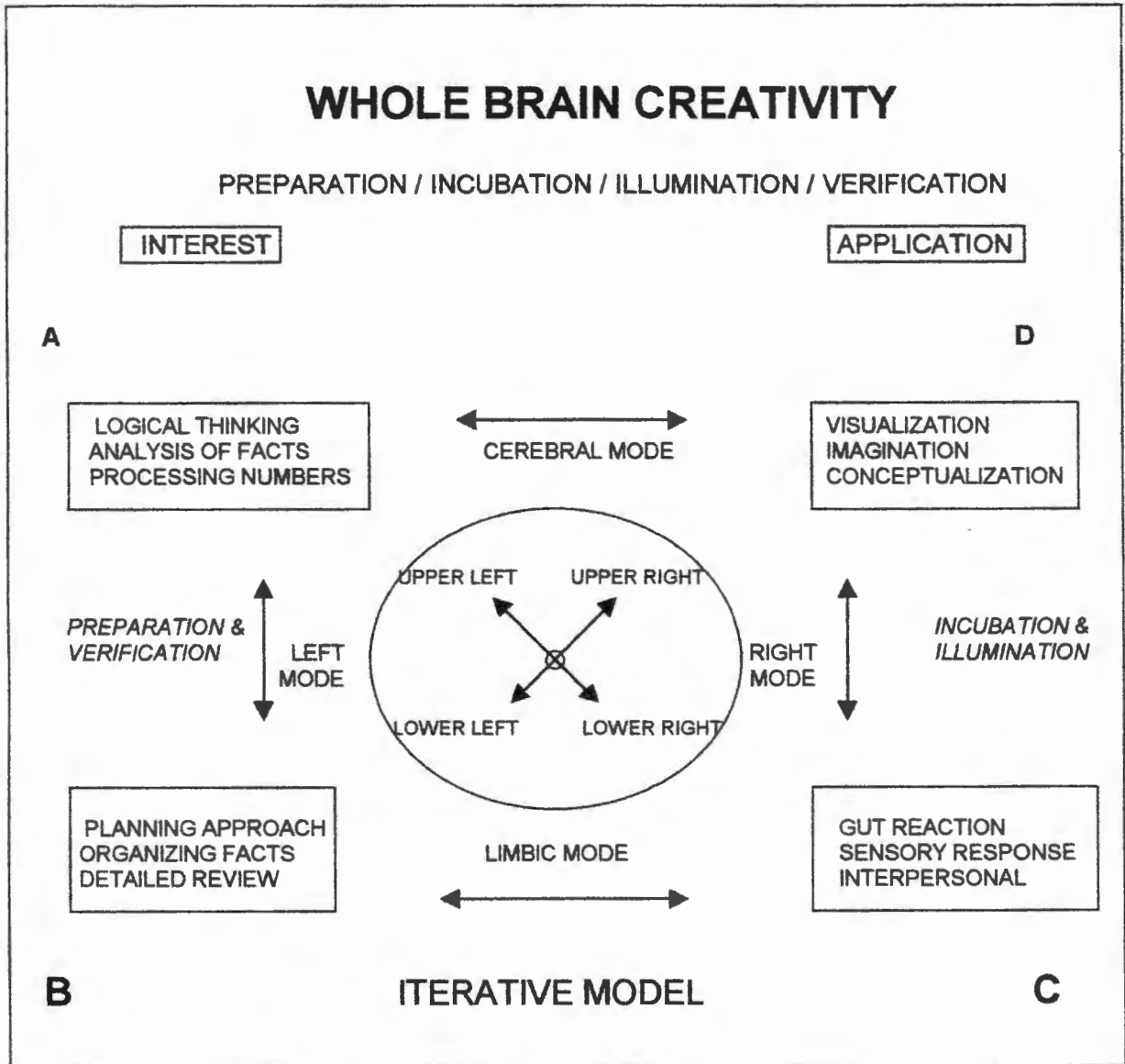


Figure 2: Whole-Brain Creativity Model (Hermann, 1991:278)

Hermann labelled each of the quadrants A, B, C and D. They start in the upper left and run counterclockwise towards the upper right corner (Figure 2). The upper A is connected to the upper D, and lower B to lower C, just as the brain structures are connected by the Corpus Callosum and the Hippocampal commissure.

In order to express his premise that creativity is whole-brained, the model was used to show how one's brain works while engaged in the creative process. In order to have done this, he made use of Wallas' four stages of the creative process. They are preparation, incubation, illumination and verification. He then related them to the four brain quadrants. He later added interest and application as it became clear that they are significant steps in the process.

The model shows how mental activity iterates back and forth among those four modes and draws on those special skills that reside in each of those quadrants. All four of these quadrants are necessary for the whole-brain model, being situationally available during the four phases of the creative process. If one of the quadrants is closed down, the creative potential will be diminished. If two or more quadrants close, one will find a cease in applied creativity. The process will therefore stop. If one blocks the iterative path between the quadrants, one will find that the creative potential has diminished. The reason being because the basis of synergy has been denied.

The whole-brain creativity model can also be adapted to form a teaching and learning model, in that the learning process can be divided into two categories. On the left side, would be structured modes and on the right, unstructured modes. In the modes A and B (same as previous), processing will take place that deals with logical, rational, critical, quantitative issues and activities. Procedural activities involve the planning, organizing and sequential elements of the learning process.

C and D (the unstructured modes) found in the right brain, will help visual, conceptual and simultaneous processing. Soft processing will involve emotional, expressive and interpersonal activities. Together, it will comprise the full range of preferences for learning and teaching (Hermann, 1991).

2.3.7 Systems view of creativity

Feldman, Csikszentmihalyi and Gardner (1994) felt that, instead of looking at creative characteristics in isolation, researchers would have a better picture of them if environmental factors are taken into account when studying the person, process and product. Feldman et al. (1994) created a framework that consists of three subsystems, viz.: the person, the domain and the field. They are in mutual interaction with one another as can be seen in figure 3.

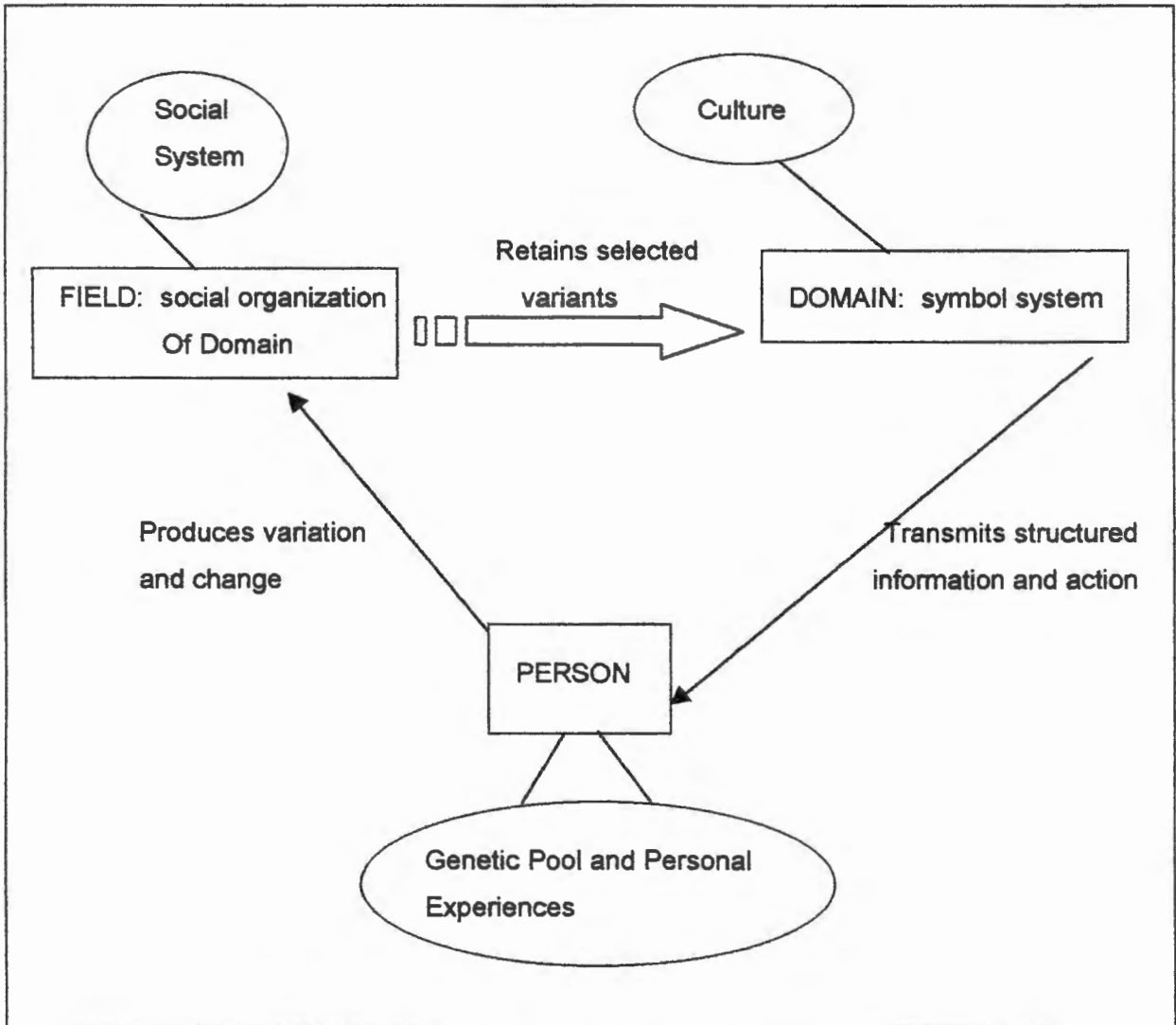


Figure 3: Interaction between the three subsystems in creativity (Csikszentmihalyi, 1988:329).

As each of these sub-systems interact with one another, it can be said that each sub-system performs a specific function. Individuals acquire knowledge of challenging domains and will eventually propose new knowledge for these domains and the field will consider and evaluate potential new knowledge. Then, if the proposed new knowledge is accepted by the field, it is added to the domain (Csikszentmihalyi, 1994)

PERSON

The main question here is how certain individuals are able to produce a greater amount of variation in the domain than others. One cannot just look at the person for an explanation for creative behaviour. Developmental aspects are brought into account regarding the connection to creativity by researchers. The individual is, therefore, seen in interaction with certain environmental variables. A lot of attention is given to motivational and affective variables, as well as cognitive ones (Csikszentmihalyi, 1988). Walters and Gardner (1986) mention that early experience plays a role in creativity, as well as demographic variables. The whole idea is that a holistic image is being strived after from all of the factors that influence the individual (Csikszentmihalyi, 1988).

The person's function is to provide variations in a domain. Personality traits and cognitive skills play a role as well. They help produce variations which may be selected (Csikszentmihalyi, 1988).

DOMAIN

Here, the question arises with regards to how various ways of information can be stored and transmitted and how the structuring of information affects creativity. Csikszentmihalyi (1994) defines domain as any symbolic system that represents thought and action and has a set of rules. Its function is to preserve desirable performances that are selected by the field and to transmit them to a new generation of people in such a way it will be easy to learn.

Feldman (1986 & 1994) describes a domain by saying that it is a formally-organized body of knowledge associated with a given field. Knowledge of the

domain exists before the individual changes or masters it. The domain has a certain degree of independence from the person that created it and has a history. Each domain consists of a certain set of symbols that is only used within the domain. The domain will therefore set the culture for certain groups (Feldman et al., 1994).

FIELD

Csikszentmihalyi (1988) defines the field as the persons that influence the structure of the domain. It therefore causes change in the domain. The variables in the domain cause the boundaries in the domain to be shifted or redefined. This usually occurs when the individual understands the content of the whole domain and is dissatisfied with the content thereof. Domains may then be combined to form new ones.

The field has the power to determine the structure of the domain. It has two functions. The primary function is to preserve the domain as it is and the secondary function is to help it evolve by a judicious selection of new content (Csikszentmihalyi, 1994).

All of the above-mentioned factors interact with one another. Although the person, domain and field must be studied in relation to one another, they must also be studied independently from one another. The domain can only exist once mastered, changed and preserved by a person. Each domain, person and field has characteristics that distinguish it from the following domain, person and field (Csikszentmihalyi, 1988).

2.4 Critical evaluation of the theoretical approaches

Positive, as well as negative criticism will be provided by the researcher regarding the theories discussed in 2.3. Criticism can be seen as rather subjective, in that one's own viewpoint will influence the way one perceives the theory. This could, however, be seen as positive, because theories have developed due to varying viewpoints.

The psychoanalytics' view on creativity combines both the unconscious, preconscious as well as the conscious. Even though one theorist does not support the unconscious role, the fact that all are mentioned broadens, as well as enriches, the possibility that creativity stems from any of the three roles. Rank's explanation of will to explain creative production can be viewed as helpful, as it is not rigid, but rather gives options. The style of mothering in contributing to the development of creativity seems to be rigid as the researcher believes that many factors help to contribute to the development of creativity.

The researcher agrees with the gestalt theorists' views regarding creativity, in that creativity can be seen as the reconstruction of forms that were incomplete. Creativity, however, can be due to more than just the reconstructing of forms, in that creativity may, for example, also be seen as an inborn ability or potential.

The following can be said with regards to the humanistic theory. Creativity can vary on different levels due to the individual's development. The researcher believes that, although inner maturity may play a role in creativity, other factors may inhibit or bring forth one's creativity. Inner maturity should, therefore, be defined more clearly, so as to get a better understanding of this view. Maslow did

mention that a creative person may be both childlike and mature, thereby not limiting the creative individual as does Fromm.

The interactionist approach incorporates personality, cognitive and social psychology to explain creativity. This approach is, therefore, broad and incorporates all of the possible links to explain creativity, thereby indicating a wide view that is not rigid. One's ability to understand the creative person, process and product cannot be based on just a single, theoretical view.

The systems approach shows the interaction between the three sub-systems in creativity and takes the person, domain and field into consideration. Nothing is limited and it shows how different variables play a role in creativity.

2.5 Four facets of creativity

There are four major facets of creativity. They are:

- ◆ the creative product
- ◆ the creative process
- ◆ the creative person and
- ◆ the creative situation (IPAR, 1955).

Each of these will be discussed below so as to understand the four facets of creativity.

2.5.1 Creative product

The creative product can be defined as the result of a creative attempt. The creative product often implies a solution for a problem, a response on a creativity

test or an explanation of certain phenomena (Smuts, 1986). Images and behaviour can also be seen as creative products (Torrance, 1988).

In order for a product to be seen as creative, it must comply with certain criteria. The most general opinion is that the idea must be new and unique. It must also be valuable, suitable and functional (Greene, 1996).

The creative products range from concrete and tangible objects, such as a piece of sculpture, to intangibles, such as providing educational climates to permit children to express their creative potential to the full. It has even been said that the product can be the individual who makes his/her own life and being a work of art (IPAR, 1955).

2.5.2 Creative process

2.5.2.1 Introduction

The creative process is defined in various different ways by researchers. Some see the creative process as mystical, in that something just happens and the creative process is just there, while others believe that the creative process is necessary for the end product. The process approach, therefore, implies that any creative product can be brought back to a previous process that is systemic in nature (Smuts, 1986). The viewpoints of the Institute of Personality Assessment and Research (1955), as well as Stein's (1974) stages in the *creative process*, will be given in order to gain a better understanding of the second facet of creativity, as mentioned in 2.5.

2.5.2.2 View of the Institute of Personality Assessment and Research

No matter how creative an individual may be, that individual cannot be expected to manifest his/her creativity upon demand. To observe creative thought and action would take some time (IPAR, 1955). To overcome this, Barron (1969), sought from his subjects retrospective accounts of one of their creative products. His subjects were all creative writers. Another technique which can be used, is by hypnotizing the subjects so as to obtain, while in a hypnotic trance, reports on those phases of the creative process which normally go on subconsciously (IPAR, 1955). A further technique, which was done by MacKinnon (1971), is when the subjects are hypnotized and a repressed emotional complex is implanted. Then it is suggested that they have committed an act which has caused them to feel guilty, as well as troubled. The subjects are also told that, even though the guilt-producing incident is forgotten, they will dream about it. The results varied. In one case there was only a reliving of the suggested experience in the dream. The second consisted of unpleasant affect in which the subject experienced, the following day, a troubled and depressed mood and lastly, an imaginative and symbolic working-over the latent content of the complex was found. Due to the experimenter knowing the content of the repressed complex, he was able to see the relation between it as well as the form in which it was expressed in the individual's dreams. It was found that there is a relationship between giving conscious expression to repressed unconscious content and the subject's psychological type and psychic function which he/she uses so as to deal with his/her inner life. Therefore, this technique helps to study the symbolic transformations of elements of the repressed unconscious into active fantasy which is recognized as a creative process.

According to the Institute of Personality Assessment and Research (IPAR) (1955),

there seemed to be a relationship between affectivity and the creative process. It can be seen that in the arts, productions seem to be attempts to resolve turbulence and in the sciences, the theoretical efforts seem to be personal cosmologies. Therefore, the creative product seems to be almost incidental to the forces (which are largely affective) driving its expression.

2.5.2.3 Stages of the creative process

2.5.2.3.1 Introduction

There are various ways the stages of the creative process can be explained. The stages of Helmholtz (1958), Poincaré (1958), Wallas (1926) and Kris (1953) will be mentioned so as to indicate how the stages develop. Primarily the work of Stein (1974) will be used to indicate the stages of the creative process.

According to Stein (1974), the creative process has been described in various ways. The first individual to mention it was Helmholtz (Whiting, 1958) in which he says it consists of **saturation**, where one gathers data, facts and sensations which serve for the development of new ideas; **incubation**, which involves the shifting of material about and making new combinations, this being done without a conscious effort and lastly, **illumination**. Illumination is when the solution or concept of the end state comes to mind. Whiting (1958) further mentions that Henri Poincaré also described the creative process, but instead of calling the first step saturation, he named it **preparation**. Poincaré also added a fourth step, **verification**. Wallas' (1926) steps are the well known, **preparation, incubation, illumination and verification**. The **preparation** stage is the stage when elements that are presumed to be relevant to the problem are learned and/or manipulated in an intellectual manner. If no progress is made, it falls into the **incubation**

stage. The **illumination** stage is when, after some time, the solution comes to mind. The last stage, the **verification** stage, is when ideas are put into their final form. Kris (1953), a psychoanalyst, mentions three phases of creativity. **Inspiration**, where the creative individual is driven and in an exceptional state; **elaboration**, characterised by labour, concentration and endeavour and **communication**, which involves the presentation of the final product to others.

Stein's (1967) three stages of the creative process are **hypothesis formation**, that starts after preparation and ends when a tentative plan or idea is formed. The second stage, **hypothesis testing** is when the individual determines whether or not his/her idea will stand up under scrutiny and testing and the third stage, **communication**, is when the individual will present the final product so that others may react to it and possibly accept the idea.

Stein (1974) mentions that, even though there are different terms used to describe the creative process, there is a great deal of agreement among them. These different descriptions show that the creative process does not occur in a systematic and orderly manner and that, at times during the process, one of its aspects will become more salient than others. All agree that a small or great deal of time was used by the creative individual in formal or informal preparation, training or education in the field in which he/she works. Due to boredom, fatigue or even ignorance, work may be halted, thus showing that the process does not run smoothly from start to finish. It will, however, incubate or continue on an unconscious level and from this level will come a conscious awareness of something new which will illuminate a new direction or approach to the problem. Inspiration may even occur due to the individual's feeling of excitement. Lastly, the individual will become aware that he/she is near completion and will ultimately complete the work.

Stein (1953) summarizes the early stage of the creative process by saying that the creative individual may be characterized as a system in tension that is sensitive to the gaps of his/her experience and is capable of maintaining this state of affair. Some individuals may never go further than this, while others will proceed to hypothesis formation and hypothesis testing. The latter individual will, therefore, seek various solutions so as to close the gap.

2.5.2.3.2 Stages in the creative process according to Stein

◆ Stage I: Hypothesis formation

Stein (1974) believes that in the creative process, the idea which will later form a creative product or theory, does not just arise, but the purpose, intention and desire to be creative sets the groundwork for that creative idea.

Often the creative individual will utilize his/her circumstances and conditions to his/her best advantage, because the individual is aware that under those circumstances he/she can be most creative. For example, some will only start working once their pencils are sharpened or others can only work in a quiet room or must carry out different rituals. The utilization of techniques must also suit the individual's personality. Levey (1940) reports this by giving examples, such as that Schiller kept rotten apples in his desk, Mozart only worked following exercise and Gretry and Schiller immersed their feet in ice-cold water.

The circumstances, therefore, vary in which the individual is inspired or generates ideas. These circumstances, however, make the individual feel secure, safe, relaxed and alert. When the individual has an idea, he/she is inspired, and this has often been referred to as one of the mystiques of the creative process. During this stage, the individual must have courage and be self-confident. Often, this

phase is experienced as having a goal, but not with a pathway leading to it. The individual will also perceive objects and other stimuli in his/her environment as brighter and more precise. The individual will perceive his/her environment with his/her whole body (Stein, 1974).

Due to developing too few hypotheses or by being sidetracked, some individuals may stop at the stage of hypothesis formation. The hypothesis-formation process is a flexible process often characterized by either implicit or explicit direction. The creative individual is future-oriented and may sense in the present how aspects of the final form may appear (Stein, 1953).

After one has developed the hypothesis, the individual must test it. When closure has been attained, the individual will feel satisfied with his/her final work (Stein, 1953).

◆ **Stage II: Hypothesis testing**

This stage is characterized by attempts to try and determine whether or not the idea can be implemented. Here, care and judgment play a role, as well as evaluation and criticism of the work. The individual will now move from a private experience to an expression in which he/she will make his/her work public and manifest. The individual is both a creator as well as an audience. He/she communicates not only with him-/herself, but with his/her work as well. The creative individual starts to become objective rather than subjective. When he/she tests, he/she becomes more active, while during the inspiration phase, he/she was more passive. Later, he/she will become objective when his/her efforts are viewed and evaluated by others (Stein, 1974).

