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Creativity or Calamity: what does the future hold?
An Examination of Teachers' Understandings of Creativity in a Sample of South African Schools.

by

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FTHCAT001

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ABSTRACT

Technological progress, organisational change and intensified global competition have driven a shift from manual work to 'thinking' jobs that emphasise a whole new range of skills. It is no longer enough for students to show that they are capable of passing public examinations, for to thrive in an economy defined by the innovative application of knowledge they must be able to do more than absorb and feedback information. Learners and workers must draw on their entire spectrum of learning experiences and apply what they have learned in new and creative ways (Seltzer and Bentley 1999). To help equip our learners with the attitudes and abilities that will enable them to meet future problems creatively and inventively (Parnes 1970) we need a curriculum that acknowledges the importance of creativity, as well as teachers who are able to recognise and encourage creative behaviour in their classrooms. In the absence of any formal guidance in this regard, this thesis is an attempt to find out if teachers have the broad and accurate understanding of creativity necessary to do this successfully. To achieve this aim an open-ended questionnaire was compiled and distributed to a number of teachers in a range of teaching contexts. Responses were then analysed qualitatively using a method known as the Constant Comparative Method proposed by Glaser and Strauss (1976). An interactive model of creativity (and thus, one which took into consideration the creative product, the creative person, the creative process and the creative environment) was used to structure the questionnaire and to judge the responses. Using the literature as a yardstick it was determined that, at least on an individual basis, these teachers have an extremely narrow understanding of creativity. It was also evident that there were significant differences in understanding across contexts. This is an issue that needs to be addressed with some urgency if we intend to be at all successful in our attempts to educate for creativity in this country. A shared understanding of this term needs to be ensured – not assumed – something that could be achieved through the provision of a broad and inclusive set of guidelines.

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DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

Catherine Feather
12 February 2003

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RECOGNITION

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Despite its central role in making this thesis possible, I would like to make it clear that the opinions expressed and the conclusions reached are mine, and are not necessarily to be attributed to the Spencer Foundation.

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CHAPTER ONE

GLOBAL TO LOCAL: CONTEXTUALISING CREATIVITY

1.1 The Importance of Creativity

> In a time when knowledge, constructive and destructive, is advancing by the most incredible leaps and bounds into a fantastic atomic age, genuinely creative adaptation seems to represent the only possibility that man can keep abreast of the kaleidoscopic change in his world. With scientific discovery and invention proceeding, we are told, at a geometric rate of progression, a generally passive and culture-bound people cannot cope with the multiplying issues and problems. Unless individuals, groups and nations can imagine, construct and creatively revise new ways of relating to these complex changes, the lights will go out. Unless man can make new and original adaptations to his environment as rapidly as his science can change the environment, our culture will perish. Not only individual maladjustment and group tensions but international annihilation will be the price we pay for a lack of creativity. Consequently it would seem to me that investigations of the process of creativity, the conditions under which this process occurs, and the ways in which it may be facilitated, are of the utmost importance (Rogers 1970:138).

This statement may represent an extreme view but is it completely unrealistic? I am inclined to think not. There is no denying that we live in a world that is changing rapidly – more rapidly than ever before. Indeed, in a matter of a few years (relatively speaking) we have seen the end of the cold war, the break-up of the Soviet Union and the birth of new republics, the disintegration of empires and the rise of democratic states, the victory over apartheid, the birth of the information super-highway, and the development of technologies that have changed the shape of the world as we knew it (Quisumbing 1996). As economic systems become more closely integrated, as financial markets transcend national boundaries and information exchange around the world becomes easier and faster, global markets have emerged for many of the goods and services that are bought and sold in every country every day by countless millions of people. Although these rapid changes have expanded the range of choice available to citizens all over the world, they bring with them a sense of insecurity (Canclini 2003) – and as we rush headlong into the 21st century we can only wonder what is in store for us.

In the face of such uncertainty we cannot know the challenges that will face our children in their adult lives but we *do* know that to meet these challenges they will need to be creative. Maybe Rogers is more accurate than we would care to admit; maybe creativity is our only hope of survival; maybe we *will* face international annihilation if we do not make an effort to equip our children with the attitudes and abilities that will help them meet future problems creatively and inventively (Parnes 1970). Maybe not – but is that a risk we are prepared to take?