Just as the first phase has its mystique, so this phase has as well. This can be seen in the individual's capacity to move from the work's stresses and strains and bring it to a successful conclusion. The individual will allow the problem to lead him/her to a solution and, because the individual is often unable to verbalize what he/she is doing, people are often mystified by his/her behaviour. The individual will also be able to sense that the work is complete and know the goal has been achieved and may then stop (Stein, 1974).

◆ **Stage III: Communication of results**

It is not enough for the creative person to communicate with his-/herself. When communicating with others, the creative individual may eliminate some of the difficulties experienced during the course of arriving at the final product. After completing the product, the creative individual may often experience a sense of exhilaration, a 'eureka'. This is partly due to the releasing of those pent-up emotions which had to be controlled, or else it would have interfered with the work's progress. Novelty is the aspect of the final product that marks it as creative and this novelty arises from the already existing materials or knowledge that are reintegrated. This implies that the final product never existed previously in its new form. It therefore deviates, in some manner, from that which existed. Even though novelty is the most critical outcome of creativity, it can be produced in various other ways than the creative process. It can be an outcome of trial and error, inventiveness or even discovery. The individual will draw heavily on his/her own resources in the creative process which is more of an internal process. Even though the individual has achieved novelty and completed his/her work, it does not mean that the creative process is over. Only when it has been presented and accepted by a group of significant others, will completion have occurred. The acceptance of significant others, not only marks the individual's work as creative, but provides the individual with feedback and reinforcement (Stein, 1974).

Stein (1974) mentions that cognitive processes are involved in all the stages of the creative process and that, at any one stage in the process, it could be that one, or more, may be more salient than the others. During the preparation stage, one will find perception and learning figure, while during hypothesis-formation, the capacity to form associations and the developing of ideas will occur. During hypothesis testing, problem solving stands out and lastly, in the communication stage, a higher thought process is involved. Stein (1974) further explains that all processes can and do occur in all stages of the creative process.

2.5.3 Creative person

According to Lubart (1994), in order for creativity to occur in a person, multiple components must converge. The first component is the person must have the ability to see problems in new ways and recognize that his/her ideas are worth pursuing. The person must be able to convince others of his/her new idea. The second component is that the individual must have enough knowledge about the field, in order to move forward. The ability to see the big picture and think in novel ways is the third component. A willingness to take risks and tolerate ambiguity and find intrinsic rewards in his/her work, is the fourth and fifth component. The last component is that the environment must be supportive of creative ideas.

It was found by IPAR (1955) that creative people are often intelligent. IPAR also made the assumption that intelligence alone would not make for creativity and that the effective use of intelligence depends largely upon the mechanisms of defence which an individual employs and upon his eschewing the mechanisms of repression and suppression. This was confirmed by MacKinnon (1971) and Barron (1969). By using the MMPI (Minnesota Multiphasic Personality Inventory) and life history interviews, they found that psychopathology was found in creative

persons. However, there was also evidence of ego strength and the courage to be open to experience. Other findings were that creative men will give a more integrated expression to the feminine side of their nature and that creative people will show more reconciliation of the opposites of their natures. Creative people also tend to be introverted, prefer intuition and show a perceptual preference for the complex and asymmetrical. In their study, they found that creative persons are, for example, more imaginative, courageous, original, intelligent and clear thinking.

2.5.4 Creative situation

Several themes were found in the biographies of creative subjects. Themes found were, for example, an early development of interests, a possession of special skills and abilities, rewarding by a parent, intellectual interests of parent similar to a child's, a child being able to make his/her own decisions, cultural enrichment and a freedom from pressure to prematurely establish one's professional identity. However, pathology of early life circumstances appear in the creative writer's life histories (IPAR, 1955).

2.6 Nature of creativity

2.6.1 Characteristics of creative people

The characteristics of creative people are so broad, that no one definition can be given to explain them. Many researchers have proposed certain characteristics for creative people. Many of these characteristics overlap. Various researchers will be mentioned below together with their proposed characteristics. A conclusion will be given as to the most common characteristics found.

- ◆ **Inborn potential:** Maslow (1968; 1970) claims that all individuals have an inborn potential to be creative.
- ◆ **Work hard:** According to Hayes (1989), creative people work hard.
- ◆ **Own agenda and independent action:** Creative people seem to be more disposed to setting their own agendas and also more prepared to take independent action than others (Hayes, 1989).
- ◆ **Striving for originality:** Creative individuals will strive for originality more than noncreative individuals (Hayes, 1989).
- ◆ **More flexible:** Creative individuals are more flexible according to Hayes (1989).
- ◆ **Creative individuals do not have higher IQ's or better grades:** No cognitive abilities have been identified that can reliably distinguish between the creative and non-creative person (Hayes, 1989).
- ◆ **Socially isolated:** Hallman (1974) proposes that because of the personal traits of a creative person, such as him/her being sensitive, having an independent judgment, aesthetic drive and a pervasive excitement, this is why he/she is socially isolated.
- ◆ **Egocentric and non-conforming:** The creative person tends to not only be egocentric, but also non-conforming and they also do not care so much about others' thoughts and feelings (Foster, 1968).

- ◆ **Independent and unconventional:** These two terms have been used by researchers, such as Martindale (1989) and Simonton (1999), when they compiled a personality profile of the creative individual.
- ◆ **Wide interests and open to new experiences:** These terms can also be used to describe the creative individual (Martindale 1989; Roe, 1963; Simonton, 1999)
- ◆ **Risk taking and conspicuous:** The personality profile of Simonton (1999) includes the terms risk-taking and conspicuous to describe the creative individual.
- ◆ **Cognitive flexibility:** Simonton (2000) describes the creative individual as being cognitively flexible.
- ◆ **Creative achievement and activity:** According to Barron and Harrington (1981), various core characteristics of creative individuals can be related to creative achievement and activity, viz.: high valuation of aesthetic qualities in experience, broad interests, high energy, independence of judgment, autonomy, intuition, self confidence, ability to resolve or accommodate apparently opposite or conflicting traits in one's self concept and sense of self as creative.
- ◆ **Heightened perception:** Roe (1963) describes the creative person as someone who has a heightened perception.
- ◆ **Curious:** The creative individual is someone who is much more curious than the non-creative individual (Roe, 1963).

- ◆ **Tolerance of ambiguity:** This can also be used to describe the creative person, according to Roe (1963).
- ◆ **Prefers complexity:** The creative individual, according to Roe (1963), seems to prefer complexity.
- ◆ **Hallmarks of creativity:** For Maslow (1968: 138), “boldness, courage, self acceptance and the child-like qualities of innocent freedom of perception and innocent uninhibited spontaneity and expressiveness” are all the “hallmarks of creativity”. These personality traits are projected onto the task or activity the individual undertakes and creativity is the child-like attitude or stance from which the individual perceives the world and also from which human action emerges.
- ◆ Guilford (1950) hypothesized eight primary abilities that underlie creativity. They are **sensitivity to problems**, in that the creative individual is able to see problems where others don't. This could possibly be due to curiosity. **Fluency**, in that individuals who are able to produce a large amount of ideas are more likely to have significant ideas. **Novel ideas** indicate that creative individuals have unusual ideas, but ideas that are appropriate. **Flexibility** indicates that creative individuals should easily be able to change mindset. The fifth and sixth abilities are **synthesizing and analyzing abilities**, in that creative thinking requires one to organize ideas into larger, more inclusive patterns and symbolic structures often have to be broken down before new ones are built. **Complexity** refers to the number of interrelated ideas an individual is able to manipulate at once. The last ability is **evaluation**.

Those characteristics which seem to overlap are, that the creative individual:

- ◆ has an independent judgement
- ◆ is non-conforming
- ◆ has wide interests
- ◆ has an aesthetic drive
- ◆ is open to experience
- ◆ accepts him/herself
- ◆ is self confident

2.6.2 Three categories of people who are creative

Ochse (1989) describes three categories of people who are commonly described as creative.

1. The first category being individuals who are creative due to their **lifestyle, interpersonal functioning and attitudes**. These individuals are imaginative, flexible, unsteretyped and non-authoritarian. These individuals' behaviour can, therefore, be described as original. They do not adhere to social prescriptions or emulate the behaviour of others. Their responses to daily life are valuable, being healthy, adaptive, authentic and spontaneous.
2. The second category are those who perform well in the **classroom or laboratory, on creativity tests or tasks that demand imagination**. Their responses are original, due to the fact that they are unusual, valuable, numerous, diverse, appropriate, adaptive, correct or aesthetically pleasing.

3. The last category are those who have **produced something of cultural value**. Original meaning they have achieved what others haven't and valuable because their products will improve the quality of life as well as enrich the culture.

2.6.3 Roots of creativity

Slaff (1981) says that the creative person is someone who is restless, constantly searching, striving and questioning. Such a person is on a different track and gratification comes from the product of creative acts.

According to Dellas and Gaier (1970), the roots of creativity lie in personality and motivation, while the following 14 factors, prevalent in creative children, seem to be at the root of creativity, according to Shainess (1989).

Biologic endowment may include good and intellectual gifts in relation to the area of expression, as well as a sensory keenness in relation to the area of interest (e.g. acute hearing and absolute pitch found in a musician). A deficit may, however, be made use of in a special way to produce creative work. An example of this may be a child who is unable to see well, but may develop a special interest in sound. When Beethoven became deaf, it did not become a handicap, but rather a compensatory asset in that he could eliminate extraneous sound in order to hear more clearly and without distraction, able to hear the sound within (Shainess, 1989).

Fostering of interest refers to a parent, or significant other, who is accomplished in a specific area, encouraging the child's creativity. It is important to foster the interest. A specific kind of parental or teacherly encouragement may lead the child into the creative or extraordinary. The parent may take only a casual interest

in what the child is doing. The child is rather led and helped to realise that the special interest is an ongoing part of daily life and is pleasurable (Shainess, 1989).

A child may develop an interest even in defiance of parental desires and will nurture this interest. This is known as **self-selected and self-nurtured interest**. **Feeling of importance in the effort** refers to the fact that it is important that the child feels that his/her efforts have great worth. The child should, therefore, be convinced of the importance of what attention is being directed to and also its importance on a larger scale in society (Shainess, 1989).

Importance of the period or location refers to the period or location in which the child lives which must be conducive to the development of the special interest. The Italian beauty, neoclassicism, the fostering by the Church and many important institutions played a definite role in the lives of Leonardo and Michelangelo and, due to those factors, they were able to make an impact. If placed in another period, the impact may not have been so great (Shainess, 1989).

The child's **parents** and family background is important. By acceptance of one another and the child's role in family life, there is some serenity in which the child can flourish. **Freedom of expression** is the seventh root of creativity in that the child should not be denied or unduly inhibited the freedom to express him-/herself or denied to play freely. Children should be allowed to move at their own pace and creative children must be allowed to learn from their mistakes (Shainess, 1989).

An **uneven kind of development**, is the phrase used to describe the gifted child by Shainess (1989). Esman (1986) observed that the child may be intellectually

advanced, but childish in other ways, thereby indicating a mixture of advances and delays.

It is important that the child should **feel valued** by their parents and significant others and valuable with regards to what they are doing. The creative child should be able to tolerate isolation and **aloneness**. Introspective thought and activity can only be obtained by separation from the group. It has been observed that gifted children are able to tolerate isolation and loneliness well (Shainess, 1989).

Early object loss refers to the fact that creative children must be able to endure with less as well as be able to defend themselves against any negative feelings engendered by loss. The twelfth root of creativity refers to being a **keen observer**. The gifted child is a keen observer, especially in the area of interest, and will store up information, consciously as well as unconsciously. **Making connections** refers to the fact that the creative child is able to make connections between things and identify similarities. These similarities can be sounds, images, words or even ideas (Shainess, 1989).

The **capacity for love**, the last root of creativity, means that the child has the ability to have positive feelings about something, as well as to like and care about something. Spirit or passion is the child's enthusiasm with which he/she carries something out, as well as his/her qualities of mind and the pleasure the child will show when he/she accomplishes a task. Spirituality is the perception of something non-worldly, sacred and pure in the product of creativity (Shainess, 1989).

2.6.4 Conditions of creativity

Carl Rogers (1954) spoke about the conditions of creativity and said that an individual's creativity can only flourish when the individual is in a climate in which his/her motivation to produce comes from within. Hayes (1989) agrees that cognitive and motivational factors are involved in creative performance.

According to Hennessey and Amabile (1988), they found that a strong and positive link exists between an individual's motivational state or motivational orientation and the creativity of an individual's performance. This orientation is also determined by certain aspects of the environment.

Taylor insists that the two elements essential for creative thought are fantasy associations and relaxation for unconscious play (Taylor, 1988). Perfetto, Bransford and Franks (1983) found that previous experience with a problem can negatively affect the individual's production of creative solutions. However, it can also be said that previous experiences may also facilitate creativity.

2.6.5 Levels of creativity

Taylor's (1959) mentions five levels of creativity. They are:

Expressive creativity refers to a child's spontaneous drawings and the way the child expresses him/herself. **Productive creativity** refers to artistic or scientific products in which there are restrictions and controlled free play. **Inventive creativity** is where ingenuity is displayed with materials, methods and techniques. **Innovative creativity** can be seen as the type of creativity where there is improvement through modification involving conceptualizing skills. **Emergenative creativity** refers to where there is an entirely new principle or assumption around which new schools, movements and the like can flourish.

2.6.6 Creativity and psychopathology

Even though evidence shows that psychopathology tends to be associated with creativity, the creative personality, according to Simonton (2000), often illustrates how the supposed psychological weakness can sometimes be converted into a form of optimal functioning.

Post (1994) partly confirms the findings of Becker (1978) who demonstrated that outstanding creative individuals often have various psychopathologies. Post's (1994) study was based on the biographies of 291 deceased artists, composers, scientists, thinkers, writers and politicians, in which particularly the artists and writers showed psychopathologies, whereas the others, with a few exceptions, were emotionally warm and had a gift for friendship and sociability even though most had unusual personality characteristics (Smith, 1997). Depression in the creative individual has been observed by some in the course of the creative process. It is hypothesized that this depression occurs due to anxiety that is brought forward by the lack of direction. Thus, the creative person feels he/she is moving forward, but still doesn't enjoy the present state (Stein, 1953).

2.6.7 Creativity with regards to intelligence and handedness

According to Barron & Harrington (1981), intelligence bears a minimal relationship to creative behaviour, but beyond that there is a certain threshold level of intelligence that is required for the manifestation of creativity.

The fact that a competent creative person can, at will, engage and disengage creative thought and activity, according to Gehlbach (1991), creativity can be seen as an intellectual aptitude that supports a behaviour which has a clear and definite purpose. Bee (1962), on the other hand, says that a person's general cognitive

ability or intelligence seems to determine the individual's degree of divergent thinking.

Various tests were administered to determine the relationship between creativity and intelligence. Studies done by Getzels and Jackson (1961) and Torrance (1964) suggest that children who are highly creative have IQ's considerably below the average of their peers. Torrance (1964), however, said that if one has to identify children as gifted, based on intelligence tests, 70% of the most creative children will have to be eliminated.

Wodtke (1964) and Yamamoto (1965) demonstrated that the MTCT (Minnesota Tests of Creative Thinking) showed that both verbal and non-verbal components are significantly correlated with IQ and may predict later creative achievement to the same extent as IQ measurements do. The results of a study done by Wallach and Kogan (1965) and the Human Talent Research Project (Liberty, Jones & McGuire, 1963, and McGuire and Associates, 1960) showed that children high on creativity and intelligence manifested different personality traits to those children that are relatively high in only one trait. In Wallach and Kogan's study, those high on both creativity and intelligence showed the least doubt and hesitation compared to other 3 subgroups. They were also more self-confident and less defensive. This is only true for boys (Arasteh & Arasteh, 1968).

A study was done to determine if there is a relationship between handedness and creativity. The study was conducted by Hattie and Fitzgerald (1983) using the Edinburgh Handedness Scale on 103 eighteen year olds. Twenty-nine of the subjects were left-handed and twenty-two mixed handedness and fifty-two right-handed. No differences were found.

2.7 Development of creativity in childhood

2.7.1 Introduction

Adult creativity, according to Freud, is a continuation of childhood fantasies. He also felt that regression is the key to creative actions or the sliding back into one's early stage of play and fantasy (Kris, 1952). According to Gardner (1993), creativity is pluralistic and people are able to use their childhood experiences and insights in a productive way.

Creativity is an activity that develops over the human life-span and factors such as birth order, early parental loss, role model, as well as education, play a role in creative personalities (Simonton, 2000). However, according to Eisenstadt (1978) and Goetzl, Goertel & Goertel (1978), creativity doesn't always emerge from the most nurturing environments (in Simonton, 2000). According to Simonton (1994), it seems that creative potential requires a certain exposure to:

- (a) diverse experiences which will help weaken constraints imposed by conventional socialization
- (b) experiences which are challenging enough to help to strengthen the individual so that he/she can persevere when faced with obstacles.

2.7.2 Phases of creativity

Lehane (1979) identifies three phases of creativity.

- ◆ The first stage can be found in 2 – 4 year olds. It is called the **dreamer**. During this phase, the child discovers his/her ability to think up ideas. The child's imagination is unbarred and he/she is able to dream up

unconnected thoughts. Due to the fact that the child's dreams are rarely applied to the real world, there are no limits to the dreams. During this stage, the child may use all of his/her time stirring up ideas, images and impressions. They will lock these away in their dream worlds, which will be used for their private use only. Dreaming can be called the birthplace of all our ideas. The dreamer lingers on into the shadows of the following two stages and will make a comeback at the time the child starts school. Dreaming colours most of the child's creative undertakings from then to early teens. Dreaming roughly covers Freud's stage of latency during its rerun .

- ◆ The **poet**, according to Lehane (1979), is the second phase. This phase falls in the age group from between 3 to 5 years of age. Here, the child's thoughts flow at a pace which is manageable and enables the child to see associations among ideas. These associations are, however, only grasped at an intuitive level. The child therefore understands and expresses these associations only in terms of similes, analogies and other poetic forms. The child is unable to put the poetic images into words. When the poetic stage returns during the early teens through mid-twenties, it roughly parallels Erikson's stage of identity.

- ◆ The last phase, which is the **inventor**, can be found between the age of 4 and 6. During this phase, the child refines the associations which were made at the poet stage. Now the child will try to turn the analogies, made in the second stage, into real ideas that are practicable in the outside world. This demands hard work, intelligence and perseverance (Lehane, 1979).

The stages of Lehane throughout life. Between 7 and 14, the dreamer will predominate the poet between 15 and 30 and lastly, the inventor predominates from middle age on (Lehane, 1979)

Lehane (1979) believes that the period between 2 and 6 years of age marks the period in which creativity develops and that if it is not cultivated during that stage, it will be hard to rekindle later in life.

Lehane (1979) shows the overlapping between the stages of the two theorists, Piaget (1926) and Erikson (1963) and his own creativity stages, in order to show how his work correlates with the work of other two. He does this in the following terms:

- * **Autistic-autonomy:** Here the child is wrapped up in his/her own world and is much like the **dreamer**.
- * **Egocentric-initiative:** Even though the child tries to step out of his/her world and communicate, it is hampered for many reasons, not unlike those that check the **poet**.
- * **Sociocentric-industry:** Just like the **inventor**, the child pours out all of his/her energy into adapting to the real world.

Lehane's three stages of creativity parallel the work of Piaget (1926) and Erikson (1963). Piaget notes that early cognition passes through three stages: autistic, egocentric and sociocentric (Piaget, 1926). Erikson (1963) states that personality evolves through the periods of autonomy, initiative and industry.

2.7.3 Creativity and school

The two elements, namely, invention and imagination, can be found in a pre-schooler's mind (Piaget, 1928). Piaget called this stage of intellectual development for this period, **intuitive thinking**. Piaget (1952) also believes that intelligence has two functions, viz. inventing, which uses imagination and verifying, which is logical.

According to Torrance (1962), creativity will decrease when the child enters a new school system due to schoolwork that demands more attention. At the age of about eight to ten years old, though, children are able to use their new skills for a renewed commitment to creative activity.

Based on an experiment done with three groups of children, in which groups I and II consisted of seven and eight year olds, and group III of ten to eleven year olds, it was found that, after the child enters a regular school, there is a low tide in the child's creativity, mostly noticeable in the youngest group, group I (Smith & Carlsson, 1990). Smith and Carlsson (1990) concluded by saying that children at age ten to eleven enter their first stage of true creativity. However, according to Smith & Carlsson (1985), they believe that true creativity appears at the age of five to six years of age and that outside factors also play a role in determining the high and low creativity periods. The child will, after entering school, show a decline in creativity (Smith & Carlsson, 1983), while, at the age of ten to eleven, creative functioning may increase due to their new cognitive skills (Smith & Carlsson, 1985). Smith and Carlsson (1983) found that, in ten to eleven year old children, there was a great deal of anxiety, but together with it, they were also creative. This was especially true in children from academic homes.

2.7.4 Decline in creative thinking

According to studies done, Torrance (1963) believes that girls are trained from an early point to accept things as they are. There is a drop at age five in girls for almost all creative thinking abilities. That is when the child enters the phase where there are demands for acceptance of authority outside home. The second drop can be found at the age of nine, when the child reaches pre-adolescence, the phase of peer approval and thirdly, at the age of thirteen, when the child reaches adolescence. It is characterized by an increase in anxieties and striving for opposite sex approval. The last drop of creative thinking abilities occurs at the age of seventeen.

2.7.5 Creativity, age and personality

Reid, King and Wickwire (1959) found, based on personality attitudinal inventories, that 7th grade children are more sociable, warm-hearted and easy-going than withdrawn. Weisberg and Springer (1961) found that, with 4th grade children, the creative children showed a stronger self image, the use of early recall with ease, humour and the availability of Oedipal anxiety. They also showed an uneven ego development. The creative child can also be described as more open-minded, Littwin (1935); independent and nonconforming, Goertzel & Goertzel (1962); spontaneous, joyous and humorous, Lieberman (1965) and Torrance (1962); autonomous and even responsive to stimuli, Arasteh & Arasteh (1968). A study done by Haley (1984) found that lower socioeconomic status subjects (black children) are more kinetically creative, while middle class children excelled verbally when a comparison was done between children in a private day care centre and a federally-funded child development centre.

2.8 Factors affecting creativity

There are various factors that play a role in affecting creativity. Factors such as parents and the family, birth order and sex differences, peer groups, cultural and social factors, age and expertise, motivational traits, educational influences, play, the physical environment and teachers will be mentioned.

2.8.1 Parent-child relationship and family factors

Both parents and the home atmosphere seem to either foster or hinder the child's creative talent. The creative achievement of the child seems to be linked to the kind of relationship he/she has with each of his/her parents (Arasteh & Arasteh, 1968). Research has been done to try and determine the influence of family characteristics and parental behaviours on creative development (Amabile, 1983).

Dreyer and Wells (1966) found that parents of the creative child showed less consensus with regards to family values and more role tension. These parents, therefore, stress individual divergence and feelings (assessed by means of the Minnesota Test of Creative Thinking).

Weisberg and Springer (1961) found that children who scored high on the MTCT come from families in which their parents expressed themselves fully, there was no dominance between the spouses, they accepted the child's regression and the father had an autonomous occupation.

Miller & Gerard (1979) suggested that there is a difference between firstborns and later-borns, in that firstborns will excel at creative tasks which requires achievement orientation, such as science, while later-borns are more artistically

inclined and will excel at tasks of an artistic nature. However, many studies do not fit this pattern (Amabile, 1983). Albert (1980) argued that it is not birth order that influences the child's later creative achievement, but any special position within the family. Based on studies done, it seems as if the absence of a father is positively correlated with creative performance and this finding may be mediated by the age of the parents at the time of the birth of the child (Miller & Gerard, 1979).

Parental characteristics and behaviour is more closely related to the child's creativity than that of family constellations (Amabile, 1983). Miller & Gerard (1979) support this by stating that when the child's parents feel personally secure and not so concerned about conforming to society's behavioural inhibitions or rules on status and roles, the child tends to be more creative. There is evidence which suggests that a low level of authoritarianism and restrictiveness, together with the encouragement of independence as well as a somewhat cool interpersonal distance between the child and parents, can be found in families that foster the child's creativity (Miller & Gerard, 1979). Not only have studies shown that the parents of creative children are low in authoritarianism (Bayard de Volo & Fiebert, 1977), they have also shown that such parents are low in strongly overt expressions of warmth (Drevdahl, 1964; Siegelman, 1973). Halpin's (1973) research results stated that being a 'daddy's girl', could actually lead to low levels of creativity in women, while higher creativity was associated with a low maternal warmth.

2.8.2 Birth order and gender differences

Giftedness tends to occur in only or first-born children more frequently (Altus, 1965; Goertzel & Goertzel, 1962). Altus (1965) suggested that the pre-eminence of first borns may be due to social causes such as differential parental

relationships, more acceptance of adult norms, greater development of conscience and greater pressures for achievement. First borns, according to Altus (1965), tend to be more verbal, curious, cooperative, as well as affiliative-seeking.

According to Reid, King & Wickwire (1959) creative girls, at elementary grade level, score higher on sensitivity, imagination and outgoingness. Boys who are creative at this level, are less self-confident, independent and surly in their relations to authority. According to peers and teachers, boys who are creative are seen as more anxious (McGuire and Associates, 1960; Torrance, 1961) and naughty as well as having wild ideas (Torrance, 1961).

Based on a study done by Kershner and Ledger (1985), to investigate what the effects are of sex, intelligence and style of thinking on a child's creativity, as measured by Torrance's comprehensive battery of Verbal and Figural tests, it was found that sex, IQ and thinking styles have relatively independent effects on creativity and that each of these affects specific facets of creativity. The results also indicated that, when a comparison was made between high IQ and average IQ children, regardless of their sex and independent thinking style, the former were more creative, but only in verbal originality. Girls, regardless of their IQ level and independence of thinking style, appeared to be more creative in verbal and figural fluency. Another finding based on this investigation was that there is a positive relation between the child's preference for an integrated style of thinking and creativity, especially in elaboration and verbal flexibility. The data revealed that thinking style is independent of sex, but IQ was not and that children with average IQ's, in comparison with gifted children, showed that they have a stronger preference for left hemisphere style thinking (Kershner & Ledger, 1985).

According to Martindale (1989), creative people have more cross-sexual interests and traits than less creative people, meaning those interests held by members of the opposite sex. Those interests, however, do not replace those interests which are stereotypically associated with members of their own sex. Martindale explains this by giving the example of a woman who might be interested in both cooking and carpentry. According to various researchers (Barron, 1957; Kanner, 1976), these wide-ranging interests can be found both in creative men as well as creative women (Crutchfield, 1962; Helson, 1971). Due to this wide range of interests, creative people may respond to problems in an unusual manner, says Martindale (1989), when compared to less creative members of their sex. In addition to this, evidence shows that a less clear-cut sex-role identity in creative individuals is found.

Besdine (1968) created the concept 'Oedipal victory' from examining the biographies of highly creative men. Oedipal victory is a situation where the son has replaced his father in the affections of the mother and the child retains his initial infantile identity with his mother and does not develop a normal superego. The lack of control, which is often found in creative people, is consistent with weak superego functioning.

2.8.3 Peer groups or classmates

Based on Torrance's (1963) observations, it appears that creative children from grade two to five tend to work alone. Classmates or peer groups also play an important role in the child's creativity. Their receptiveness or criticism of the child's ideas may either reinforce or inhibit certain behaviour patterns (Stein, 1974). The child's feelings of self-worth and confidence may be affected by social and emotional experiences with his/her classmates. These feelings are crucial for effective fulfillment of the creative process. Cognitively, the child's willingness to

learn and attitude toward knowledge, as well as reasoning and problem-solving ability, may also be affected by the child's educational experience (Stein, 1974).

The study done by Torrance (1964) found that classmates see creative individuals as naughty, silly and having way out ideas. It was also found that, if a child is superior to others in the peer group with regards to creative thinking, the child finds him-/herself under pressure to be less productive and less original. When he/she makes a good contribution to the success of the group's goal, the creative individual will not be given credit for it. When a study by Torrance (1964) was conducted to see if there is a difference between a group of children with the same ability (homogeneous) and a group with different abilities (heterogeneous), it was found that, when creative problem solving was required in the homogeneous group, there was reduced stress levels. The less creative participants became more productive and all of the members enjoyed what they were doing. They were also satisfied with their work. Those who felt less capable, ended up feeling more self confident and had more self-esteem. The able student became more modest and self-effacing. However, in the heterogeneous group, the child with the highest IQ was expected to provide more ideas and if he/she failed, it was felt that he/she let the group down. The two groups, therefore, have a variety of effects and it seems as if the homogeneous group has a more positive effect on the creative students and importantly, the less creative ones also do better under such conditions (Torrance, 1964).

The creative child will react to his/her peers' behaviour with compliance and will go along with the group's wishes. Others become aggressive towards the group and either ignore the criticism, or act the clown, so as to direct attention away from their idea and gain the group's approval for their exhibitionism. Some creative individuals, especially the lower-grade child, went off and worked by him/herself. Some became apathetic, silent and preoccupied, while others would make use of

a trial and error strategy, so as to adjust to the situation (Torrance, 1964). At second-grade level, highly creative individuals were unpleasant, inconsiderate of their groups, had little or no goal orientation and little or no identification with the group. They also paid no attention to the leaders who might have less creative peers (Torrance, 1962).

On a third-grade level, the creative students worked independently and were ignored. In the fourth grade, much the same happened. They also assumed little responsibility for leadership and would receive very little credit for their contribution. The highly creative child, in the fifth-grade, showed more leadership, but brought on themselves open criticism for being too scientific and greedy. These patterns become more pronounced in the sixth-grade (Torrance, 1962).

2.8.4 Cultural and social factors

Torrance (1961; 1964) mentions five factors that tend to inhibit creativity in children in American culture. These factors could also be seen to some degree in other cultures. They are:

1. Children prefer to stay within limits and are reluctant to try out something new and unknown.
2. From about the 4th grade, the child conforms to peer-group and social pressures. This period is marked by a drop in creativity.
3. The child is reluctant to ask questions, explore or even to use imagination, the reason being that teachers often discourage such behaviour.
4. The child is overly concerned with the sex roles viz. sensitivity (a feminine trait) and independence (a masculine trait).
5. Work is supposed to be unenjoyable and learning can only be achieved by means of hard work.

According to Anderson & Anderson (1965), authoritarianism, including conformity, is a factor in limiting creativity.

2.8.5 Age and expertise

According to Lehman (1953) and Simonton (1984), creativity shows a curvilinear relationship to age. Martindale (1989) further says that a person's creative work is done fairly early in one's life and that one's peak productivity varies from field to field. For example, at age 25-35, one finds peak performances for mathematics, physics and chemistry; at 30-40, psychology and social sciences; while at 40-45, architecture and novel writing. These ages are where the best work, as well as the most work, is done. Although the output rises to a peak, it then declines throughout the rest of the person's career.

Even though age is a critical element in creativity, 'age-within-speciality' is just as important. This implies that one's creative work, irrespective of age, may occur early in one's career within a given speciality. Only once relevant elements of the field have been learned, can one have creative ideas; it seems as if best ideas are derived before one becomes an expert, because once an expert, creativity seems to become less likely. The reason for this is because, as soon as one becomes an expert, inappropriate responses are less likely to be made, thus resulting in less likelihood of making creative ones (Martindale, 1989).

2.8.6 Motivational traits

Creative people are motivated and self-confident. Without self-confidence, one would hardly be able to move toward a goal (Martindale, 1989). Creative people

will describe themselves as ambitious, enthusiastic, curious, confident and egotistical (Gough, 1979; Harrington, 1975).

It was found that the creative individual is more capable of holding an interest in a problem than the less creative individual, who will easily tire of a problem (Rosen, Moore & Martindale, 1983).

Amabile (1985) showed that an useful and even important skill for creativity is to be able to keep options open and suspend judgement. Amabile (1983; 1985) also mentioned that intrinsic motivation is important for creativity. Intrinsic rewards, which arise from performing a task which is pleasurable and interesting, seem to enhance creativity, while extrinsic rewards, being paid or praised for the work, seem to decrease creativity. Amabile (1979) conducted a study in which she found that the extrinsic reward takes the intrinsic reward or joy out of the task. Martindale (1989) commented on Amabile's findings and said one should not generalize it too much. He mentioned that when a poet wants to create a poem, which is an intrinsic reward, the poet will often seek fame, which an extrinsic reward. He then concluded by saying that, if intrinsic rewards alone are important for creativity, it would be difficult to explain why scientists will publish their work or why artists will sell their paintings.

2.8.7 Educational influences

A teacher's attitude, not only towards autonomy, but also towards self-direction in work, may enhance a child's intrinsic motivation and creativity (Amabile, 1983). Various research has shown that, in an open classroom, children show a consistent superiority in divergent thinking four years after leaving primary school (Haddon & Lytton, 1971) and that these children, will score higher on fluency, flexibility and originality (Goyal, 1973).

Many definitions have been provided to define what an open classroom is. Horwitz (1979) says that the style of teaching involves various elements such as a flexibility of space, the student's choice of activity, more individual or small group orientation, an integration of curriculum areas, and rich learning materials. Others describe open classrooms as rooms where exploration and curiosity, self-directed learning and an atmosphere for developing critical inquiry can take place. It is also a classroom where there is no authoritative teaching or grading (Ramey & Piper, 1974; Sullivan, 1974). In a study made between traditional and open classes (Sullivan, 1974), it was found that, in the traditional class, activities done were group reading and math drills, while frequent activities done in the open class entailed creative writing, group projects and independent reading. It could, therefore, be predicted that higher creativity can be found among children in open classrooms. Sullivan (1974) even found that children in an open classroom will use more vivid language and a greater variety in sentence structure when asked to do a story-telling task. These children will even do their homework alone, make things without help, will not have any set plans for the school day and will leave something unfinished, because they may become interested in something else. It could be predicted that informal classroom environments will facilitate creativity much more effectively than those classrooms which are restrictive (Amabile, 1983).

2.8.8 Play and Fantasy

Many theorists propose that play can have beneficial effects on creativity (Amabile, 1983). Playful activity, according to some theories, could enhance flexibility and novel adaptation (Bruner, 1972; Lieberman, 1977; Piaget, 1951; Sutton-Smith, 1972). Play is described by Piaget (1951) as a source of creative imagination. Gordon (1961:110) mentions that "not all play is creative, but all

creativity contains play” and also that “play.....involves the willingness to manipulate words, concepts, everyday and technical assumptions, together with playing with apparently irrelevant objects and things” (p. 121).

According to previous theorists, play is a component of creative behaviour and playful activity may lead to playfulness and creativity during task engagement. However, there is very little naturalistic evidence to suggest that play is an important component of creativity or that play can enhance creativity (Amabile, 1983). However, Bloom & Sosniak (1981), found that, in their interviews with talented composers, early contact with the talent was unstructured and playful. Together with this, numerous researchers have found that there is a relationship between playfulness and creativity and that playfulness was identified as a characteristic that distinguished the creative child from their less creative age-mates (Getzels & Jackson, 1962; Lieberman, 1965; Torrance, 1961; Wallach & Kogan, 1965).

It is assumed that free play facilitates creativity, not only because the child is now able to discover new properties of objects, but because in fact play stimulates fantasy, which will then make creativity more likely, thus increasing creativity (Amabile, 1983). Singer’s (1961) study on children who daydream found that they produce more novel stories, which suggests a link between creativity and fantasy (Amabile, 1983).

2.8.9 Physical Environment

Very little research has been done with regards to the effects of one’s physical surroundings on creativity (Amabile, 1983). La Greca (1980) found that children will scan the environment when having to answer questions regarding creativity tests. They will, for example, scan the room for clues when asked to think of

unusual uses for an object. It was found that, when subjects in a study were deprived for three days of sensory stimulation (darkness and silence), they performed much worse on a creativity test (Fuerst & Zubek, 1968). Based on studies done by Ward (1969) and Friedman, Raymond & Feldhusen (1978) of children taking a creativity test in either a barren or rich room, it appears that the physical environment can provide visual stimulation for creative performance. However, this happens only if the children either know or are taught how they can use the cues in that environment effectively (Amabile, 1983).

2.8.10 Teachers

Creativity can be affected by a child's attitude towards teachers and classmates. The child's interactions with the teacher do not just affect what is learned and how well it is learned, but affects later attitudes towards authority figures which play a significant role in the creative process. The child's creative behaviour may either be reinforced, inhibited or constricted by interaction with teachers and classmates (Stein, 1974).

Children often see their teachers as models and the teacher's rewards, values and punishments may affect the child's attitudes, values and behaviour and also directly affect the child's creativity (Stein, 1974).

In a study conducted by Torrance (1962) to see how teachers regard creative elementary school students, he looked at what the characteristics are that differentiate highly creative students from the less creative students, and found the following. The work of a creative pupil can be characterized as playful, humorous and relaxed. These children scored high on creativity tests, but the ideas they verbalized in class were denigrated. In another study by Torrance (1964), it was found that, if the child is courteous, does his/her work on time, is

obedient and even well-liked, such a child is rewarded. It appears that the non-creative child is being rewarded and the creative child, not.

In the survey done by Torrance (1962), it was found that 70.7% of the teacher's objectives fall into the cognitive area, where the individual becomes aware of a familiar with material; 18.7% into convergent thinking, where the emphasis is on the correct attitude and solution and only 1.7 % divergent thinking, which is related to creativity. Stein (1974) states that cumulative research evidence indicates that, although there are exceptions, teachers do not foster the development of creativity, denigrate the ideas of students who are regarded as creative and reward conformity.

2.9 Cerebral hemispheres and creativity

According to Torrance (1982), creativity is a mode of thought in which both hemispheres of the brain are involved in bringing together unrelated ideas in a unique ways. According to Brandwein and Omstein (1977); McCallum and Glyn (1979) and West (1975) (in Harpaz, 1990), creativity can originate in both hemispheres, or by an interaction between the two hemispheres.

Studies have been done by numerous researchers with regards to the creative functioning of the hemispheres (Carlsson, 1989; Hoppe, 1990; Katz, 1986; and Martindale, 1984, in Carlsson, Wendt & Risberg, 2000). Martindale, Hines, Mitchell and Covello (1984) found that, in creative subjects, their right hemisphere has significantly more activity than their left hemisphere. Katz (1986) found hemisphericity to be related to objective indices of creativity. Torrance (1982) explains hemisphericity as a person's tendency, while processing information to rely on one cerebral hemisphere more than the other

According to Bogen (1969), the left cerebral hemisphere is the area that specializes in the thought process and is analytical, logical, verbal and sequential. While the right cerebral hemisphere, according to Levy-Agresti and Sperry (1968) and Bogen (1969), is responsible for perception, synthesis and holistic rearrangement of ideas.

As cited by Katz (1997), reviews by Hines (1991) and Gardner (1982), indicate that:

1. high-level creative performance involves both hemispheres of the brain,
2. different creative activities demand different cognitive skills and
3. these skills may call on the two hemispheres differently

These studies also showed that, irrespective of IQ, the integrated thinking style was preferred by the creative children, while the low creative child chose the right hemisphere if they had high IQ's. If they had a low IQ, they would choose the left hemisphere. Therefore, based on the results, it showed that intellectually gifted girls with an integrated hemispheric thinking style did have an advantage across a broad range of verbal and figural creativity measures, while the average IQ children showed a left hemisphere style of thinking preference. A clear relation to creativity was found in the integrated thinking style (Kershner & Ledger, 1985). Bogen & Bogen (1969) suggest that poor transmission across the Corpus Callosum – the pathway that connects the two hemispheres – is characteristic of people who have low levels of creativity.

2.10 Creativity as a component of resilience

According to Linqanti (1992), the term resilience describes a quality in a child who, even though exposed to stress and adversity, does not succumb to, for example, school failure and mental health problems. Everyone is born with an

innate capacity for resilience and by means of this, one is able to develop problem-solving skills, social competence, autonomy, a critical consciousness, as well as a sense of purpose (Bernard, 1991).

Problem-solving skills involve one's ability to plan and think critically and creatively and social competence includes qualities such as flexibility, empathy and communication skills. Autonomy is having a sense of one's own identity and the ability to act independently. A critical consciousness is one's awareness of oppression and the creation of strategies to overcome it and lastly, the sense of purpose refers to being goal-directed, hopeful, optimistic and persistent (Bernard, 1991).

Resilience is very important in that it helps one to overcome adversities and even to be strengthened by adversities. Resilient children are then capable of triumphing over trauma (Grotberg, 2001). There are three sources of resilience children can draw from. They are:

- * I have - e.g. people who trust me, teach me
- * I am - e.g. a person people can like and I am respectful of myself
- * I can - e.g. talk to others about things and find ways to solve problems

A child needs at least two of these features to be resilient (Grotberg, 2001).

Based on international conferences and meetings, together with the literature, a definition of resilience is suggested. Resilience can be seen as an universal human capacity to face, overcome and be strengthened by the experience of adversity. Resilience may be found in a person, group or community. Resilient behaviour may be in response to adversity in the form of maintenance of normal development, despite the adversity, or as a promotor of growth beyond the present

level of functioning. Resilience may even develop due to anticipation of inevitable adversities and resilience is, over time, integrated and promoted in the development of the child (Grotberg, 1997). External supports and resources, inner, personal strengths and social, interpersonal skills, in which, creativity falls, are the factors from which resilience is developed and nurtured (Grotberg, 1997).

Creativity and positive mental health is related and an individual who has fully developed his/her potentials and is also able to use them, has the inner resources within him/herself needed to cope with daily life stresses (Anderson & Anderson, 1965; Barron, 1963; Burkhart, 1962; Torrance, 1963). Creativity can also be seen as not only a sign of mental health, but emotional also well-being and optimal functioning (Simonton, 2000).

According to Rogers (1961), the primary motivation for creativity is the individual's natural trend toward maturation, growth and development, and that, as the child enters adulthood, creativity will maintain a central place in healthy growth. Rogers equates creativity with man's tendency to achieve his full potential. A self actualized or creative adult is ultimately an individual who is open to new experiences and creativity plays an important role in an individual's life with regard to adapting and surviving in the ever-changing world.

Various aspects found in childhood (e.g. ability to listen, curiosity and inquisitiveness) which are carried over to adulthood, reflect one's emotional well-being (Hoff & Buchholz, 1996).

2.11 Summary

Many researchers have tried to define creativity, but due to its complexity, various definitions have been suggested. It can be seen as something infinite, a process, abilities that are characteristic of creative individuals or even an imprecise category of behaviour. The characteristics of a creative person are also diverse but similarities are found amongst researchers. With regards to age, it can be seen that there is a drop in creativity, but it does increase again due to skills the child has learned. It seems as if both hemispheres of the brain and motivation play a role in creativity. Psychopathology has also been found in creative people. Creativity is also a component of resilience. Each school has developed its own theory regarding creativity.

The following chapter will examine anxiety. Various aspects regarding anxiety will be mentioned, as well as whether anxiety effects creativity or not.

Chapter 3

Anxiety

“One thing is certain, that the problem of anxiety is a nodal point, linking up all kinds of the most important questions; a riddle, of which the solution must cast a flood of light upon our whole mental life”.

- Sigmund Freud (in Barlow & Durand, 1995) -

3.1 Introduction

In this chapter, various definitions will be provided regarding anxiety. The researcher will give an integrated definition that will be used for this study. The nature of anxiety, as well as different kinds of anxiety, will be discussed. Anxiety found in the middle childhood period will also be mentioned. Factors that may influence anxiety will be looked at as well as defences against anxiety. The role of genetics and neurobiology, gender and developmental variations will be reviewed, as well as the effects of anxiety on learning and personality styles. Various views will be stated regarding theories and lastly, the researcher will look at the relationship between anxiety and creativity.