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1.2 The Role of Education

> If we want adults who are creative, we must start in their earliest years. We are educating children for life and the attitudes that we promote at this stage will remain with them. If we do not promote creativity, children will not become the people we want them to be (Duffy 1998:11).

Given that the main purpose of education is to ensure that learners accumulate knowledge, skills and attitudes that are appropriate for the lives they are likely to lead, it is imperative that creativity be made a top priority in education (Egan 1993). Creativity is not some desirable but dispensable frill; instead it is the heart of any truly educational experience; it is not split off from "the basics" or disciplined thought or rational enquiry, but is the quality that can give them life and meaning; it is not something belonging properly to the arts, but is central to all areas of the curriculum; it is not something to ornament our recreational hours, but is the hard pragmatic centre of all effective human thinking. Any conception of rational enquiry or the foundations of education that depreciates creativity is impoverished and sure to be a practical failure. Stimulating creativity is not an alternative educational activity to be argued for in competition with other claims; it is a prerequisite to making any activity educational (Egan and Nadaner 1988).

For too long now we have placed too great a value on logical and systemic thought, to the extent that intuitive thought has not received the attention it deserves. This has led to an over-emphasis on the ability to retain and repeat facts, to be impartial, dispassionate and detached (Bruner 1986). Although this emphasis may have been acceptable at one time, it is no longer appropriate. We now live in a time when the mere knowledge of facts is no longer sufficient for holding many jobs. It is much more important to be able to use information in a productive and creative way (Jacobs 1970). Where before there was convergence, reproduction and manipulation, now there must be a focus on discovery, divergence and imagination (Powell-Jones 1972). Today's children will need to grow into adults who can deal with the unexpected; extend current knowledge to new situations; bring together previously unconnected information; use information in a new way; experiment with novel concepts; deal with incessant change; be able to reappraise values and ways of working; modify and monitor their world; think flexibly; play with ideas and materials; work with people from a diversity of cultures, languages and religions; empathise with others; collaborate in various ways with different people; take risks; be innovative; and respond imaginatively to challenges (Duffy 1998). These needs require a curriculum that acknowledges the importance of creativity, as well as teachers who can identify and encourage creative behaviour.

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1.3 The South African Context

> To give a fair chance to potential creativity is a matter of life and death for any society. This is all-important, because...creative ability... is mankind's ultimate capital asset (Toynbee 1964:3).

The year 1994 was an important year for South Africa – a year that saw the fall of the apartheid government, and a year that symbolised the beginning of a new era, an era characterised by transformation and change. In an effort to re-dress the inequities of the past, steps were taken to develop new policies in all spheres of public life – education was no exception. In recognition of the fact that the past curriculum "perpetuated race, class, gender and ethnic divisions and ...emphasised separateness, rather than common citizenship and nationhood" (Intermediate Phase Policy Document 1997:1), a new curriculum was developed to reflect the values and principles of our new democratic society. This curriculum involved a shift from the traditional aims-and-objectives approach, to outcomes-based education because this paradigm shift was seen to be a necessary prerequisite for the achievement of the following vision for South Africa:

> A prosperous, truly united, democratic and internationally competitive country with literate, **creative** and critical **citizens** leading productive, self-fulfilled lives in a country free of violence, discrimination and prejudice (Intermediate Phase Policy Document 1997:1).

That the need for creative citizens is acknowledged in the Constitution suggests that the South African government realises the central role that creativity has to play in the success of the nation – an encouraging sign. However, a reading of the current curriculum documents leaves me less than satisfied. Given the elusive nature of this concept and the many possible ways of interpreting the term 'creativity', I had expected to find that the curriculum provided teachers with guidelines for its identification and facilitation – or at the very least that it explained what it meant by this term. No such information exists. In neglecting to provide guidelines in this regard, the government is assuming that teachers share an understanding of this term. Given that one's understanding of creativity is, in large part, determined by one's cultural context (Runco and Sakamoto 1999), and given that the curriculum is meant to be implementable in a range of teaching contexts, I feel that this assumption is a highly dangerous one to make. Indeed, it is my opinion that if we are to be at all successful in our attempts to educate for creativity in this country, then it will be necessary to provide teachers with broad and inclusive guidelines in this regard – a shared understanding must be ensured not assumed. In the absence of any formal clarification on this issue, I am curious to find out what teachers actually do understand by the term 'creativity' and how closely this understanding reflects what the literature has to say about this term.