From the various theoretical approaches and many definitions, it seems that anxiety is poorly understood (Snyman, 1998).

Generalized anxiety disorders are relatively common and commonly appear in childhood or adolescence (Comer, 1995). People will often feel restless, easily fatigued, on edge, keyed up, act irritably, experience concentration problems,

muscle tension and trouble with either falling asleep or staying asleep, or experience a restless, unsatisfying sleep (APA, 1994). Being socially-neglected, isolated, withdrawn, shy and lonely are the terms that can be used to describe anxious children (Strauss, 1990).

3.2 The Nature of anxiety

3.2.1 Definitions

The word anxious is derived from the Latin word *anxius*. It means troubled in mind about some uncertain event and is related to a Greek root that means to press tight or strangle (Marks, 1978). The APA (1994) defines anxiety as an apprehensive anticipation of either future danger or misfortune that is accompanied by a feeling of dysphoria or somatic symptoms of tension. This focus of anticipation for danger may either be internal or external.

Marks (1978) explains that anxiety has always been part of the human condition and that everyone worries at some or other time. He gives the example of the caveman and the pilot of today, in that the caveman worried about where he would find food; while the pilot worries about a faulty landing system. Anxiety affects almost everyone, but the triggers for anxiety vary from individual to individual. Anxiety can be seen as the essence of the human condition (Dwivedi, 1997).

Anxiety can also be defined as an **emotional** state with a subjective experience of fear or related emotion, such as panic and unease. **Physical** symptoms are also experienced, such as breathing difficulties, a dry mouth and heart palpitations. The anxiety experienced is **future-orientated** due to the fact that

there is a continuous expectation of evil. It is also an **unpleasant emotion** and the **threat** is not observed (Burrows & Davies, 1980).

According to Kolvin & Kaplin (1988), anxiety consists of two components. The first is a **psychological** component that consists of feelings of fear, panic and tension and the second component is a **physical** one. It consists of somatic and autonomic manifestations.

Freud made an important contribution to understanding anxiety. Freud (1953) in 1894, conceptualized anxiety neurosis as a discrete clinical syndrome that must be differentiated from neurasthenia and he regarded anxiety as the essential problem in all neurotic symptom formation (1936). Freud, by attempting to understand anxiety, helped to develop a comprehensive theory of human behaviour (Selgiman, Walker & Rosenhan, 2001; Spielberger, 1972).

Anxiety, according to Basowitz, Persky, Korchin & Grinker (1955), can be defined as a conscious and reportable experience of intense dread and foreboding. It is derived internally and it is also unrelated to external threat. They also believe that the individual who is anxious is able to observe, as well as describe his/her unpleasant feelings. The individual is also able to report the duration and intensity of these feelings.

It is important to know the difference between stress, threat and anxiety, as these words are often interchanged by those who do research on the anxiety phenomena (Spielberger, 1972). Spielberger (1972) proposes that stress and threat denote different aspects of a temporal sequence of events that evokes an anxiety state.

- ◆ Stress:
It refers to the objective stimulus properties of a situation

- ◆ Threat:
It is the individual, idiosyncratic perception of a particular situation that is dangerous, either physically or psychologically. The threat of the situation is determined by past experiences of a similar situation.

- ◆ Anxiety:
It occurs when individuals interpret a situation as threatening. The individual will experience an increase in the intensity of an emotional state and a heightened autonomic nervous system activity. The amount of threat perceived will determine the duration and intensity of the anxiety (Spielberger, 1972).

3.2.2 Anxiety as an emotional state

According to Spielberger (1972), both fear and anxiety have, for a long time, been regarded as fundamental human emotions. Anxiety in the twentieth century emerges as a central problem and a theme of modern life.

Marks (1978) explains anxiety as an emotion one feels when one is in a tight corner and feels threatened. The threat may not be obvious to the individual. Various terms such as apprehension, uneasiness, nervousness, worry, jitteriness, unsettled, terror and panic, can be used to describe anxiety, in that the words say something about the subtle nuances of emotions that are similar to anxiety (Marks, 1978; Seligman, Walker & Rosenhan, 2001). A person experiencing severe anxiety may find that it hinders their performance, but a mild anxiety may be quite

useful in that it may help one to be alert in difficult situations (Barlow & Durand, 2001; Marks, 1978).

Anxiety can be defined as an unpleasant emotional (affective) state, something felt and universally experienced (Freud, 1969). Freud (1936:70) further explains anxiety as “1. a specific unpleasurable quality, 2. efferent or discharge phenomena and 3. the perception of these”. Due to a combination of experiential and physiological qualities, anxiety can be distinguished from other affective states such as anger, grief or sorrow. The experiential qualities consist of feelings of dread, tension and apprehension, while the physiological qualities are, for example, heart palpitations, sweating, tremor and restlessness (Freud, 1936).

In a definition given by Izard (1972), anxiety is a combination of fear and two or more emotions of distress, shame, anger and interest-excitement. Such emotions can be defined as having three aspects: neurophysiological, motor-expressive and phenomenological. With regards to the neurophysiological level, emotion can be defined in terms of the electro-chemical activity patterns in the nervous system. The motor-level emotion is divided into primary and secondary, in that facial activity and patterning is primary and the bodily activity is secondary. Finally, the motivating experience and/or experience that has immediate meaning and significance for the individual is referred to as the phenomenological-level emotion (Izard, 1972).

3.2.3 Normal and clinical anxiety

To distinguish when the threshold for clinical anxiety has been reached, Akiskal (1985); Taylor and Arrow (1988) have provided a definition and guidelines for this purpose.

Taylor and Arnow (1988) define clinical anxiety as the degree in which anxiety influences an individual. Clinical anxiety, therefore, occurs when the anxiety restricts the person's functioning and treatment is necessary, or when the behaviour is of a self-destructive nature and is used to control anxiety.

Akiskal (1985) suggests that clinical anxiety is reached when:

- ◆ the emotion experienced by the individual is recurrent and persistent
- ◆ the anxiety elicited is out of proportion to the situation, or when it occurs in the absence of any ostensible danger,
- ◆ the individual is paralyzed with a sense of helplessness and is unable to take action in order to terminate the anxiety-provoking situation and
- ◆ lastly, the impairment of psychosocial or physiologic functioning occurs.

3.2.4 Four dimensions of the phenomenon of anxiety

Jablensky (1985) describes anxiety by means of the following four dimensions of the anxiety phenomenon. They are:

- ◆ Anxiety is a **subjective experience** in that anxiety is an unexplained feeling of impending fear that forms the core of the anxiety phenomenon. Other reasons for it being a subjective experience are because there is doubt whether one has the ability to handle this threat and there is also a condition of tense activity (Jablensky, 1985).
- ◆ The second dimension is **behaviour manifestation**. This ranges from an extreme excitement (hyperkinesis) to a stuporous inhibition (feigned-death reflex). Most of the clinical manifestations will fall between the two extremes (Jablensky, 1985).

- ◆ Anxiety as a **cognitive dimension** is the third dimension. Anxiety can be seen as primarily a psychic state that involves the individual's whole existence. On the one hand, anxiety influences one's consciousness and on the other, there is a mild degree of tension. Here the experience of anxiety is alien to the self (Jablensky, 1985).

- ◆ The last dimension is that anxiety shows a **physiological component**. It consists of sympathetic and parasympathetic overactivity and general arousal. The sympathetic refers to an increased heart rate, palpitations, palm-sweating and a dry mouth. The parasympathetic refers to nausea, vomiting, increased bowel movements and increased frequency of urination. None of the physiological manifestations are specific to anxiety, thereby indicating that many of these manifestations also occur in other emotional states (Jablensky, 1985).

3.2.5 Criteria for Generalized Anxiety Disorder – DSM IV

According to the Diagnostic and Statistical Manual of Mental Disorders – IV (APA, 1994), the diagnostic features for a Generalized Anxiety Disorder are the following:

- A: Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance).

- B: The person finds it difficult to control the worry.

- C: The anxiety and worry are associated with three (or more) of the following six symptoms (with at least some symptoms present for more days than not for the past six months). Only one item is required in children.
1. restlessness or feeling keyed-up or on edge
 2. being easily fatigued
 3. difficulty concentrating or mind going blank
 4. irritability
 5. muscle tension
 6. sleep disturbance (difficulty falling or staying asleep, or restless, unsatisfying sleep)
- D: The focus of the anxiety and worry is not confined to features of an Axis I disorder, eg, the anxiety or worry is not about having a panic attack (as in panic disorder), being embarrassed in public (as in social phobia), being contaminated (as in obsessive-compulsive disorder), being away from home or close relatives (as in separation anxiety disorder), gaining weight (as in anorexia nervosa), having multiple physical complaints (as in somatization disorder), or having a serious illness (as in hypochondriasis), and the anxiety and worry do not occur exclusively during post-traumatic stress disorder.
- E. The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

F: The disturbance is not due to the direct physiological effects of a substance (e.g. a drug of abuse, a medication) or a general medical condition (e.g. hyperthyroidism), and does not occur exclusively during a mood disorder, psychotic disorder, or a pervasive developmental disorder.

3.2.6 Summary

Snyman (1998) provides a summary of the different definitions given for anxiety. He indicates that anxiety:

- ◆ is an unpleasant emotion
- ◆ is a subjective experience of fear
- ◆ physical symptoms are present
- ◆ consists of cognitive components
- ◆ is future-orientated and
- ◆ is an emotional condition

The researcher accepts a combination of the definitions given for anxiety in that anxiety is seen as ***one's interpretation of a situation as threatening and an increase in emotional state and autonomic nervous system activity. Anxiety may hinder one's performance but also alert one in a difficult situation.***

3.3 Anxiety in middle childhood

According to various studies done, it can be seen that anxiety and fear develop from birth to adolescence and after reaching a plateau, they decline (Taylor & Arnou, 1988).

Silver (1979) explains anxiety by means of different life phases.

- ◆ From the period from **birth to between six and nine months**, anxiety is reflected in physical functioning. Eating and sleeping disturbances may occur (Silver, 1979). As a response to fear, a baby may exhibit behaviour such as crying and clutching that indicate helplessness and uncertainty. Due to this, the mother will pay attention to the baby's needs and security (Campbell, 1986).
- ◆ From between **six to nine months until three and a half to four years**, anxiety is reflected through fear or anger with the parents, somatic responses such as depression, eating disturbance, regression with regards to toilet training and regression to primitive forms of satisfaction such as sucking his/her thumb.
- ◆ From **three and a half years to six years of age**, any of the previous symptoms may develop. Other symptoms such as a fear of bodily harm may also be present.
- ◆ The age from **six to twelve** may have any of the symptoms present mentioned previously, as well as symptoms such as compulsive behaviour, excessive talking and obsessive fears.

From the age of **between nine and twelve**, anxiety may be due to tests or exams, bodily harm, physical appearance, death and the dark. The school situation plays an important role in anxiety. Although there is a decrease in fear of objects in the immediate environment, fantasy still plays a role as a cause for this anxiousness (Greist, Jefferson & Marks, 1986; Knopf, 1984; Nagroj, 1997).

Social anxiety can also be found in the middle childhood period. The reason is that the child is now exposed to new experiences, often without the support of parents. The child will also be uncertain whether he/she has the skills to handle the situation (Kagan & Moss, 1983). The child may find that the **school** is not the place for him/her and may experience it as a threatening place. School is also seen as a place where he/she cannot succeed and his/her identity will be lost (Purkey, 1970). Miller (1983) found that fear and concern with regards to school affairs occur in this period. Physical appearance also plays a role during this period. The child often experiences anxiety regarding **bodily harm**. During this period, the child is concerned with the integrity of his/her body (Sarason, Davidson, Lighthall, Waite and Ruebush, 1960). Sarason et al. (1960) also indicates that the **fear of death** is also found in this period, in that death becomes more personalised. The fear of being abandoned also occurs, in that he/she realises that he/she still needs his/her parents and therefore fears their death.

It can, therefore, be seen that during this period, factors such as bodily harm, fear of death, school (such as exams) and uncertainty play a role in the development of anxiety. Compulsive fears and obsessive behaviour may also be noted during this period.

3.4 Theoretical approach to anxiety

In this section, the following theories will be discussed, viz.: psychoanalytic, behavioural, cognitive, humanistic and existential.

3.4.1 Psychoanalytic approach

According to Freud (1909/1955), phobias (based on the conceptualisation of Little Hans's phobia of horses) reflect the child's attempt to defend him/herself against or avoid anxiety aroused either by unconscious forbidden thoughts or by impulses. In order to get rid of this internal conflict, the child will displace the anxiety onto an external object that can be avoided. In order to protect the child from situations in which aggressive or erotic impulses may be aroused, avoidance is made use of.

Freud has various theories of anxiety. Freud sees anxiety as repressed libido, in that when one's libido is repressed, it transforms into anxiety and will then reappear as free-floating anxiety or as an anxiety-equivalent (Achenbach, 1992; Freud, 1920; Kaplan & Sadock, 1998). According to Eagle and Wolitzky's (1988) evaluation of Freud's work regarding the repressed libido, they mention that this inability to give expression may lead to an increase in the amount of tension in the nervous system which leads to anxiety symptoms. This, however, depends on the defence mechanisms of the individual.

Freud (1920) also mentioned that the source of the child's anxiety about missing his mother is that the child is unable to expend his libido towards his mother. This results in the libido being discharged through being converted into anxiety. Therefore, the first theory of Freud's neurotic anxiety is when the libidinal impulses are repressed, they are converted into anxiety and result in free-floating anxiety or symptoms that are equivalent to anxiety (May, 1950). Due to later analysis of patients, Freud formed a new theory: anxiety as the cause of repressions. He demonstrates the theory with the case of Hans, who had a phobia towards horses and refused to go out into the street (Freud, 1936). Freud believed that the ego perceives danger and that it is not the repression that creates anxiety, but anxiety

creates repression. The ego will, therefore, perceive the danger signals and in order to avoid anxiety, symptoms and inhibitions are created (Freud, 1933; Freud, 1936; Kaplan & Sadock, 1998; Seligman, Walker & Rosenhan, 2001).

3.4.2 Behavioural approach

According to Wolpe & Rachman (1960), Hans's phobia was due to traumatic Pavlovian conditioning. Due to inconsistent research findings, many researchers and theorists questioned the Pavlovian account of fear (Menzies & Clark, 1995). An extension of Pavlovian conditioning was the two-factor model of Mowrer (1939) which Mowrer endorses Pavlovian conditioning in the initial acquisition of fear. Mowrer, however, also said that fear can also serve as an acquired source of motivation or drive. Menzies & Clark (1995) question Mowrer's model, stating that many phobic individuals can confront the phobic stimulus without covert avoidance. Clarke & Jackson (1983) also query Mowrer's model, in that they say that reduction in fear and avoidant behaviour does not necessarily occur.

The definition given by behavioursits regarding generalized anxiety disorder is that the individual learns, through conditioning, to fear and only later, to avoid certain objects, situations or events (Comer, 1995).

◆ *Learning to fear:*

Classical conditioning, according to behaviourists, is a way of acquiring fear reactions to objects or situations that are not inherently dangerous. An individual will react similarly to an event if he/she experienced a similar event previously within a short time span. One may experience an **unconditional stimulus (US)** such as one's foot being trapped between rocks and this will elicit the **unconditional response (UR)** of fear. When trapped, the individual may have

heard running water and this running water may become a **conditioned stimulus (CS)**. A formerly neutral stimulus is now associated with the entrapment in the individual's mind and thereby elicits a fear response. The fear is now a **conditioned response (CR)** in that, whenever the individual hears water, he/she will become terrified (Comer, 1995; Kaplan & Sadock, 1998; Seligman, Walker & Rosenhan, 2001).

CS : Running water → CR : Fear

US : Entrapment → UR : Fear

Modeling is another way of acquiring fear. Modeling is done through observation and imitation (Bandura & Rosenthal, 1966). One may observe that a person is afraid of an object or an event and through modeling it, the individual will develop fears of the same object or event (Comer, 1995; Kaplan & Sadock, 1998).

◆ *Learning to avoid*

Fears will undergo extinction, according to behaviourists, once the person is repeatedly exposed to the fear object. By avoiding the fear **avoidance behaviours**, through **operant conditioning** one learns to behave in ways that are rewarded (Comer, 1995; Seligman, Walker & Rosenhan, 2001). Avoidance will preserve one's fear responses (Miller, 1948). These learned fears will then develop into a generalized anxiety disorder and this development comes about through **stimulus generalizations**, in that the individual's responses to one stimulus will be elicited by a similar stimulus. The fear of running water mentioned earlier, could have generalized to a similar stimuli such as milk being poured or the sound of bubbly music (Comer, 1995).

3.4.3 Cognitive approach

Even though there are controversies about whether the cognitions of children with anxiety disorders are causes or consequences of the fear/anxiety response, according to Kendall, Howard & Epps (1988), consensus has been reached that these children display thoughts which are distorted and maladaptive.

The cognitive theorists believe that a generalized anxiety disorder is caused by **maladaptive assumptions** (Comer, 1995). According to Albert Ellis (1984), due to irrational assumptions that colour one's interpretation of an event, this causes one to experience an inappropriate emotional reaction. When faced with a stressful event and if the individual has faulty assumptions, such a person will interpret the event as dangerous and threatening and may even overreact and experience fear. Generalized anxiety disorder, therefore, develops when such an individual applies all of those assumptions to more and more of his/her life events. According to Aaron Beck (1976; 1991), an individual with a generalized anxiety disorder has unrealistic silent assumptions that imply that they are in danger. Those silent assumptions cause **automatic thoughts**, in that the individual experiences images and thoughts that are anxiety-provoking. The person will believe that people will laugh at him/her or that he/she will make a fool of him/herself when in a social situation.

Research has supported both Beck and Ellis's notion that anxiety can, indeed, be induced by maladaptive assumptions (Comer, 1995). Studies have also shown that those with upsetting thoughts and images experience features of anxiety such as muscle tension, upset stomach and a heavy feeling in the stomach (Borkovec, Lyonfields, Woser & Deihls, 1993). They will also experience more negative thoughts and be more distracted when having to concentrate on a task (Comer, 1995).

3.4.4 Humanistic and Existential approach

According to the humanistic and existential theorists, generalized anxiety disorder arises when, instead of looking at oneself honestly and acceptingly, the individual denies and distorts his/her true thoughts, behaviour and emotions. Their defensive postures make them anxious and unable to fulfill their potential (Comer, 1995).

3.4.4.1 Existential approach

Kaplan and Sadock (1998) explain the existential theory by stating that there is no specifically identifiable stimulus for the anxious feeling. People become aware of feelings of emptiness in their life. These feelings are very discomforting. Anxiety, therefore, results from a void in existence and meaning.

According to Kierkegaard (1944), the location of anxiety is in the gap that exists between the comprehension of possibility and the choice that leads to its actualization. It is also found in the movement from 'I might' to 'I will and am responsible for'. In order for the individual to fulfill his/her development, anxiety is unavoidable. Anxiety can further be described as the self-awareness of the possibility of freedom. The anxious person grasps that there is something about the possibility that is desirable and, if he/she chooses to try to make it occur, he/she will be responsible for the choice as well as the event, should it be realized (Seligman, Walker & Rosenhan, 2001). May (1950) explains Kierkegaard's notion of original anxiety as a seeking for adventure and the mysterious.

The shift from the original anxiety of the child to an adult's distress can be explained by the coming-to-pass of self-awareness, realizing one's individuality

and the separation from others and environment. Only once the individual has perceived him/herself as a separate entity, then the individual will realize his/her capacity to act upon his/her own initiative, the possibility of changing the situation and maybe even the course of life. With this realization, the problem of choice arises. The individual becomes anxious when he/she must make a choice and bear the responsibility of his/her choice (Kierkegaard, 1944; Seligman, Walker, Rosenhan, 2001).

Kierkegaard (1944) further says an individual is unable to be free and responsible without encountering anxiety. If the individual evades it, he/she will evade being him/herself. The individual will, therefore, refuse to recognize his/her possibilities and refuse to make choices.

The greater the anxiety experienced by the individual, the greater the person will be, says Kierkegaard (1944). It seems evident that Kierkegaard believes that anxiety is inherent and necessary for growth. With every experience of anxiety, the individual is able to free him/herself from the constrictions of everyday life which bar the individual from his/her freedom and possibilities. By being confronted with anxiety, the individual will realize that he/she is personally involved in his/her world and is not lost in the anonymity of what people do and that he/she has not surrendered his/her freedom to others. He/she is personally responsible for his/her decisions and actions. By having moved through anxiety, the individual will be freer to face it again (Kierkegaard, 1944; Seligman, Walker & Rosenhan, 2001).

Existentialists believe that the generalized anxiety disorders grow out of an existential anxiety that is a fear of limits and responsibilities towards one's existence (Tillich, 1952). Existential anxiety is experienced due to one's knowing that life is finite and that one fears the death that ultimately awaits one. One also

knows that one's actions and choices may have unexpected consequences and there is a fear that one may hurt someone unintentionally (Comer, 1995). There is also a belief that life has no purpose and that one's existence lacks meaning (Comer, 1995; Kaplan & Sadock, 1998). Existentialists believe that one is capable of confronting one's existential anxiety by taking responsibility for one's actions, making decisions, appreciating one's uniqueness and making one's life meaningful; one can also shrink from this confrontation (Comer, 1995).

Some people choose inauthentic lives due to being caught up in change, confusion and strain in a highly competitive, technical civilization. They will then deny their fears, avoid taking responsibility and conform to standards imposed by society (May, 1967). Existentialists believe that by leading such a life, one fails to reduce one's existential anxiety (Comer, 1995).

3.4.4.2 Humanistic approach

The humanistic approach emphasizes personal responsibility in that our fate is in our hands. They focus on the present and even though they do not deny the importance of one's past experience, they believe that one's past does not have to shape one's entire adult life. One has the ability to overcome it (Baron, 2001).

Carl Roger's explanation for generalized anxiety disorder will be discussed. When, as a child, one fails to receive unconditional positive regard from significant others, the individual develops a defensive way and therefore becomes critical of him/herself. Conditions of no worth or harsh self-standards are then developed and the individual's true experiences are denied. Defensive techniques allow one only to succeed partially in feeling good about oneself. The anxiety is, therefore, caused by the threatening self-judgements which break through and this anxiety foundation sets the stage for a generalized anxiety disorder (Comer, 1995).

3.4.5 Critical evaluation of the theoretical approaches

The researcher will provide positive as well as negative criticism regarding the various theories provided in the above section. As mentioned in the creativity chapter, the criticism may be subjective in nature, due to the fact that it is based on the researcher's point of view.

Freud started off by explaining that by displacing anxiety onto an external object, one can avoid the anxiety. This can allow one to dissociate for a specific moment in order to cope with a given situation, but one will still not have coped. When in a similar situation, the individual will not be able to deal with it and may experience it more negatively. Instead of gaining confidence in overcoming that specific situation/problem, a negative perception may be formed, resulting in possible negative self-confidence, especially if the person is prone to negative aspects regarding him/herself. The avoidance aspect can, therefore, be seen as either positive or negative. When avoidance is used, immediate relief may be experienced, but then one should later deal with it. If left undealt with, far greater consequences, such as, for example, the development of phobias, may result.

The behaviourists also make use of avoidance due to conditioned fear. As was stated earlier by Freud, by avoidance one does not learn to cope. The question arises whether the theory makes provision for anxiety outside the boundaries of modeling and conditioning. The biogenetic element may play a role in anxiety and is not mentioned in this theory. It seems as if the theory is limited and does not provide for other views regarding anxiety.

The researcher supports the cognitive theorist's idea that anxiety can be caused by maladaptive assumptions and that the individual's assumptions may be wrongly

applied to the individual's life events. The cognitive theorists tend to focus on the conscious and are not too concerned with the unconscious. The researcher believes that the unconscious may also play a role in anxiety and that both the conscious and unconscious must be explored to fully understand the individual's reasons for being anxious. The maladaptive assumptions may be a result of repressed, unconscious factors. This is something that one will have to explore.

Kierkegaard's view on anxiety seems to be rigid, in that it states that one is unable to be free without experiencing anxiety and that an individual will be greater due to the amount of anxiety experienced. People may grow due to their experiences, but it seems as if only through anxiety, one will grow. This, according to the researcher, seems to be very rigid. Not everyone denies their true thoughts, behaviours and emotions, which, according to humanistic and existential theorists, cause anxiety. By being true to oneself, one may still experience anxiety. The main criticism, therefore, is the rigidity and generalizations made by the humanistic and existential theorists.

3.5 Kinds of anxiety

3.5.1 Three types of anxiety

On the basis that the origin of anxiety is situated in the id and the superego, three types of anxiety may be distinguished (Möller, 1995).

Reality or objective anxiety refers to the fact that there is a definite known cause of anxiety for the individual to be found in the external environment. This could be, for example, an intruder. The anxiety is therefore due to a fear of the external world. This type of anxiety, therefore, has a useful function in that it protects the person, but it could also cause problems for an individual, ie. a noise could cause

the person to be unable to sleep. The level of anxiety is, therefore, proportionate to the degree of the real threat (Corey, 1996; Möller, 1995).

Anxiety found in the id and its instincts is referred to as **neurotic anxiety**. The anxiety found here is due to conflict between the id and the ego and is conscious at first, but later becomes unconscious. When the person experiences neurotic anxiety, it is due to the fact that the person gives in to his/her urges. These urges refer to the aggressive and sexual instincts. This usually develops during childhood. The child will fear a loss of control over his/her instincts with the result being punishment. A fear of repressed contents appearing may also be a factor in neurotic anxiety (Möller, 1995).

The last type is **moral anxiety**. Conflict is found between the id and the superego. Due to knowledge of unacceptable behaviour, the person will develop guilt feelings. The superego reacts with guilt feelings and anxiety as soon as the id seeks satisfaction which conflicts with one's conscience or moral values (Möller, 1995). Ego-defense behaviour is made use of, when the ego is unable to control anxiety by rational and direct methods. These ego-defence behaviours are unrealistic methods made use of by the individual (Corey, 1996)

3.5.2 Being anxious at the moment and an anxious person

Being anxious could be interpreted in two ways, in that the individual may be anxious **at the moment** or that the individual is an **anxious person**. The former refers to an immediate and ephemeral state, while the latter refers to a constant condition and which there is no time limitation. One can even describe the anxiety as either **acute**, which means that the duration is short, but has a high intensity, or as **chronic**, in that the duration is indefinite and has a low intensity. Acute can, therefore, be used to refer to the psychiatric patient as situational or transient

when describing the lesser anxiety of the stressed subject. The individual who is acutely anxious may not be able to identify his/her feelings as anxiety, while the chronically anxious individual is identified by the high frequency of occurrences and objects that evoke a detectable degree of anxiety. Chronic anxiety actually refers to a high proneness or predisposition to experience anxiety (Levitt, 1968).

Lazarus (1966) and Spielberger (1966) made a distinction between anxiety-proneness or predisposition and acute and situational anxiety. Situational anxiety is defined as a transitory state that is ephemeral and occurs in response to a stimulus. It varies in intensity as a function of the stimulus and a variety of associated physiological reactions can be found. Anxiety-proneness is a condition that is unfluctuating and exerts an influence on the individual's behaviour. Such conditions are regarded as personality traits. According to Spielberger (1966), the anxiety-prone individual, in any given situation, is more likely to experience anxiety and the intensity of the individual's feelings will be a function of both the nature of the situation, as well as the individual's characteristics.

3.5.3 The difference between state and trait anxiety

Anxiety refers to an aversive or unpleasant state that involves both a reactionary apprehension and a physiological arousal of a diffuse nature. Anxiety is referred to as being either a state (acute) or trait (chronic) anxiety (Akande, Osagie, Mwaiteleke, Botha, Ababio, Selepe & Chipeta, 1999).

Trait anxiety is one's general level of anxiety, because it is a trait or characteristic the individual will bring to each event in life (Spielberger, 1985). For some psychologists, trait anxiety reflects one's early childhood experience. That is, the atmosphere of either safety or insecurity that surrounded the individual at that time

(Comer, 1995). However, others believe that trait anxiety can be noted soon after birth (Kalin, 1993; Pekrun, 1992).

State or situation anxiety varies in that for some, it may be fearsome to walk through a forest, but for others it will be relaxing, while for some it may be fearful to fly in an airplane and for others not (Comer, 1995). It can, therefore, be said that people will differ in their sense of what situations are threatening and what are not (Weiner, 1985).

3.5.4 Personality States and Traits

According to Thome (1966), **personality states** can be seen as temporal cross-sections in the stream-of-life of a person and that they exist at a particular level of intensity and a given moment in time. Although only lasting for a short period of time, when evoked by stimuli, they can recur and endure while the evoking conditions persist. Further, these emotional reactions can be seen as the expressions of personality states. On the other hand, **personality traits** can be seen as individual differences in the way individuals perceive the world and/or disposition to react or behave in a specified manner with predictable regularity. Therefore, the stronger a personality trait, the more probable the individual will experience the emotional state that corresponds to the trait and behaviours associated with that trait will manifest in a variety of situations. It can also be seen that the stronger the personality trait, the associated behaviours and emotional states will be experienced at a higher level of intensity (Spielberger, 1972).

Spielberger (1972) explains personality traits by means of an example, that if a person is strongly disposed to experience anger, those angry feelings will be evoked more readily by frustrating situations or by a thought that one has been treated unfairly. When the individual experiences pleasant circumstances and the

anger-provoking stimuli are either absent or minimal, even though the person may be highly disposed to react with angry feelings, he/she will not likely do so.

3.6 Etiology of anxiety

3.6.1 Genetics and Neurobiology

Family studies can be useful in providing any evidence that a disorder is familial. There are two types of family studies. **Top-down** studies examine the prevalence of psychopathology in children whose parents have received an anxiety disorder and the second type, **bottom-up** studies, are where the prevalence of psychopathology is examined in parents of children who have received an anxiety diagnosis (Silverman & Ginsburg, 1998).

Various researchers have found that in top-down studies, children whose parents have an anxiety disorder are at risk of developing an anxiety disorder themselves (Berg, 1976; Fyer, Mannuzza, Gallops, Martin, Aaronson, Gorman, Liebowitz & Klein, 1990). Bottom-up studies reveal that parents are likely to show anxiety disorders or symptoms if their children have an anxiety disorder (Messer & Beidel, 1994).

Twin studies were conducted by Torgersen (1985) in which Torgersen interviewed all twin pairs in Norway between 1910 and 1955. At least one or both received in- or outpatient care for borderline psychotic states or neurotic states. Torgersen was led to conclude that only pure anxiety has a genetic basis due to the different monozygotic and dizygotic concordance rates.

Behaviourally inhibited children display many of the same behavioural, affective and physiological characteristics as children with anxiety disorders. Avoidance

and withdrawal from novel situations, dependence or clinging to parents, fearful and physiological arousal such as increased heart rate are some of their characteristics (Kagan, Reznick & Snidman, 1987). According to Biederman, Rosenbaum, Hirshfeld, Faraone, Bolduc, Gersten, Meminger & Reznick (1990) and Biederman, Rosenbaum, Bolduc-Murphy, Faraone, Chaloff, Hirshfeld & Kagan (1993), there is evidence that BI (behaviour inhibition) in infancy could cause later anxiety disorders in childhood.

3.6.2 Neurological and Physiological aspects of anxiety

Certain bodily changes occur when an individual is subjected to threat. This prepares the individual to either fight, or flee, from danger. The autonomic nervous system causes the change. The autonomic nervous system (ANS) connects the central nervous system (the brain and the spinal cord) to all the organs of the body by an extensive network of nerve fibres. The anxiety responses are, therefore, generated by the action of the body's ANS. A person's heartbeat, breathing, perspiration etc., is regulated by the ANS (Comer, 1995).

When one experiences anxiety, the ANS fibres quicken the heartbeat and produce other changes one experiences as either fear or anxiety. Those ANS nerve fibres that are responsible for these activities are known as the **sympathetic nervous system** or the **fight-or-flight system**. When danger passes, the **parasympathetic nervous system** returns one's heartbeat and other body processes to normal. The sympathetic and parasympathetic nervous systems, therefore, work in complementary ways to regulate one's anxiety reactions (Barlow & Durand, 2001; Comer, 1995).

There are two ways in which the stimulus sets off anxiety and fear. The first is when the stimuli come directly to the midbrain and cause a reflexive defence

reaction. The individual will jump or be startled and afterwards there is a reverberation to the cerebral cortex, so the individual is aware of fear or anxiety. The second manner is that the stimuli may come from the cerebral cortex. The stimuli moves down through the diencephalon to affect the sympathetic and motor changes, which allows the individual to interpret the stimuli as a threat. The physiological changes that are induced in the individual through sympathetic activity are known as anxiety or fear (May, 1950; Seligman, Walker & Rosenhan, 2001).

3.7 Factors influencing anxiety

3.7.1 Family

Overprotecting, ambivalent, rejecting and hostile can best describe the parents of anxious children (Berg & McGuire, 1974). Gerslma, Emmelkamp & Arrindell (1990) report that adults who suffer from anxiety, describe their parents and their relationship in similar ways. Dadds, Barret, Rapee and Ryan (1996) conducted a study on children ranging from 7 to 14. The results indicate that children are more likely to generate avoidance solutions if they have anxiety disorders. This could suggest that there may be family processes that are specific to families of children with anxiety disorders and these processes may either bring out or maintain these disorders in the children.

Various studies have been conducted to investigate the relations between the child's perception of parents and anxiety (Phillips, Martin & Meyers, 1972). A negative correlation was found by Schultz, Firetto & Waker (1969) between anxiety and the child's perception of his/her parents. Highly anxious subjects (male undergraduates) reported that not only do their parents stay angry at them for a longer time, but they themselves also stay angry for a longer period towards

their parents when compared to those subjects with low anxiety levels (Perdue & Spielberger, 1966). With regard to adolescents, it was found that anxiety is positively related to a pervasive dissatisfaction with others (Phillips, Hindsman & Jennings, 1960).

3.7.2 Peer Influence

Research has shown that children with peer problems seem to have higher levels of social anxiety and other forms of distress, such as loneliness, depression and inadequate feelings, when compared to well-liked children (La Greca & Stone, 1993).

In a study conducted by Strauss, Lease, Kazdin, Dulcan & Last (1989) to assess children's social competence, the results show that children with anxiety disorders are less socially competent and rated as more shy, lonely, socially-withdrawn and lacking appropriate social skills. However, not all children who have an anxiety disorder show problematic peer relationships. Post hoc analysis suggests that an important contributing factor may be the presence of comorbid depression (Strauss, Lahey, Frick, Frame & Hynd, 1988). This was supported by the study done by Ginsburg, Alonso, Hammond-Laurence & Silverman (1995) in which they found that depressive symptoms add to the prediction of poor peer relationships. Other findings in a study of children ranging from 6 - 13, reveal that children with anxiety disorders are less likely to be nominated as 'most liked' and a high proportion of children with anxiety disorders were classified as "neglected" (Strauss et al., 1988).

Studies have found that in both non-clinical and clinical samples of preschool through adolescence, anxiety is associated with diminished peer popularity (Strauss, 1988).

3.7.3 Racial and Cultural Variations

According to Neal, Lilly and Zakis (1993), fears are more frequent and intense in African-American children than in white children. Another study conducted by Last and Perrin (1993) compares the socio-demographic background, clinical characteristics and lifetime prevalence rates of specific DSM-III-R disorders of African-American and white children. The 5 to 17 year-old children were presented to a childhood anxiety clinic and met the diagnosis for anxiety disorder according to the DSM-III-R. It was found that the clinician's rating of severity for the primary diagnosis was higher for white children than for African-American. More of the white children were school refusers. The African-American children scored much higher on a fear inventory and showed a higher lifetime prevalence rate of Posttraumatic Stress Disorder than the white children. Race also plays a role in generalized anxiety disorder in that, in any given year, six percent of all African Americans suffer from generalized anxiety disorder while only 3.5 percent of white Americans suffer from generalized anxiety disorder. African American women seem to be the most socially-stressed in the country (Bennett, 1987).

Various similarities can be found between Gerber and Newman's (1980) research with regards to the children of Soweto and the Van der Walt research (1985) done after the unrest events of 1984. Children ranging from between eight and approximately sixteen years old were involved in the study. Environmental decline, unrest and powerlessness factors were found to be the factors occurring the most.

Environmental decline refers to the poor conditions of the streets, the fact that there are no parks and sports fields or other community facilities. There is also a lack of municipal services and a great need for housing. Transport over long

distances is experienced as troublesome. The other major problems are the dust, smoke and poverty experienced.

Beer gardens found in the township are seen as areas of **violence** and evil. Comrades, tsotsi's and alcohol distributors unite in these so-called beer gardens. For a black child, it is not strange to see a murder or rape and the anxious cries heard at night are not that uncommon. Children having to go and buy bread at night, because their parents come home too late, are often robbed. Children are also constantly afraid that their parents will not return in the evening after work.

People have a need to control their own life events. One does not want to feel **powerless**. When one is not in control, feelings such as helplessness, frustration, anxiety and depression occur. The black person to have lost his/her ability to be an effective and self-steering agent in his/her psychosocial environment, due to circumstances outside his/her power (Manganyi, 1973).

Due to living in a specific culture, at a particular point in the development of the culture, anxiety can be conditioned by his/her culture. There are two phases to describe the problem of anxiety and culture.

The first is the **kinds** (forms and occasions) of anxiety and the second, the **quantities** of anxiety. The former means that the kind of anxiety experienced is culturally conditioned. This means that the individual's values or goals which are essential to his/her existence as a personality, are cultural products. The latter means that the quantity of anxiety experienced is conditioned by the degree of unity, as well as by the stability, in the individual's culture. Therefore, the individual will only be able to orient him/herself if the culture is relatively unified and stable. His/her experiences of anxiety will then be less frequent and less intense (May, 1950).

Competitive success in one's culture is a way to gain security and is proof of one's power. One strives to triumph over others. By failing to achieve competitive success, the individual may start feeling worthless and when one's worth is threatened, the individual experiences anxiety. Success is a form of self-validation and anxiety often leads to redoubled efforts to attain success. Therefore, a vicious circle results:

striving \Rightarrow intrasocial hostility \Rightarrow interpersonal isolation \Rightarrow anxiety \Rightarrow increased competitive striving (May, 1950).

3.7.4 Social class

High levels of anxiety have been found in lower-class, minority-status children (Seligman, Walker & Rosenhan, 2001; Tseng & Thompson, 1969). According to Dunn (1968), they experience more anxiety than middle-class children. Based on studies done, it was found that the lower-class children utilize more primitive and less adaptive defences, such as regression and denial, than the middle-class children (Miller & Swanson, 1960). Weinstock (1967) found that social class is negatively related to primitive mechanisms such as denial, but positively related to projection and intellectualisation, more mature defenses.

Generalized anxiety disorders, according to sociocultural theorists, are likely to develop in people who are confronted with societal pressures and situations that pose a definite danger. Individuals in threatening environments develop anxiety (Baum & Flemming, 1993). Due to societal changes, such as the introduction of computer technology, media attention to child abuse and terrorism, all these have increased the prevalence of generalized anxiety disorders. In a survey done in 1975, 1.4 and 2.5 percent of the population suffered from phobic and generalized

anxiety disorders (Weissman & Beck, 1978) and those rates have increased to 11.0 and 3.8 percent (Eaton, Dryman & Weissman, 1991; Regier, Narrow, Rae, Manderscheid, Locke & Goodman, 1993). Compton, Helzer, Hwu, Yeh, McEvoy, Tipp & Spritznagel (1991) have found that these anxiety disorders occur more often in urbanized countries with greater stressful changes, than in less urbanized countries. Due to war, political oppression, natural events and modernization, anxiety symptoms seem to increase with these societal changes (Compton et al., 1991).

Poverty is one of the most direct indicators of societal stress and the sociocultural theorists predict that poor people tend to have higher rates of generalized anxiety disorder. Homes that are run-down, high crime-rate communities, fewer educational and job opportunities and a high health risk rate are synonymous with poverty (Comer, 1995). According to Blazer, Hughes, George, Swartz & Boyer (1991), in the United States, those who earn a salary of less than \$10,000 a year experience generalized anxiety disorder more than those who earn more and as the job income decreases, the generalized anxiety disorder rate increases.

Although societal pressures play a role in generalized anxiety disorder, many do not develop anxiety disorders (Comer, 1995).

3.8 Gender and developmental variations

3.8.1 Developmental variations

Studies already conducted by, for example, Francis, Last & Strauss (1987) and Strauss, Lease, Last & Francis (1988) have been done to examine children's 'symptom expression'. A study was conducted by Francis et al. (1987) where

symptoms were compared between young (5 - 8 years of age), middle (9 - 12) and older children (13 - 16). They found that young children diagnosed with Separation Anxiety Disorder presented with the symptom Nightmares about Separation. The middle children presented with Excessive Distress upon Separation.

Maladjustment, impaired social relationship and depression seem to accompany childhood and adolescent anxiety (Strauss, 1990). Last, Hersen, Kazdin, Finkelstein and Strauss (1987) have found major depression (32 %) in separation anxiety disorder and 35 % depression in overanxious disorder, while Francis, Last & Strauss (1990) also found major depression in avoidant disorder.

3.8.2 Gender Variations

According to the DSM-IV (APA, 1994), anxiety occurs more frequently in women. Oltmanns and Emery (1995) also report that anxiety occurs more frequently in women. Specific phobias, agoraphobia and panic disorders occur more in women. In generalised anxiety, an occurrence rate of 0,9 % is found in males over a period of one year and 2,4 % in women.

In studies conducted by, for example, Croake (1969); Ollendick, Yang, Dong, Xia and Lin (1995) and Lokare (1997), it was found that girls obtain much higher ratings of fear than boys. It was explained that girls will more readily admit to fear than boys while others ascribe more fear to girls than to boys. Anxiety disorders are, however, common to both male and female children of all ages (Strauss, 1988).

According to Sarason and Palola (1960), the explanation for sex differences in anxiety scores is because boys are more defensive and manifestations of anxiety

are ego-alien for them. Girls tend to be more acquiescent than boys (Phillips, Adams, Gotts & McNeil, 1969). Therefore, the explanation of sex differences in levels of anxiety, as well as in relations between anxiety and personality functioning, can be attributed to defensiveness in boys with regards to admitting it, because admitting anxiety is unmasculine. There are no implications for girls if admitting or nonadmitting to anxiety (Francis & Ollendick, 1987; Ingman, Ollendick & Akande, 1999; Sarason & Palola, 1960). In a study done with 10 year olds, it was found that anxiety is far greater for those with inappropriate sex-role characteristics (Sutton-Smith & Rosenberg, 1965). Women are more commonly diagnosed with generalized anxiety disorder (Comer, 1995).

3.9 Personality Styles and anxiety

3.9.1 Self-esteem

An individual with a high predisposition to anxiety is someone who has a poor opinion of him/herself. From the fact that he/she is more easily threatened, a poor opinion results. This is clearly seen in achievement, because this individual perceives that he/she will not have the ability to achieve, or successfully perform, on a test or task. Therefore low self-esteem can be seen as an important cause of high anxiety-proneness (Levitt, 1968; Nagraj, 1997). Rosenberg (1962) measured self-esteem in children and found an inverse relationship between self-esteem and anxiety measures, thereby indicating an association between a high level of anxiety and a low level of self-esteem. Suinn & Hill (1964) also found a marked and pervasive relationship between self-esteem and anxiety-proneness. Unexpressed feelings will, therefore, lead to a lack of self-esteem and this, in turn, may manifest as social anxiety and fear (Akande, Osagie, Mwaiteleke, Botha, Ababio, Selepe & Chipeta, 1999).