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1.4 Aims and Objectives

Having established that we need teachers who are able to encourage creativity in their classrooms and that to do this they need a broad and accurate understanding of what this entails, this thesis is an attempt to:

1) Find out and articulate what teachers in a range of teaching contexts mean when they speak about creativity;
2) Evaluate these understandings in the light of what the theory has to say; and
3) Determine whether intervention of any kind is necessary

It is hoped that in so doing I will provide the information necessary for the development of guidelines should they be needed. With these aims in mind, perhaps it would be helpful to begin with a broad overview of the relevant literature.

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CHAPTER TWO

IN SEARCH OF AN UNDERSTANDING OF CREATIVITY

Creativity defies precise definition. This conclusion does not bother me at all. In fact, I am quite happy with it.
(Torrance 1988:43)

2.1 The Problem of Definition

One would have thought that a logical starting point for creativity research would be to define what is meant by creativity. However, few psychological constructs have proved more elusive to define (Sternberg 1988). Volumes have been written in an attempt to be definitive about exactly what it is but little headway has been made (Shallcross 1981) – the reason being that creativity is too flexible and too capricious a phenomenon to be easily defined (Kneller 1965). In fact, any attempt to do so would be arbitrary and inappropriate for creativity by its very nature defies precise definition: it is "the unknown which we must recognise as unknowable until it occurs" (Rogers 1970:145).

Instead of trying to come up with a precise definition of creativity, it makes more sense to develop a broader understanding by looking at the field of creativity research as a whole. Of course this broad approach will not tell us what creativity "really is" either, but it will help in defining the core as well as the boundaries of the phenomenon – a much more useful exercise (Sternberg 1988). To do this systematically, however, one needs an organising framework of some kind – a framework which takes into consideration as many variables as possible. There is a tendency amongst researchers to choose one aspect of creativity and to neglect others. This tendency to isolate a single dimension of the topic has had the effect of distorting the findings of research; a single feature (say cognitive processes) is taken to be the whole of creativity, while other equally important features (like context) are ignored (Sternberg and Lubart cited in Feldman 1999). In order to overcome this problem and so obtain as broad and inclusive an understanding of creativity as possible, I intend to adopt a multi-dimensional approach in my review of the literature. In this regard I find the framework proposed by both Mooney (cited in Taylor 1988) and Rhodes (cited in Firestien 1993) particularly helpful.

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2.2 Towards a framework for understanding creativity

After examining the work of various theorists working within the field of creativity research, Mooney (1963) concluded that there were "four significantly different approaches to the problem of creativity, depending on which of the four aspects of the problem [the researcher] used to gain his initial hold" (cited in Taylor 1988:100) – these included: the environment in which the creation comes about; the product created; the process of creating; or the person who is creative. Similarly, after studying 56 different definitions in the literature on creativity,

Rhodes (cited in Firestien 1993) found that they were clustered around four overlapping and interrelated strands: the creative person, the creative process, the creative product, and the creative environment (or as he calls it, the creative press).

My own review of the literature has revealed a similar phenomenon. In all the creativity research books and journals that I have read, these four approaches have been used to some degree by investigators in their projects and/or programs of research (Taylor 1988). It is hardly surprising then that they have become known as 'The Classic 4 P's of Creativity' (Isaksen 1987:261), often represented diagrammatically as an overlapping Venn diagram (see Figure 1, below).

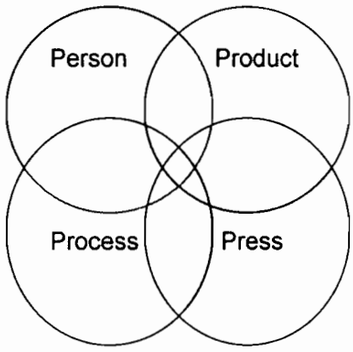

Figure 1: The 4 P's of Creativity

(taken from Firestien 1993:262)

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Although researchers working within the field of creativity tend to focus their research efforts on one particular area (product, process, person or press), the interactive nature of the 4 P's cannot be ignored. People work with processes and they work in environments that can either be supportive or non-supportive of their creative endeavours. The results of their work – the products – are introduced to environments and subsequently change those environments, and so it goes on (Firestien 1993). The entire interactive process is cyclical. The product is only a way station in the entire process of change – it is a "snapshot" of the creative person, process and environment interacting (Firestien 1993:276). As a result, no understanding of creativity will be complete if it does not take into account each of the 4 P's – and it is precisely for this reason that I have chosen to use the 4 P's as the organising framework for this thesis. What follows, then, is a review of the literature as it pertains to each of these areas.