3.9.2 Guilt-proneness

Freud also sees guilt as a form of anxiety. According to Horney (1937), feelings of guilt are either an expression of anxiety or a defence against it and the neurotic individual is inclined to cover up anxiety with guilt feelings. It seems as if anxiety and guilt are related and that those with high anxiety-proneness have strong guilt feelings or more easily provoked guilt feelings (Levitt, 1968).

3.9.3 Curiosity

According to Levitt (1968), it seems logical that an individual who is predisposed to anxiety is easily threatened by the unknown and would rather prefer a well-explored milieu. This behaviour may, therefore, suggest a generalized avoidance defence, in that, in order to avoid anxiety, the individual would rather restrict his/her scope of operations. Anxious people also seem to be less motivated by curiosity. In studies conducted by both McReynold, Acker and Pietila (1961) and by Penney and McCann (1964), they found negative scores when rating children's curiosity.

3.9.4 Sensation-seeking

Emotional disruption and disorganized behaviour can be due to either too little stimulation (sensory deprivation) or too much stimulation (sensory overload). Optimal levels of stimulation vary among people, depending on causative factors. One of these factors may be due to a predisposition to anxiety. Stimulation refers to interest in excitement, strong and unpredictable, sought by an individual with a high optimal stimulation level, while someone with a low level, is someone who seeks the moderate, predictable and familiar and uses general avoidance as a defence (Levitt, 1968).

Due to its unpredictability and novelty, it seems as if sensation-seeking is reduced by anxiety. The anxious individual, therefore, seems to require less stimulation to maintain emotional balance (Zuckerman, Kolin, Price & Zoob, 1964).

3.9.5 Daydreaming

Conscious fantasy has positive as well as negative aspects, in that it can either be used to anticipate pleasure, design something for the future on a review of past gratification or torture the individual with fear, guilt or shame (Levitt, 1968).

The vernacular designation for conscious fantasy is daydreaming. Even though found at all ages, it is most commonly found in children. The more children achieve, the less they will daydream, which suggests that daydreaming may, at times, be a substitute for other forms of behaviour (Levitt, 1968).

Due to a negative relationship between anxiety and sensation-seeking, this not only indicates that an anxiety-prone individual has a reduced scope of functioning in his/her milieu, but that he/she may be more inclined to engage in fantasy activity. Fantasy, therefore, acts as a substitute for behaviour that, because of the anxiety, is restricted. Anxiety-proneness seems to be positively related to either the extent or the incidence of daydreaming behaviour (Levitt, 1968).

To summarize, there seems to be a constellation of styles which constitute the anxious personality, in that the anxiety-prone individual has a poor self-esteem, is less curious, has more guilt feelings, daydreams more often and is less sensation-seeking (Levitt, 1968).

3.10 Defences against anxiety

When an individual is overwhelmed by anxiety, it can be said that the person is in a state of psychological disequilibrium. Due to this, either all or any of the individual's behaviours may be affected, resulting in his/her functioning being disrupted, impaired and even, in some extreme cases, coming to a halt. In order to prevent these effects and maintain emotional stability or psychological homeostasis, the individual has defences against anxiety. The amount of defence mechanisms vary. The proposed nine of Freud was expanded by followers and other psychiatrists and psychologists. These defences function very much the same as the body's physiological defences against a disease. Homeostasis is maintained without effort or awareness by the individual when functioning normally and effectively. When severe anxiety breaks into one's consciousness, symptoms such as withdrawal, depression or somatic complaints and irritability can be found (Levitt, 1968).

Defence mechanisms help a person to reduce the anxiety experienced. These develop because the ego cannot cope with conflict any more and the individual is unable to cope with the anxiety for much longer. The ego, which has to do with realistic thought and decision-making (conscious perceptual functions), is caught between the id, the superego and the demands of reality. The ego, therefore, uses defence mechanisms to protect the person against anxiety and help them to cope. A person with a weak ego will make use of more defence mechanisms, so more anxiety is experienced (Corey, 1996; Möller, 1995).

The following defence mechanisms will be explained.

3.10.1 Avoidance

Avoiding stimuli and circumstances that arouse anxiety, is one of the most common methods used to defend against anxiety. A person who is afraid of aeroplanes, will, for example, travel by train. Avoidance may be done consciously, as well as deliberately, when knowing that the stimuli or situation will be anxiety-invoking. When avoided unconsciously, the individual will be aware of the avoidance, but not realize the actual significance. Avoidance may become maladaptive when, for example, a person avoids streets or unfamiliar people due to being afraid of going out of his/her house (Levitt, 1968).

3.10.2 Denial

Denial plays a similar defensive role to that of repression (Corey, 1996). Denial is used when avoidance is impossible and the circumstances are inescapable. Denial is often unconscious and is a common mechanism used for dealing with anxiety due to natural catastrophes, such as floods, murders, war or fatal diseases. The individual will therefore deny the possibility that he/she may be ill. When an individual's denial leads to failure to take necessary precautions, it inclines towards the pathological (Levitt, 1968; Möller, 1995).

3.10.3 Repression

Repression is when a feeling or memory that may evoke anxiety or an anxious feeling, is actively forgotten. The ego will repress the contents, so as to protect the individual against anxiety (Möller, 1995). Repressed material seeks expression in some indirect form and may cause tension in the individual in either a situation or stimuli. However, anxiety is not consciously experienced and in order to prevent the anxiety from becoming conscious, other defence mechanisms

may be employed. Orthodox analysts regard repression as the cornerstone of the defences and propose that repression is used by everyone to some extent. It is characteristic of the early years of life, but some may use it in adulthood. Repression in childhood is regarded as normal, but when used in later years, it is associated with various forms of psychopathology. It is thought of as the root of free-floating anxiety (Levitt, 1968; Seligman, Walker & Rosenhan, 2001).

3.10.4 Projection

In order to escape anxiety evoked by a threatening self-concept, projection is made use of, which is another type of defence mechanism. Projection is when the individual ascribes his/her thoughts, feelings, beliefs and traits to other people. The individual will project his/her feelings outward in order to defend against the anxiety. Therefore, the transference of the perceived source of anxiety is displaced from the perceived to the environment (Levitt, 1968; Möller, 1995; Negraj, 1997; Seligman, Walker & Rosenhan, 2001). According to Campbell, Miller, Lubetsky and O'Connell (1964), among normal people the function of projection is to attribute castrating characteristics to others. Those individuals who employ projection are unaware, or not willing, to be aware of their traits that are undesirable (Corey, 1996; Sears, 1936). The purpose of projection is to prevent insight into one's undesirable traits (Levitt, 1968). An anxious person who has a broken reality and who makes use of projection as a defence mechanism, such a person will most likely distort reality in order to improve his/her self concept (Levitt, 1968).

3.10.5 Regression and Fixation

Regression and fixation are related and influence the individual's early personality development. Fixation actually enables the ego to protect the individual's

personality against anxiety. Fixation can be seen to retard one's development (Möller, 1995).

Anxiety can be produced by aspects of maturation, but the degree of anxiety depends on personal and developmental factors. When faced with acute stress, one may unconsciously seek to return to a period in one's early development in order to escape the current anxiety. Therefore the individual may behave in ways in which he/she behaved in that early period. It also often reflects less responsibility and a greater dependency. This is called regression.

Emotionally abnormal behaviour seems to be regressive in that it is less acceptable in adults than in children. Fixation is a stunting of some aspect of the personality, so that the individual can avoid the anxiety that accompanies further development. The individual will attain chronological adulthood, but with immature behaviours or characteristics. The individual will not regress from an advanced point of development, but will simply never reach it (Levitt, 1968; Möller, 1995). According to Tyler (1964), the rate of recoverability to the type of relationship that existed prior to the time that the stress was perceived, can be used to distinguish between normal and pathological regression.

3.10.6 Somatization

Physiological symptoms may occur in order to prevent the anxiety from becoming conscious. It is unclear how the anxiety becomes bound in physical symptoms and it is certain that there is no organic basis for some of these physical symptoms. Conversion hysteria is the term Freud used when the anxiety converted into somatic symptoms (Levitt, 1968). Dunbar (1947) called the conversion anxiety 'the beloved symptom', in that the individual will cling desperately to it, no matter how painful or disabling it is. Freud's conversion

hysteria term is only used when there is a dramatic loss of either motor, or sensory, functioning. People develop headaches, acute fatigue or even a running nose, that are minor symptoms, in order to distract him/herself from a threatening awareness of anxiety. This will provide an excuse for the individual to withdraw from a stressful situation (Levitt, 1968; Nagraj, 1997).

3.10.7 Counter-behaviour

Reaction formation is the repression of an unacceptable impulse, so as to avoid punishment or threat of punishment. The individual will inhibit the conscious expression of something unacceptable and will then emphasise the opposite. In order to avoid the anxiety, the individual will unconsciously adopt an opposing position. The individual will feel affection and love instead of hostility and by taking refuge in this antipodal stance, the possibility of expressing the unacceptable impulse is minimized by the individual (Levitt, 1968; Möller, 1995).

3.10.8 Compulsivity

Childhood incompetence seem to arouse anxiety in children. To overcome this incompetence, the child avoids anxiety that is associated with impending punishment and gains desirable approval in its stead. The social values become internalized. When an adult is in a situation where he/she cannot behave responsibly, he/she becomes tense. Consciously, the feelings are explained on the basis of his/her values, but on an unconscious level, the individual will anticipate the punishment that followed when, as a child, he/she had incompetent behaviour. Compulsivity is the anti-childhood-incompetence syndrome that is a defence against anxiety, or it can also be called an obsessive-compulsive defence mechanism. Those highly predisposed to anxiety tend to show compulsive behaviours. When employed within limits, compulsivity can be a very good

defence mechanism, which serves both the community and the individual, but when gets out of hand, it reduces the individual to a futile mechanical man (Levitt, 1968).

To summarise, if one's defence mechanisms should, for example under extreme pressure, crumble, feelings of worthlessness, guilt, depression and condemnation may result. Freud believed that for a normal functioning of personality, a degree of defensiveness is necessary (Möller, 1995).

3.11 Anxiety and learning

Learning can be defined, according to Levitt (1968) as a relatively permanent change in behaviour that occurs due to the result of one's past experience. Anxiety can enhance one's performance, but as soon as anxiety escalates too significantly, concentration and performance are disrupted (Akande, Osagie, Mwaiteleke, Botha, Ababio, Selepe & Chipeta, 1999)

The Iowa Theory and the Yale Theory will now be discussed with regards to the effects of anxiety on learning.

3.11.1 Iowa Theory: Anxiety as an energizing drive

According to Spence (1960), anxiety is seen as an acquired drive that is able to generally energize the organism and, therefore, anxiety ought to facilitate performance as well as increase the speed of learning. In a one-response learning situation, a high anxiety level should facilitate learning. However, one-response learning occurs infrequently in human life and in a learning circumstance, various possible responses are available to the individual. Depending on the individual's past experiences, each of the response tendencies

or habits (which have a motivational aspect that plays a role in maintaining the behaviour) has a strength of possibility or occurrence and these responses can be arranged in a hierarchy of habit strength (Levitt, 1968).

Spence (1960) believes that anxiety will energize or strengthen each of the habits that are in hierarchy, in proportion to the initial strength of the habit. The correct response will be energized by anxiety, thereby increasing the speed of learning.

3.11.2 Yale Theory: Anxiety as a situationally-determined reaction

The Yale Theory suggests that anxiety is a strong, learned drive and is situationally evoked. A specific circumstance may be stressful for the individual and other situations may not make the individual anxious. Therefore, individuals may, in the same circumstance, react differently. Learned or developed characteristic responses to the anxiety are brought by the individual to the current situation and these reactions may either be task-irrelevant or task-relevant. When performance is disrupted, the reaction is task-irrelevant and the individual may experience feelings of inadequacy, fear or failure and even have the desire to quit. Task-relevant reactions tend to facilitate performance because the individual is moved to reduce anxiety by successfully completing the task. Due to an achievement-oriented society, from an early age, emphasis is placed on successful performance and not achieving, is regarded as highly undesirable (Levitt, 1968).

Convergent functions that are measured by intelligence, academic achievement tests and laboratory tasks correlate low, but significantly with anxiety when measured by means of questionnaires. It therefore seems as if anxiety facilitates learning simple intellectual skills, as well as inhibits learning complex intellectual

skills. Females also seem to have higher anxiety levels than males (Feldhusen, Denny & Condon, 1965).

According to Sarason, Davidson, Lightfall, Waite and Ruebush (1960), anxiety correlates negatively with IQ and achievement. Anxiety was found to be related to IQ in girls (sixth grade), but not in sixth grade boys (McCandless & Castaneda, 1956).

3.12 Creativity and anxiety

For the purpose of this study, the relationship between creativity and anxiety was studied to determine if anxiety will influence the child's creativity. Other studies of creativity and anxiety will be looked at in this section, to see what other researchers have found and also to determine if those studies correlate with the researcher's study.

A study was done by Smith and Carlsson (1990), which consisted of a clinical group and a normal group that ranged in age from 29 to 60 years old. The tests used were The Creative Functioning Test (CFT), Meta-Contrast Technique (MCT) and a Creative Activity Scale, as well as interviews. The results indicated that anxiety may, indeed, exert an inhibitory influence. Other experiments done, led to the assumption that a certain amount of anxiety or discomfort is a condition necessary for creative functioning (Smith & Carlsson, 1990). Anxiety may inhibit or enhance performance (Barlow & Durand, 2001). When a person's level of anxiety becomes unbearable, the crossing between rational and irrational functioning, between conventional order and apparent anarchy, is checked and perhaps even halted altogether. An individual will even lack creative incentive without anxiety. This individual doesn't want change, because he/she is satisfied with him/herself and the world (Smith & Carlsson, 1990). According to Yando,

Seitz and Zigler (1979), disadvantaged children, who have learned to persevere despite frustrations, are more likely to develop as creative problem solvers than advantaged children who often are afraid of failure.

Personality studies done of the creative child show less anxiety (Flescher, 1963; Medinnus & Love, 1965; Reid, King & Wickwire, 1959), less attitudinal rigidity (Flemming & Weintraub, 1962) and less maladjustment (Liddle, 1958). A moderate degree of anxiety was, however, found on the Sarason's anxiety test. The least anxiety was found amongst the individuals high in intelligence and low in creativity.

No relationship was found between anxiety levels and subject performance on five creativity tasks for junior-high-school children (Feldhusen & Denny, in press). Sixth graders were used to see if there would be a difference between high and low anxious children on divergent thinking tasks. They found that the low-anxious males performed much better than the high anxious males, but little difference was found between high- and low-anxious females on the task (Wadia & Newell, 1963). A study conducted by Feldhusen, Denny & Condon (1965) found no relationship between anxiety levels and subject performance on creativity tasks.

In a study to investigate the difference between high and low anxious children in divergent and convergent thinking, the results showed a non-significant difference on divergent thinking and other studies have indicated either that the relationship between anxiety and creativity does not exist, or is negative (Feldhusen, Denny & Condon, 1965). Other studies have shown that that there is no evidence that anxiety may influence creative performance and that too much and too little stress seems to debilitate creative production, while at an optimal level of stress, creativity seems to be the greatest (Belcher, 1975; Rollins & Calder, 1975). May (1975) says that creative activity produces anxiety and one needs courage to

persevere in spite of that anxiety. A negative correlation was also found between anxiety and creativity and the creativity score of the high anxiety subjects were much lower than that of the low anxiety subjects (Okebukola, 1986).

In a study to determine the influence of a creativity programme on creative functioning and anxiety on socially-disadvantaged children, it was found that there was an improvement in creative functioning, but that anxiety levels were not reduced significantly (Van der Berg, 1993). She postulated that creativity stimulation is, indeed, an effective strategy to discover and develop hidden talents of socially-disadvantaged children. The stimulation of creativity will, therefore, promote the developmental tasks of the middle childhood period (Van der Berg, 1993).

It seems as if high anxiety level subjects will be affected more with regards to creativity than low anxiety level subjects. However, resilient children seem to persevere and be able to develop problem-solving techniques more readily than non-resilient children. The creative child, therefore, seems to have low levels of anxiety.

3.13 Summary

In this chapter it can be seen that someone who is anxious may experience feelings of restlessness, feel on edge, easily fatigued, act irritably, have difficulty in concentrating, experience muscle tension and have trouble with either falling asleep or staying asleep, or experience a restless, unsatisfying sleep. Such a person may even withdraw or feel shy and lonely. Anxiety occurs when a situation is interpreted as threatening and that perception will increase one's anxiety. One may be anxious either at the moment or be an anxious individual. Studies have

shown that children with parents who have an anxiety disorder, are at great risk of developing an anxiety disorder.

When the individual is subjected to threat, bodily changes occur and this prepares him/her for either fighting or fleeing from danger. These changes are caused by the autonomic nervous system. Various factors influence anxiety, such as family, peer influences, racial and cultural variations, social class and intellectual functioning. Girls tend to be more anxious than boy. A poor self-esteem also seems to be connected to anxiety, as well as guilt feelings. Defence mechanisms are used to defend against anxiety.

It seems as if anxiety may either inhibit creativity, or be necessary for creative functioning. However, other studies showed no relationship between the two. One would have to take all of the factors that may influence anxiety into consideration, as well as defences and one's sex. Certain test conditions may also cause one to either become anxious or not. It therefore seems as if results vary, but if one wants to study the true effects of anxiety on creativity, one would have to take all of the aforementioned into consideration, as well as administer the test in various situations and under different conditions. Both creativity and anxiety are so broadly-defined. As Torrance (1988) said, creativity is infinite. No one definition can be found to define creativity or anxiety. Anxiety is experienced in different ways by different individuals. When anxiety is viewed negatively by individuals, creativity may decline. Therefore, such individuals will have to be taught ways to try and convert the anxiety into a positive mechanism that can enhance one's creativity. Resilience may be a means by which an individual can cope with anxiety. Further studies regarding this seem to be necessary, so as to help children to convert anxiety into positive anxiety, so that it may, in turn, help to enhance the child's creativity.

Chapter 4

Method of research

4.1 Introduction

In this chapter the aims, research design, study population and sample group will be discussed. The measuring instruments used will be discussed with regards to their rationale, nature and the psychometric characteristics of each measuring instrument. A short motivation regarding each measuring instrument will be given. The statistical techniques used in the data processing will also be discussed.

4.2 Aims

The aims of this study are:

- 4.2.1 To determine the construct validity and reliability of the measuring instruments which will be used in this research.
- 4.2.2 To determine the nature of creativity to be found in middle childhood.
- 4.2.3 To determine the nature of anxiety to be found in middle childhood.
- 4.2.4 To determine the relationship between anxiety and creativity.

4.3 Research Design

For the purpose of this research, a **cross-sectional design** was used. A cross-sectional design involves the collection of data at a specific time, in contrast with

a longitudinal design that gathers data at different times (Mitchell & Jolley, 1992). This study involved age groups ranging from grade 4 to grade 7. The popularity of this design is due to the fact that it is less time-consuming. The longitudinal design was not considered because it involves measuring each individual over a period of time (Mitchell & Jolley, 1992). It is, therefore, more time-consuming and not appropriate for this study.

4.4 Study population

The study population will consist of children in their late middle childhood (grade 4 to grade 7) from schools in the Vaalpark and Bloemfontein - Free State; Potchefstroom - North West; Badplaas – Mpumalanga; Krugersdorp and Kempton Park – Gauteng; Kimberley - Northern Cape and Durban regions. A random sample of 1000 primary school children were used, but due to, for example, incomplete questionnaires, only between 684 – 925 questionnaires were used. The children are representative of the various races and socio-economic strata.

4.5 Sample group

Class lists were used to draw the sample group. The number of children drawn from each standard was divided proportionally to the total sample group of the specific school. Those identified received a letter of consent to their parents that explained the nature of the study. Only those willing to participate in the study were included.

4.6 Research Procedure

4.6.1 Orientation

This research project is part of a sub-division of an inter-university research

project regarding resilience in children in the South African context and concepts related to it. The data was gathered by co-workers from the Potchefstroom University for Christian Higher Education and the University of the Free State during 2000 under the guidance of Mrs E. van Rensburg from the PU for CHE and Dr Roelf Beukes from UFS. The title of the project is: *Resilience in children in the South African context*. Regions and schools were identified by the participants of the project, so as to make the project as broad as possible. Urban and rural areas, as well as different race groups and languages, were used in this study.

4.6.2 Phases in the research process

The research process consisted of the following phases:

- Phase 1: The principals of the schools identified and available, were approached to obtain their support. The children in the research group were drawn by means of a random sample. Information letters, which explain the aim of the research, were sent to the parents, so that they could grant permission for their child to participate in the research project.
- Phase 2: Arrangements were made for the parents to complete the Child Behaviour Checklist.
- Phase 3: The test battery was completed at the schools indicated. Completion of the questionnaires took place under the supervision of a psychometrist
- Phase 4: Processing of data was done by the PU for CHE Statistical Consultation Service

4.7 Measuring Instruments

Both English and Afrikaans mediums were used in this research project with regards to the following tests.

◆ Test Battery for children

- Biographical questionnaire
- Nowicki-Strickland Lokus van kontrole-skaal (LOK)
- Social Support Appraisal Scale (SSAS)
- Torrance Test of Creative Thinking (consisting of a verbal and a figural test)
- Certain factors of the Persoonlikheidsvraelys vir Kinders (PVK)
- Piers-Harris Children's Self-Concept Scale (PHSCS)

◆ Test Battery for parents

The parents completed three questionnaires:

- Child Symptom Inventory – 4 (CSI-)
- Behavioural and Emotional Rating Scale (BERS)
- Stress Response Scale (SRS)

◆ Test Battery for teachers:

The teachers' version of the Child Symptom Inventory – 4 (CSI-4) was completed.

For the purpose of this study, only the following tests were used and will be discussed. They are the **Torrance Test of Creative Thinking, Piers-Harris Children's Self-Concept Scale and the Child Symptom Inventory-4.**

4.7.1 Torrance Test of Creative Thinking

4.7.1.1 Rationale

The Torrance Test of Creative Thinking was designed to measure creativity. Various definitions have been made so as to define creativity, but, for this purpose, Torrance (1974) defined creativity as a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, identifying difficulties, searching for solutions, making guesses or formulating hypotheses about the deficiencies, the testing and re-testing of these hypotheses and possibly the modification thereof, so as to finally communicate the results.