2.3 The creative product

In studying the literature it is clear that the products of creativity can include behaviours, performances, ideas, things, and all other kinds of outputs, with any of all channels and types of expressions (Taylor 1988). Different authors emphasise different things when discussing

creative products, so in order to formulate a broad understanding of the creative product I had to draw on a number of different approaches. Indeed, it is extremely important to be aware, when reading the literature, that the nature of the product discussed in a particular article or book is usually determined by the particular approach adopted by the author, and that only by combining all the separate approaches can one gain a broad understanding of the creative product. For instance, due to psychology's emphasis on laboratory studies, the most frequently discussed "products" of creative thought in the psychological literature are solutions to problems, responses on creativity tests, and explanations for phenomena – most authors who write within this paradigm (apart from Csikszentmihalyi and Gardner and Taylor[1]) emphasise these (Tardif and Sternberg 1988). But what of technological inventions and artefacts, novel ideas, and new styles, designs, or paradigms? These forms of creativity are also important as evidenced in the work of Barron, Csikszentmihalyi, Feldman; Gruber and Davis; Johnson-Laird; Simonton; Sternberg; Taylor; Torrance and Weisberg. Also of interest is the fact that the fine arts (painting, sculpture, and music) which are generally of more interest to the layperson when thinking about creativity, receive only half as much attention from the current authors who are working within the psychological paradigm, as scientific and laboratory problem solving do (Barron, Hennessey & Amabile, Johnson-Laird, Sternberg, Taylor, Torrance, and Weisberg). Furthermore, according to Tardif and Sternberg (1988), images and behaviours are more likely to be cited in the psychological literature, as components of creativity than as creative products, whereas authors like Taylor and Torrance regard images and behaviours as being products in and of themselves. In addition, and almost entirely neglected by psychologists – but of great importance to others – are expressions of emotions and abstract ideas, the performing arts of dance and drama, occupations such as advertising and marketing, and other media such as photography and film (Tardif and Sternberg 1988). I am of the opinion that all of the above need to be included in any consideration of creative products and that an eclectic approach – one that draws from the understandings gained from all disciplines – is the ideal if one wants a broad understanding of what constitutes a creative product.

With this view in mind I would agree with Firestien's (1993) argument that creative products are not limited to tangible products and that the definition of a creative product can be broadened to include the outcome of a creative process activity. Therefore creative products can also be intangible outcomes and might include a positive change in lifestyle, better ways to deal with work-related stress, a behaviour change as a result of involvement in team problem solving, or the development of a more effective accounting process, to name a few examples (Firestien 1993). Having said this, much of the research on creative products is concerned with tangible products for it is easier to evaluate these.

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[1] All authors noted without accompanying date have chapters in: Sternberg, R. (Ed.). (1988). *The Nature of Creativity: Contemporary psychological perspectives.* Cambridge: Cambridge University Press.

An example of such research is the work of O'Quin and Besemer (1989) who have conducted extensive research on evaluating the "creativeness" of tangible products. By asking groups of people to evaluate a variety of products that ranged from T-shirts to bottle-openers, it was found that there were a number of common characteristics of creative products, and that "these common characteristics exist regardless [of whether] the product is from the arts or the sciences, whether it is mass produced or home-made, whether it is a 'one of a kind' or from a limited edition", and so on (cited in Firestien 1993:263). Their work has resulted in the development of a scale that is intended to allow one to determine if a product is indeed "creative". This scale has been named the Creative Product Semantic Scale (CPSS), and consists of three independent dimensions: (a) novelty, (b) resolution, and (c) elaboration and synthesis. Novelty focuses on the originality that the product exhibits, the principle being that for a product to be creative it must exhibit some aspect of originality. Resolution measures the degree to which a product meets the practical needs of a problem situation and so determines how well the product solves the problem. Elaboration and synthesis considers aspects of style and measures how developed or refined the product appears (cited in Firestien 1993).