4.7.1.2 Description

The test consists of four batteries of test activities, in which there are two verbal and two figural tests. The tests are divided into verbal and figural forms A and B. These tests are designed to be administered to children from kindergarten through graduate school. For this study, only two sub-tests were used, a verbal and a non-verbal test. It was decided that, so as to prevent the test battery from being too long, a shortened version would be used. The sub-tests will be discussed.

The **unusual uses for tin cans**, is the verbal test used for the research project. The pupil was given ten minutes to complete this test, in which he/she had to list, as many as possible interesting and unusual uses for a tin can. No limit was given to the size of the can or the amount of cans. Scores for fluency, flexibility,

originality, as well as for elaboration, are totaled (Torrance, 1974).

For the non-verbal or figural activity, the **circles** were made use of. For this test, only ten minutes was allocated and the pupils had to see how many objects or pictures they could make from the circles on the page as part of their response. The pupil also had to add a name or title below the object. This activity requires the ability to break up the completed circle into parts, so as to see other possibilities. The scoring of this activity is scored by the same categories as that of the unusual tin cans (Torrance, 1974).

4.7.1.3 Psychometric characteristics of the Torrance Test of Creative Thinking

Goralski (Torrance, 1974) obtained reliability coefficients of 0.82, 0.78, 0.59 and 0.83 for fluency, flexibility, originality and battery total. Her test battery included both the circles as well as unusual uses. In another test-retest reliability, also using unusual uses and circles, Sommers and Wodtke (Torrance, 1974) reported reliabilities of 0.97 and 0.80.

The Torrance Test of Creative Thinking seems to show acceptable validity scores even though various studies indicate different validity coefficients.

4.7.1.4 Motivation for the use of the Torrance Test of Creativity

Creativity is one of the components of this study. The Torrance test also provides good inputs with regard to creativity. The whole test battery was not used due to the fact that it is time consuming. It was, however, deemed necessary to use a verbal as well as a non-verbal test.

4.7.2 Piers-Harris Children's Self-Concept Scale (PHSCS)

4.7.2.1 Rationale

The Piers-Harris is a research instrument that is answered by the child or adolescent. The answers help the researcher to identify how the child perceives him/herself. This scale, therefore, provides a global index of the child's self-concept.

4.7.2.2 Description

This scale provides a quantitative, self-report measurement of the child's self-concept and can be used on children and adolescents from the ages of eight through to eighteen. The scale consists of 80 statements in which the child/adolescent must answer 'yes' or 'no'. Information can be obtained regarding behaviour, intellectual and school status, physical appearance and attributes like anxiety, popularity, happiness and satisfaction (Piers, 1984).

For the purpose of this study, only the anxiety component (PH-IV) will be examined.

◆ Anxiety (PH-IV)

This section consists of 14 items and reflects general emotional disruption and a dysphoric mood. Various specific emotions are addressed here, such as nervousness, fear and heartsoreness. A more focused inquiry of the specific item response is required when a low score is found from this scale. It can help identify the individual's problems and decisions can be made on how to help.

4.7.2.3 Psychometric characteristics of the PHCSCS

The Piers-Harris seems to be a reliable instrument, in which the test-retest reliability coefficients range from 0.42 to 0.92 and 0.88 to 0.93 for internal consistency estimates for the total score range. The reliability coefficient for the total scale and sub-scales lies within acceptable limits. The reliability figures, when compared with other measures to assess personality traits in children and adolescents were acceptable.

In a study done by Sheare (Piers, 1984), peer acceptance and self-concept were positively correlated and it was found that peer acceptance exerts a significant impact on self-concept. However, self-concept did not significantly influence peer acceptance.

4.7.2.4 Motivation for the use of the PHCSCS

This scale was included so as to obtain information with regards to anxiety, as anxiety is a component of this study. The PHCSCS complies with both reliability and validity indexes.

4.7.3 Child Symptom Inventory – 4 (CSI-4): Parent checklist

Only the parent checklist of the CSI-4 is used for this study, as it was decided that the teachers may have less knowledge than the parents regarding the child.

4.7.3.1 Rationale

The Child Symptom Inventory-4 (CSI-4) is a screening instrument for behavioural, affective and cognitive symptoms of various psychiatric disorders. The items are based on the DSM-IV. Not only does the CSI-4 compare favourably with other scales and procedures, but it also saves a lot of time. Parents and teachers easily understand the statements. By obtaining information from both the parent and the teacher, it ensures more accurate information than other tests, due to the fact that the child may reveal certain behaviour and/or emotions in different situations (Gadow & Sprafkin, 1998).

4.7.3.2 Description

The checklist consists of 97 statements in the parent checklist and 97 in the teacher checklist. The responses range from never, sometimes and often, to very often. The never or sometimes response is scored as zero, except for a few items where there are exceptions and often (or very often) is scored as one. To determine if there is a disorder, the scores which fall into the category specified are totalled and compared with the cut-off scores (Gadow & Sprafkin, 1998).

For the purpose of this study, only the generalised anxiety disorder will be looked at.

D: Generalised Anxiety Disorder (OKIN 4, TKIN4)

Items 42-47, 2, 64

4.7.3.3 Psychometric characteristics of the CSI-4

In a study conducted by Pierre et al, 1997 (as stated in Gadow & Sprafkin, 1998), the test-retest reliabilities for all the CSI-4 categories were all significant at the $p < 0.0001$ level. Correlations for the symptom count and symptom severity score for generalised anxiety disorder were $r = 0.63$ and $r = 0.65$.

The predictive validity looked at both sensitivity, and specificity. Sensitivity is the degree to which a screening instrument identifies correctly individuals who have a disorder and specificity is the degree to which a screening instrument identifies correctly individuals who do not have the disorder. Therefore, the higher sensitivity and specificity indices, the more valid the screening instrument is.

Only Generalised Anxiety will be looked at, as it is the component required for this study.

Category	Sensitivity	Specificity
D: Generalised Anxiety	0.38	0.95

- Only the parent checklist is used in this study.

4.7.3.4 Motivation for including the CSI-4

The CSI-4 was included so as to provide information with regards to anxiety, which is a component of this study. It also provides an important input with regards to the child's functioning and if he/she is psychologically healthy or not.

4.8 Research aims and hypotheses

The following aims and hypotheses regarding the research are:

- ◆ Aim 1: Are the measuring instruments used in this research valid and reliable? The hypothesis for the first aim will be that the measuring instruments are reliable and valid.
- ◆ The second and third aim for this study is: What is the nature of creativity and anxiety to be found in the middle childhood? The hypothesis for the second and third aim could not be made due to its exploratory nature.
- ◆ The fourth aim is to determine what the relationship is between anxiety and creativity in the middle childhood. The fourth hypothesis is that there will be a negative correlation between creativity and anxiety.

4.9 Data processing

The Statistical Consultation Service of the Potchefstroom University for Christian Higher Education calculated the measuring instrument as well as the raw scores. Various techniques were used and which will be discussed below.

4.9.1 Validity and reliability of the measuring instruments

The **Cronbach Alpha Coefficient** is used to determine the reliability of the measuring instruments and the **first order factor analysis** is used to measure the construct validity of the measuring instruments.

The internal consistency of the scales within the questionnaires used are indicated by the Cronbach Alpha Coefficient. The following formula can be used to represent the internal consistency:

$$(a) = \left\{ \frac{J}{J-1} \right\} \left\{ 1 - \frac{\Sigma \text{ item variances}}{\Sigma \text{ variance of the total test}} \right\}$$

J represents the total number of the test items (Huysamen, 1978)

The function of this index is to show the degree to which the test items measure the same attribute. A high internal consistency will imply a high degree of generalizability across the items that are in the test and also over other tests that consist of similar items, that is, other parallel tests (Huysamen, 1994).

Smit (1996) believes that 0.5 is the minimum value for reliability indexes that tests must fulfil when the performance of a group is evaluated.

Due to the wide variety of measuring instruments used in this study, various factors that may influence the reliability coefficient must be taken into account.

They are:

- ◆ the methods of determining reliability indexes
- ◆ the range of individual differences
- ◆ the length of the test
- ◆ the construction of the test
- ◆ the administration procedures of the test
- ◆ the difficulty value of the test
- ◆ the influence of guessing
- ◆ distinctive characteristics of the items of measurements on which total performance is based
- ◆ the influence of speed (Smit, 1996).

Construct validity indicates the degree to which a scale, index or list of items measures the construct and not another construct (Mouton & Marais, 1990). In order to measure construct validity in this study, factor analysis is used. Huysamen (1998) defines factor analysis as a generic term used to refer to either one or two statistical procedures: component analysis and common factor analysis. Factor analysis can also be described as the statistical techniques that are used to determine the minimum number of factors to explain the intercorrelations between the variables (Smit, 1996).

Factor analysis can provide information with regards to:

- ◆ the number of factors that explain the intercorrelations between tests
- ◆ factor loadings and
- ◆ communalities.

It can also provide answers to the following:

- ◆ when wanting to know how many factors are needed to determine performance on the criterion
- ◆ when wanting to know what the nature and structure of the identified factors are and
- ◆ what proportion of the variance of the criterion scores is explained by the factors (Smit, 1996).

There are various factors that may affect the validity of the measuring instruments.

They are:

- ◆ the range of the distribution of individual differences in the performance of

- the standardized sample population
- ◆ the affect of the test length
- ◆ the influence of the reliability of a test
- ◆ criterion contamination and
- ◆ the application of statistical techniques used (Smit, 1996).

4.9.2 The nature of creativity and the nature of anxiety

To determine the nature of creativity and the nature of anxiety,

- ◆ averages (arithmetic mean)
- ◆ standard deviation
- ◆ variance coefficient
- ◆ skewness and
- ◆ kurtosis will be used.

The best criterion of locality is the arithmetic mean and is used the most (Steyn, Smith, du Toit & Strasheim, 1994). The arithmetic mean can be defined as that point in a distribution in which the algebraic total of the deviations of all the n-scores is equal to nil (Huysamen, 1983).

The standard deviation gives an indication of the degree to which the data is centred on the average, if the measurement forms a normal curve. It also indicates the homogeneity/heterogeneity of the data from a specific sample (Smit, 1983). The distances of the individual values from the arithmetic mean are reflected by the standard deviation. A greater standard deviation indicates a greater distance between the values and the arithmetic mean (Steyn et al., 1994).

Steyn et al. (1994) defines the variation coefficient as that which represents the standard deviation as a percentage of the arithmetic mean and is represented as:

$$V = 100 \left(\frac{S}{\bar{x}} \right)$$

The distribution of observations, according to Steyn et al. (1994) is also described in terms of the degree of skewness and peakedness. Huysamen (1976) defines skewness in that the skewness of the distribution curve refers to the degree of symmetry or asymmetry. Positively skewed refers to when the curve is asymmetrical due to the low frequencies at the upper end and high frequencies at the lower end of the horizontal axis. It is negatively skewed when the frequencies pile up at the upper end of the curve trailing off to the lower end.

The kurtosis measurement indicates the measure of peakedness of a distribution (Steyn et al., 1994). Leptokurtic refers to when one curve is more peaked than the other and platykurtic refers to when the curve is less peaked than the other, while mesokurtic refers to a curve of a normal distribution (Huysamen, 1976). The differences between the peakedness of distribution can be seen in figure 4 (p. 132).

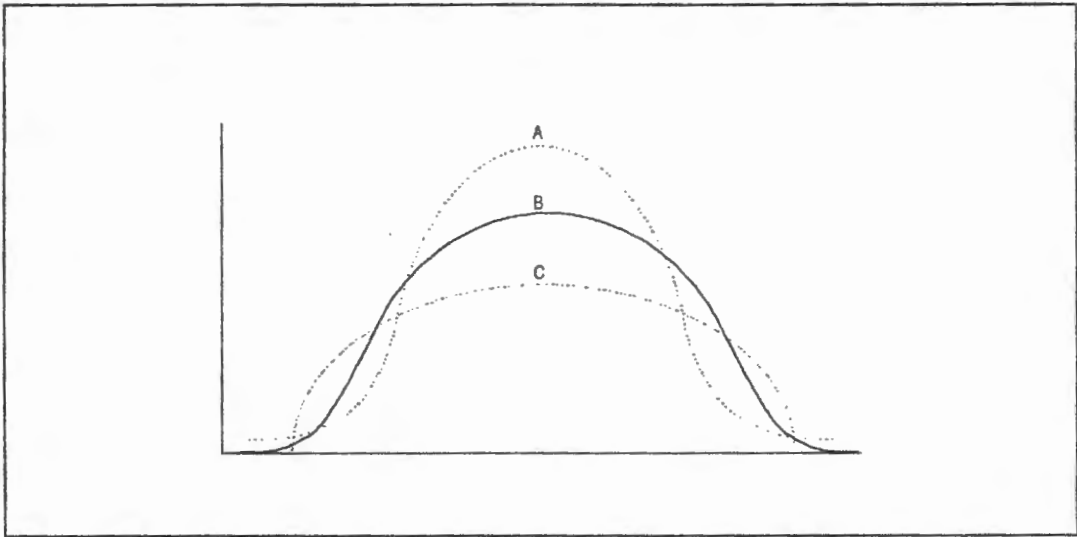


Figure 4: A: leptokurtic
 B: mesokurtic
 C: platykurtic (Huysamen, 1976)

4.9.3 The relationship between creativity and anxiety

The **Pearson correlation coefficient** will be used to determine the relationship between creativity and anxiety. The Pearson r is an index of the degree to which two variables vary together and it summarizes the relationship that is described in the scatterplot with a single number. It ranges from -1 to $+1$. By drawing a line through the points in the scatterplot, if the line slopes upward and the points fit on the line, $+1$ will be recorded, indicating a perfect correlation (correlation coefficient referring to the measure of the degree to which two variables go together). However, a negative relationship occurs if the line slopes downward and the correlation coefficient will be -1 (Mitchell & Jolley, 1992).

Correlation coefficient has the following characteristics:

- ◆ r always lies between -1 and 1 and the closer r is to -1 and 1 , the higher the correlation.

- ◆ If $r = 1$, there is a positive slope (if x increases, y also increases in value)
- ◆ If $r = -1$, x will increase and y decrease in value
- ◆ If $r = 0$, there will be no correlation.

Pearson correlation coefficient can be calculated as follows:

$$R = \frac{\text{Covariance of } x \text{ and } y}{(\text{Std dev of } x) (\text{std dev of } y)}$$

(Steyn, 1998)

Cohen's Effect Size is used to determine the practical significance. Cut-off points are given to indicate the effect size with regards to significance.

- ◆ A score of **0.1** indicates a **small effect size**.
- ◆ **0.3** indicates a **medium effect size**.
- ◆ **0.5** indicates a **large effect size** (Steyn, 1999).

4.10 Problems experienced during the research

Many problems found during the first year of the project have been overcome therefore resulting in the present researcher experiencing only a few problems regarding the research.

Problems experienced were due to:

- ◆ Either one or more parents who had to answer the questionnaire not completing it or completing only a section thereof. This resulted in

an incomplete questionnaire and it had to be thrown out.

- ◆ Marking certain of the questionnaires sub-sections was time-consuming and delayed the process.
- ◆ Not all of the questionnaires were returned, therefore they had to be discarded.

Even though problems were experienced with regards to the questionnaires, producing the previous year's data, the researcher had access to them which helped obtain a greater variety of results.

Chapter 5

Results and discussion

5.1 Introduction

The results of this research will be interpreted and described in this chapter. Tables will be made use of to explain each of the measuring instruments and each table will have a key to explain each of the headings.

Each aim will be discussed separately. The reliability and validity of the measuring instruments will be evaluated with the help of tables for the Piers Harris Children's Self-Concept Scale and the Child Symptom Inventory-4. Then, descriptive statistics will be used to evaluate the scores from Torrance Test of Creative Thinking, the Piers-Harris Self-Concept Scale and the Child Symptom Inventory-4. Comparative norms will also be used regarding the PHSCS and the CSI-4.

After the discussion of each measuring instrument, a summary will be given. Lastly, at the end of this chapter, a conclusion and an evaluation will be provided.

5.2 Aim 1: The reliability and validity of the measuring instruments

The Cronbach Alpha Coefficient, which is an index of internal consistency, will be used to determine the reliability of the measuring instrument. A high internal consistency implies a high degree of generalisability over the items of the test, as

well as over other tests that are composed out of the similar items (Huysamen, 1983).

The following deductions can be made with regards to the Cronbach Alpha Coefficient:

- 1 = definite reliability with regards to the measuring instrument
- > 0.5 = acceptable
- < 0.5 = it is doubtful whether the measuring instrument is a reliable measure with regards to the measuring of that particular variable (Huysamen, 1998).

To determine validity, factor analysis, using principal components, was made use of. Factor analysis can be used to determine the following: (I) the amount of factors needed to account for the intercorrelations among tests, (II) what factors will determine performance on each test and lastly, (III) what percentage of the variance in the test scores is explained by these factors (Smit, 1996).

According to Smit (1996), factor analysis is principally a method of analysing a psychological test. This is done by means of an analysis of the internal statistical structure of a set of variables. They are presumably a measure of the particular construct. The factorial validity of a test is, therefore, the loading of the test with a specific factor (Smit, 1996).

The highest and lowest communalities will also be discussed in that it refers to the proportion variance that consists of communal factor variances, therefore referring to the section of the variance of the variable that is determined by the factor. Communalities vary between 0 and 1, in which 1 means that the specific variable is fully explained by the withdrawn factors (Huysamen, 1998).

Each test's reliability and validity will be discussed. A table for each test will be referred to before the results are discussed.

5.2.1 Reliability and validity of the Torrance Test of Creative Thinking (Torrance, 1974)

Due to the fact that the calculation of the Cronbach Alpha Coefficient cannot be used to determine the reliability of the Torrance Test of Creative Thinking, the reliability of that test could not be determined. The nature of the responses are more qualitative. Torrance (1974) mentions that one should make use of the test-retest-method to determine the reliability, but due to the nature of this study, data was not available for that method.

5.2.2 Reliability and validity of the Piers-Harris Children's Self-Concept Scale (Piers, 1984)

Table 5.2.2.1: Cronbach Alpha coefficients and results from the factor analysis of the Piers-Harris Children's Self-Concept Scale (Piers, 1984).

Variable	α	% variance explained by the three factors	Highest communality	Lowest communality
PH4	0.72	42.49 %	0.59	0.31

Key: PH4: Variable of the measuring instrument
 α : Cronbach Alpha Coefficient

The Cronbach Alpha Coefficient measures reliability and in the Piers-Harris Children's Self-Concept Scale, a Cronbach Alpha Coefficient of 0.72 was obtained in this study, on the sub-test 4 that measures anxiety. This value is above 0.5, which means that this variable is reliable. If retesting should take place, similar results should be obtained. These results compare well with the index Piers

(1984) indicated, in which the test-retest reliability coefficient for the whole scale varied between 0.65 and 0.81.

The percentage variance explained by PH-4 (anxiety) is 42.49 % and the communalities vary between 0.59 and 0.31. Three extracted factors explain nearly half of the variance in the data.

This result agrees with a study Piers (1984) indicates where a correlation is investigated between the Piers-Harris Children's Self-Concept Scale and other measuring instruments. This index varied between 0.32 and 0.85. In the present study, the percentage variable was 42.49 %.

This measuring instrument has good reliability which means that with retesting, similar results should be obtained. However, it seems as if the variable does not measure the true concept, which results in the score not just giving an indication of the concept that was tested, but also other unknown influences.

5.2.3 Reliability and validity of the Child Symptom Inventory – 4 (Gadow & Sprafkin, 1998)

Table 5.2.3.1: Cronbach Alpha coefficients and results from the factor analysis of the Child Symptom Inventory – 4 (Gadow & Sprafkin, 1998)

Variable	α	% variance explained by the three factors	Highest communality	Lowest communality
OKIN4	0.57	57.14 %	0.73	0.24

Key: OKIN4: Variables of the parent checklist
 α : Cronbach Alpha Coefficient

The Cronbach Alpha Coefficient in the Child Symptom Inventory – 4 for parents is 0.57 in the sub-scale OKIN-4 (generalised anxiety). The value of this sub-scale is greater than 0.5, which indicates the reliability of this variable. The Cronbach Alpha Coefficients vary between 0.23 and 0.82 and agree with the reliability index in a study done by Pierre, Gadow and Sprafkin (1997) with regards to test-retest reliability. Their reliability index varied between 0.02 and 0.82. The range, therefore, also seems to be large.

The percentage variance that is explained by the sub-scale OKIN-4 (generalised anxiety) is 57.14%. The communalities vary between 0.73, which is the highest and 0.24, which is the lowest. The extracted factors, therefore, explain more than half of the variance in the data. There are, therefore, items that are represented well in the factors (0.73) and other items which are not represented so well in the factors (0.24).

It seems as if this measuring instrument has a good reliability. If retesting were done, similar results should be obtained. The percentage variance shows a greater degree of validity.

5.3 Aim 2 & 3: The nature of creativity as well as anxiety

The nature of creativity and anxiety will now be discussed separately.

5.3.1 The nature of creativity as measured by the Torrance Test of Creative Thinking

Table 5.3.1.1: Descriptive statistics: Torrance Test of Creative Thinking

Variable	N	\bar{X}	S	V	Skewness	Kurtosis	Cat.
KRE1F	840	12.42	9.65	77.70	1.31	1.83	Below ave.
KRE1K	839	6.70	4.14	61.91	1.32	5.85	Below ave.
KRE1O	840	10.70	9.79	91.55	1.39	2.04	Below ave.
KRE2F	817	11.97	9.42	78.70	1.18	1.06	Below ave.
KRE2K	838	6.93	4.44	64.12	1.15	3.29	Below ave.
KRE2O	840	9.44	10.29	108.98	1.83	3.86	Below ave.
KRE2E	840	4.26	8.61	202.05	4.60	37.66	Below ave.

Key: N - Size of sample group
 \bar{X} - Mean
 S - Standard deviation
 V - Coefficient of Variation
 Cat. - Category
 KRE1F - KRE2E - Variables of the measuring instrument
 F - Fluency
 K - Flexibility
 O - Originality
 E - Elaboration
 KRE1 - verbal test
 KRE2 - figural test
 Below average = t-scores less than 60 (cf. Table 23, Torrance 1974)

Four aspects were used to score the tests. Fluency (F) reflects the child's ability to produce as many as possible ideas for the required task. Flexibility (K) entails

the child's ability to produce various kinds of ideas, use a variety of strategies or shift from one approach to another. It is the amount of categories in which the responses are sorted. It is based on a list of categories given in the manual. The child's ability to produce ideas that are away from the obvious or commonplace, can be seen in the Originality (O) scores. Elaboration (E) is also measured by means of guidelines given in the manual. Scores for elaboration are given for any detail added to the original stimulus figure, boundaries or surrounding space.

The creativity tasks consist of a verbal test (activity 5, verbal test booklet B) and a figural test (activity 3, figural test booklet B). Kre1F, Kre1K and Kre1O indicate the scores of the verbal test and Kre2F, Kre2K, Kre2O and Kre2E indicate the scores pertaining the figural test.

Due to the fact that there is not a mask available to score the tests, a degree of subjectivity may be present. However, there are clear guidelines in the manual and correlation of coefficients varied between 0.86 and 0.99 between experienced and inexperienced scorers (Torrance, 1974).

Kre1F: Number of responses on the verbal test

Out of the sample group mentioned in 5.3.1.1, the mean for fluency is 12.42. This means that the study group responded with an average of 12 (when rounded off) responses on this verbal creativity test.

The coefficient of variation (V) is 77.70, which indicates how variable the test's scores are. The skewness is 1.31, indicating a positive skewness. The kurtosis is 1.83 which means that the peakedness of distribution is more peaked than that of a normal distribution.

Based on norms given for grade five pupils (table 23, Torrance, 1974:55), the study group's mean (12.42) will obtain a t-score of between 25 and 30. Sixty is seen as average, due to the fact that the t-scores stretch between 20 and 100. Therefore, above 60 indicates an above-average score and below 60, below-average score. A below-average t-score can therefore be interpreted for this study group.

These results imply that the study group achieved below-average scores when having to give number of responses in a specific time, when compared to another group.

Kre1K: Number of categories (verbal test)

A mean of 6.70, which is rounded off to 7, is obtained here. This indicates that the group could provide an average of 7 categories in this verbal test.

The coefficient of variation (V) is 61.91. The kurtosis indicates a peak distribution of 5.85 and the skewness is positively skewed (1.32).

A score of between 20 to 25 can be obtained when converted to t-scores. This once again indicates a below-average score. It therefore seems that this group achieves below-average results, indicating poor creativity. However, when compared with the amount of responses, it seems possible and realistic that out of 12 responses, 7 categories can be used.

Kre1O: Originality (verbal test)

A score of 10.70 is obtained and is rounded off to 11. This score lies near to the

fluency score, which means that, for approximately each response given, an original score is given.

A positive skewness of 1.39 is obtained here and the kurtosis shows a peak distribution (2.04), which is much lower than K's (categories). The coefficient of variation shows a score of 91.55.

The t-score is below average, between 35 and 40. It is higher than the others in the verbal test, as well as higher than those in the figural test.

It therefore seems as if the children are less creative, when compared, and also show a below-average score with regards to creativity in the verbal test. This correlates with a study done by Naudé (2001) with children in the same age category in South Africa. Naudé also took part in the same research project. However, her sample group only consisted of between 524 and 547. The present study group consisted of between 817 and 840 for the creativity test. It can, therefore, be said that even with an increase of pupils, a poor creativity score still remained.

Kre2F: Number of responses (figural test)

The mean obtained here is 11.97, which is rounded off to 12. Similar results are obtained with the verbal test. Approximately 12 responses were given.

The coefficient of variation is 78.70. The kurtosis is 1.06, which shows peakness, while the skewness shows a positive skewness (1.18).

The t-score is between 30 and 35, once again indicating a below-average score. It seems as if this group achieved at below-average when compared to the grade 5 group. Creativity is below average.

Kre2K: Categories (figural test)

A score of 6.93 is obtained here and, when rounded off, a score of 7 is obtained. Out of 12 responses, approximately 7 categories are made use of by the pupils in this study group.

A positive skewness of 1.15 is obtained here, with a kurtosis of 3.29. The coefficient of variation is 64.12. A t-score of 35 is obtained, which also indicates a below-average score when compared to the group 5 pupils.

Kre2O: Originality (figural test)

A mean of 9.44 is obtained, therefore indicating that, from the 12 responses given, 7 categories were used, and out of that, a score of 9 (when rounded off) for originality was obtained.

A coefficient of variation of 108.98, large relative to the other tests, is found with a positive skewness of 1.83 and a peak distribution of 3.86. A below average t-score of between 30 to 35 is obtained when compared to the group 5 pupils.

Kre2E: Elaboration (figural test)

The mean for elaboration is 4.26, which is rounded off to 4. Elaboration measures the degree of elaboration of the responses given.

The coefficient of variation is 202.05 is very large and the largest when compared to the other variabilities of the different tests. The kurtosis is 37.66, which is the largest peak and the skewness, also the largest, is positively skewed (4.60).

A t-score of between 20 and 25 is obtained, which indicates a below-average score. This low score could be due to the subjective application of the guidelines given.

It can, therefore, be concluded that the children in this study do not show characteristics of creativity. They are capable of providing responses, but the quality of the responses is not original.

Even though the test results were poor, several hypotheses can be made regarding it by the researcher. Factors such as language, in that the pupils may have been unable to understand the instructions due to the fact that they are African-speaking, and poverty, may all have played a role in the results. When pupils live in a poverty-stricken area, the chance of being creatively stimulated is low and this may influence the results with regard to the originality, as well as fluency, scores. Even though responses were given, the responses are not original ideas, but rather ordinary. This also influences the amount of categories.

Similar results were found between the verbal and the non-verbal. Originality in the verbal test was, however, higher than in the non-verbal test. A possible reason for such low elaboration scores, is that the pupils, because they are not creatively stimulated, have imaginations limited to that which they know. Lehane (1979) states that in the age of between seven and fourteen, the dreamer phase will predominate again, in that the child will be able to discover abilities to think up ideas. These ideas are used in private. It may be hypothesised that the child may have ideas, but, due to anxiety that his/her peers may comment on them, the child may continue to keep them to him/herself and not relive them, possibly resulting

in a fading of creative potential. According to the literature, factors such as, peer groups, age, cultural factors and family, may all play a role in affecting creativity.

Van der Berg (1993) postulates that creative stimulation is an effective strategy to discover and develop the latent abilities of socially-disadvantaged children. Not only to discover and develop these abilities, but also to help to promote the developmental tasks of the middle childhood years. She further states that creativity can be developed through training. These results, therefore, do not seem to be too negative, because by identifying the possible lack of creativity in schools, programmes can be used to develop the children's creativity.

5.3.2 The nature of anxiety as measured by the Piers-Harris Children's Self-Concept Scale (PHSCS)

Table 5.3.2.1: Descriptive statistics: Piers-Harris Self-Concept Scale (PHSCS)

Variable	N	\bar{X}	S	V	Skew- Ness	Kurtosis	Cat.
PH4	925	9.14	3.07	33.62	-0.45	-0.44	Ave.

Key: PH4 – variable of the measuring instrument
 N - Size of sample group
 \bar{X} – Mean
 S – Standard deviation
 V – Coefficient of Variation = standard deviation as percentage of the average mean
 Cat – Category
 Ave. – Average

Table 5.3.2.2: Comparison with norms: Piers-Harris Self-Concept Scale (PHSCS)

Variable	\bar{X}	RS	T-score	Description
PH4	9.14	9	49	Average

Key : \bar{X} – Mean
 RS – approximated raw score
 PH4 – variable of the measuring instrument

A mean of 9.14 is obtained in the sub-test anxiety (PH 4) of the Piers-Harris children's Self-Concept Scale (PHSCS). The coefficient variation is 33.62, which means that there is a smaller variation in the data of this test compared to the creativity tests.

A skewness of -0.45 and -0.44 for kurtosis is obtained. The distribution is negatively skew and flatter than the normal distribution.

In terms of comparison with norms, the study group is compared with a group of 1183 school children in Pennsylvania that range from grade 4 through 12. The scores were used for normative purposes, due to the fact that there were no sex and grade differences documented (Piers, 1984). (cf. T-scores in table 5.3.2.2).

The t-score of the sub-scale PH-4 (anxiety) is 49. This indicates an average score. The PH-4 which measures anxiety consists of 14 items which reflect general emotional disturbances and dysphoric mood. It also measures worry, nervousness, shyness, fear, sadness and a feeling of being left out of things (Piers, 1984). An average score possibly means that none of these problems seem to occur in excess and could rather be seen as situation-bound.

According to Greist, Jefferson and Marks (1986), anxiety during the ages of nine to twelve is caused by test/exams, physical appearance and bodily harm. These children may also experience obsessive fears and compulsive behaviours. These factors may have also played a role in the average scores obtained by the pupils. As anxiety did not occur in excess, their possible fear for the test could have increased their anxiety moderately. However, as it is not high, other possible reasons may be that they could have repressed their true feelings or that this small amount of anxiety might have boosted their performance (Marks, 1978). Other possible reasons may be that they are not aware of the anxiety, as it may occur continuously due to factors found in South Africa, such as violence, poverty and death. It might be that anxiety has become a 'norm' for certain individuals. This is, however, very dangerous, as it could not only influence their performance negatively, but that the children may develop other fears or phobias.

5.3.3 Child Symptom Inventory – 4 (CSI-4)

Table 5.3.3.1: Descriptive statistics: Child Symptom Inventory – 4 (CSI-4)

Variable	N	\bar{X}	S	V	Skew-Ness	Kurtosis	Cat.
OKIN4	684	0.614	1.04	168.84	2.33	6.66	

Key: OKIN4 – variable of the parent checklist
 N - Size of sample group
 \bar{X} – Mean
 S – Standard deviation
 V – Coefficient of Variation = standard deviation as percentage of the average mean
 Cat. – Category

Table 5.3.3.2: Comparison with norms: Child Symptom Inventory – 4 (CSI-4)

Scale	Variable	Cut-off point	RSOKIN	Rank
D	OKIN4	≥ 3	1	N.P.

Key: D - anxiety
 RSOKIN – approximated raw score of parents
 NP – No pathology

The results of OKIN4 – generalised anxiety are based on the information the parents have provided. The results show that there is no pathology, but symptoms of generalised anxiety are present. It seems that if the child is in a high-risk situation, the child will adapt, but show possible signs of generalised anxiety.

The coefficient of variation is 168.84 and the skewness is positively skew (2.33), with a peak distribution of 6.66.

Cutoff scores were provided in the manual (Gadow & Sprafkin, 1998). According to the cutoff score of ≥ 3 , the group obtained a mean score of 1 (when rounded off), therefore indicating no pathology. According to Blazer, Hughes, George, Swartz and Boyer (1991), only 4 % of the population meets the criteria for generalized anxiety during a given six month period. The present study group showed no pathology. This may be because they either fell into the 96 % of the population that does not meet the criteria for generalised anxiety, or that because the parents answered the questionnaire, it may not necessarily be a true reflection of the child's anxieties. They may have tried to bring their child into a positive light or that they may even not know if their child is anxious or not. This could be that because both parents may work in order to earn money, they might not be as

attentive to their child's problems and possibly overlook the anxiety, or see it only as a phase in the child's development.

5.4 Aim 4: The relationship between anxiety and creativity

Table 5.4.1: Correlations and significance between anxiety and creativity

	Kre1F	Kre1K	Kre1O	Kre2F	Kre2K	Kre2O	Kre2E
PH4: r	0.03734	-0.00432	0.00746	0.00192	0.03640	0.04198	0.06731
OKIN4: r	-0.01105	-0.00152	-0.11429*	-0.13809*	-0.12915*	-0.13354*	-0.05832

Key: r – Pearson Correlation Coefficient

* $p < 0.05$ (statistical significance)

Guidelines for Cohen's Effect Size for $r = 0.1 =$ small

**0.3 = medium

***0.5 = large

(Steyn, 1999)

Based on table 5.4.1, it can be seen that there is statistical significance. They can be found by OKIN4 and Kre1O, Kre2F, Kre2K and Kre2O. However, even though they are statistically significant, they are not really practically significant, as they show only small effect sizes.

There are no relationships to be found between the PH4 and creativity, but only between OKIN4 and creativity. This relationship indicates that anxiety does effect creativity, but only to a small extent and, in practice, it will not be that significant. A negative correlation can, however, be found. This indicates that, as soon as anxiety increases, creativity will decrease.

Over the years, various studies have been conducted to determine whether anxiety may or may not influence creativity. According to Smith and Carlsson (1990), they found that anxiety may exert an inhibitory influence on creativity, but other studies done by them also confirmed that anxiety is necessary for creative functioning. Torrance (1974) mentions that tension will increase when an individual is confronted with incongruencies. In response to this, the individual will then try to find a solution to the problem and will search for new answers. This tension will continue until the hypothesis is tested, modified and re-evaluated. Only then, when a creative solution has been found, will the tension decrease.

The results of this study indicate a negative correlation between anxiety and creativity. These results correlate with certain studies also indicating negative correlations (Okebukola, 1986; Smith & Carlsson, 1990). In a study done to determine the influence of a creativity programme on socially disadvantaged children, it was found that such a programme was not powerful enough to reduce anxiety levels significantly. It did, however, show improvement in other areas such as in self-efficacy and creative functioning (Van der Berg, 1993). Various factors such as poverty, language and parental roles all have to be taken into account when examining anxiety and its effects on creativity. A resilient child may even be able to overcome adversities and develop as a creative problem solver (Yando, Seitz & Zigler, 1979).

5.5 Evaluation of aims and hypotheses

A short summary of the results of the research will be discussed below and an evaluation of the aims and hypotheses will be provided.

5.5.1 Aim 1: The reliability and validity of the measuring instruments

The Cronbach Alpha Coefficient and factor analysis was used to determine the reliability and construct validity of the measuring instruments. The reliability for the Torrance Test of Creative Thinking could not be determined by means of the Cronbach Alpha Coefficient, because the nature of the responses is more qualitative. The hypothesis that the measuring instruments are reliable has been met. The Piers-Harris Children's Self-Concept Scale showed a degree of validity and the Child Symptom Inventory-4 showed a greater degree of validity than the PH-4.

5.5.2 Aim 2 & 3: The nature of creativity and anxiety

No hypotheses were made for the second and third objectives, due to the exploratory nature of the research. Descriptive statistics were made use of to compare the group with another group in order to determine the nature of creativity and anxiety.

When compared, the creativity scores were all below that of the comparative group. Average scores were obtained with regards to anxiety (PH-4) and no pathology was found in OKIN4 (generalised anxiety), but only symptoms of generalised anxiety.

5.5.3 Aim 4: The relationship between creativity and anxiety

The Pearson Correlation Coefficient and the Cohen's Effect Size were used to determine statistical and practical significance.

The results showed a statistical significance between creativity and anxiety (OKIN4), and relatively no practical significance, as the effect sizes were small. The results indicate that, as soon as anxiety increases, creativity will decrease. The effect of anxiety is, therefore only to a small extent. The hypothesis that there will be a negative correlation between creativity and anxiety has, therefore, been proven.

5.6 Summary

The measuring instruments showed good reliability, which means that with retesting, similar results would be obtained. Low scores of creativity was found. It seems as if the children are capable of providing responses, but the quality of the responses are not original. Only average scores were obtained for anxiety and no pathology was found in OKIN4, indicating that there are only symptoms of generalised anxiety. The results showed that as soon as anxiety increases, creativity will decrease, but that the effect of anxiety is only to a small extent.

Chapter 6

Conclusions and Recommendations

6.1 Introduction

In this chapter, a summary of the aims will be given. Conclusions from the empirical study, as well as from the literature, will be discussed. Problems experienced in the study are mentioned and recommendations will be given.

6.2 Summary of the aims

This study is part of a sub-division of an inter-university research project regarding resilience in children in the South African context and concepts related to it. The present study deals with two concepts, creativity and anxiety.

There are a variety of definitions given for creativity. Creativity can be seen as infinite, as an ability one has and even as a process which helps one to expand one's choices and release one's potential into a form of expression. Various theorists have tried to define creativity. Even though there is a common thread amongst the theories, differences do occur. Various factors may either foster or hinder a child's creative talents.

Anxiety also has various definitions. A combined definition was proposed by the researcher in that anxiety is seen as a person's interpretation of a situation as threatening and this affects one's emotional state and autonomic nervous system. This can either hinder one's performance or may also alert one in a difficult

situation. Once again, various factors, such as race, culture and even peers may influence anxiety.

Resilience helps one to overcome adversities and even be strengthened by them. When a child experiences anxiety, which may cause the child's creativity to decline, it will be useful for the child to develop coping skills to overcome the anxiety and through them, enhance his/her creativity. Coping will help the child to overcome problems which, in turn, will help to decrease anxiety and possibly increase the child's creativity.

There were four aims in this study. The first being to determine the reliability and validity of the measuring instruments, the second and third being to determine the nature of creativity and anxiety and the last, to determine the relationship between creativity and anxiety.

The Cronbach Alpha Coefficient was used to determine reliability in the measuring instruments. Reliability was found. Factor analysis was used to determine construct validity. Some constructs showed more validity than others.

The second and third aims were to determine the nature of creativity and anxiety. Descriptive statistics were used for this purpose. The children in this study did not show good results with regards to creativity. Anxiety was indicated by an average score, which shows that symptoms of anxiety may be present in danger situations and that when anxiety occurs, it will not be in excess, but rather situation-bound.

Lastly, in order to determine the relationship between anxiety and creativity, the Pearson Correlation Coefficient and Cohen's Effect Size was used. Statistical significance was found and not really practical significance, as the effect sizes

were so small. The results indicated that, when anxiety increases, creativity will decrease. Anxiety only affects creativity in a small extent.

6.3 Conclusions from the literature studies and empirical investigation

The first conclusion can be made with regards to the reliability and validity of the measuring instruments. The results show that the measuring instruments do have good reliability. When compared with the index of Piers (1984), the PH-4 showed good results regarding reliability. This indicates that, should retesting be done, similar results would be obtained. Pierre, Gadow and Sprafkin's (1997) results also agree with OKIN-4, indicating test-retest reliability. However, some results are better than others with regards to validity. The reason may be that some of the measuring instruments may not be appropriate for test circumstances in South Africa.

The results indicate poor creativity and only symptoms of anxiety in South African children. This can also be seen in the results obtained by Naudé (2001). The results indicate, that once anxiety increases, creativity will decrease. According to the literature, this is confirmed in that studies done by Smith and Carlsson (1990) indicate that anxiety may inhibit creativity. By being resilient, disadvantaged children who have learned to persevere are more likely to develop as creative problem-solvers than those children who are afraid (Yando, Seitz & Zigler, 1979).

Contradictory results were also found by Feldhusen, Denny and Condon (1965). They found that there is no relationship between anxiety and creativity. Other studies have also found no evidence that anxiety may influence creative

performance. Too much or too little stress seems to debilitate creative production. However, at an optimal level of stress, creativity seems to be the greatest (Belcher, 1975; Rollins & Calder, 1975).

As can be seen from the literature, contradictions are found regarding the effect of anxiety on creativity. The most recent literature does, however, show that anxiety may either increase or decrease creativity. These experiments were not done in South Africa so it was deemed important by the researcher to take the South African context into consideration when considering possible hypotheses why the results for creativity were so low.

In the present study, anxiety influenced creativity to a small extent. The reason could be that, in South Africa, factors such as poverty, less parental involvement and low stimulation activities may all play a role. For the children who are privileged, many seem to entertain themselves by just watching television and not playing outside, therefore losing the stimulation of being creative and finding ways of entertaining themselves outside. Toys are bought and not home-made, once again reducing creativity. Television possibly causes the child to become 'lazy' and not develop his/her creative talents.

The responses given on the creativity test were rather ordinary, thereby indicating that they are capable of giving ideas, but the quality of the ideas of a low standard. However, some of the children, in the minority though, provided responses that were very creative. This could possibly be attributed to children who are stimulated at home, as well as being talented. The parental role plays an important part in the child's creative development. Many of the answers given by the children were not clear, and due to poor spelling and/or unclear writing, the marking of the tests was very difficult. This could also have contributed to the poor results.

A possible reason for why anxiety may be low is because either the child is able to adapt to situations that are anxious or, because violence is so much in the forefront, the child may be aware of it and therefore be more capable of adjusting to or overcoming it.

6.4 Problems found in the research

The fact that the study group was compared to other groups in other circumstances than that of South Africa, could have had an effect on the results. The development of South African norms for these measuring instruments could possibly solve this problem.

Race difference may have played a role in the results, in that the respondents' mother tongue may not have been either English or Afrikaans. Even though they were in an English or Afrikaans school, they may not have fully understood the questionnaires. Possible translations of the questionnaires may help the results to be more reliable.

6.5 Recommendations

The development of a programme in order to improve the child's creativity is recommended.

Further studies can be done regarding the effect of race differences on creativity.

6.6 Summary

The researcher of this study learnt a lot with regards to empirical research and problems related to it. Through dealing with these problems, the researcher learnt a lot with regards to creativity and anxiety in a specific age group. This study, therefore, made an important contribution to the researcher's knowledge about these two aspects. Not only did the researcher gain knowledge on how anxiety may influence creativity positively or negatively, but also knowledge on how to help children creatively in therapy.

Many possibilities were identified with regards to possible future programmes. Parents, as well as teachers, can be made aware of the importance of creativity and also be made aware of the effects of anxiety. Such programmes may then help both the teacher and parent to teach the child to cope with anxiety, express their creativity and indicate ways to develop their creativity.

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