Tardif and Sternberg (1988) are also interested in the evaluation of creative products and like O'Quin and Besemer (1989) are concerned with whether or not any generalisations can be made about products that are judged to be creative across different domains. As we all know, cultures are made up of a variety of domains: music, mathematics, religion, various technologies and so on. Thus, innovations that result in creative contributions do not take place directly in the culture but in a particular domain (Csikszentmihalyi 1999). By examining the literature available on creativity in different domains, Tardif and Sternberg (1988) made the following generalisations: creative products are novel – they are not imitations, nor are they mass-produced; they are powerful and generalisable (Perkins; Taylor; Torrance); they exhibit parsimony (extreme care)(Barron; Perkins; Simonton); they cause irreversible changes in the human environment (Feldman; Gardner; Simonton; Taylor); they may involve unusual sensory images or transformations (Barron; Gruber and Davis; Torrance); and they are valuable or useful to society, or at least to the restricted domain in which they were formed (Hennessey and Amabile; Taylor; Torrance; Walberg)(438). Tardif and Sternberg (1988) also came up with a number of features that they felt applied more specifically to scientific creativity and creative problem solving. According to them, creative products should show sensitivity to gaps in existing knowledge (Gruber and Davis; Torrance); cross disciplinary and within-discipline boundaries so that they are difficult to categorize (Taylor; Torrance); be surprising (Gruber and Davis; Torrance); and be correct, in that experts agree on the produced solution (Hennessey and Amabile; Simonton) (438). In addition, they may be difficult, initially vague, or ill-defined (Gardner; Gruber and Davis; Simonton; Walberg) and involve coherent synthesis of broad areas (Gruber and Davis; Torrance)(438). According to Tardif and Sternberg (1988), Torrance's criteria, which include showing humour, fantasy,

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colour, and movement, in both literal and metaphoric senses, are probably more relevant to the arts and specific tests of creativity than they are to the sciences (438).

The evaluation of creative products is crucial, for the evaluation process plays a significant role in the development of more effective and innovative products. Whether we like it or not, we constantly evaluate what is made – some people even make their livings doing so! Critics, for example, develop whole careers out of attending concerts, eating out, going to the movies, and looking at art exhibitions. They then share their evaluations of these products with their readers or listeners (Besemer and O'Quin 1993). Teachers too are concerned with the evaluation of products for they have to decide who succeeds and who fails their assignments – these can be anything from first-grade art projects to graduate level dissertations. Businesses must select products to make and promote which they think will be successful, and consumers evaluate products through their choices of what to buy. The evaluation of products takes place constantly – in all places and at all times – but it is usually done in an off-hand, intuitive way (Besemer and O'Quin 1993). Because of the intuitive nature of such evaluations, it is possible to make judgements without being conscious of the thought processes that give rise to them. Teachers in particular need to be aware of this for an off-hand comment might have the effect of quelling the creative potential of a student. In the words of Besemer and O'Quin, "the process of evaluation sometimes blows the dark cloud of gloom across an idea, dampening the spirit of the maker" (1993:31).

The purpose of evaluation should not be to stop the process of development but to build, refine, synthesize, and enhance the product. According to Firestien, "good product evaluation should be designed to develop future learning and should be seen as a stepping stone to better products" (1993:265). To this end, he suggests that evaluation of creative products should not be reduced to a single number (mark or percentage), for creative products are much more robust requiring evaluation on a number of levels. Renzulli and Reis (1993) have similar advice, arguing that feedback for evaluating a creative product does not necessarily have to be quantitative, but can be more formative or diagnostic – for from this kind of information, improvements can be made. Teachers would do well to heed this advice.

To sum up, products are the artefacts of the creative process which give, through analysis, insights into the process and the personality of the maker who created them – this is one of the prime reasons for studying creative products, according to Besemer and O'Quin (1993). They argue that "by studying the result, we can catch a glimpse of the process itself, observing it as with a mirror, so as not to frighten it away" (332). The insights gleaned from studying products are not simply deduced from looking at a single product and observing, for example, that since this product is simple, the maker and the process must be simple.

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Instead these insights are much more subtle and are gleaned from studying many products – for it is through studying many products that one is able to generalize; to see what the many examples have in common (Barron and Harrington 1981; Osowski 1986; Welsh 1973). Regardless of whether the products are generated in the arts or sciences, using traditional methods or the newest technology, whether they be mass-produced, one-of-a-kind, homemade, commercial, or from limited editions, there are, as we have seen, recognizable features in common among highly creative products that allow them to be recognized even by lay persons as "creative" (Besemer and O'Quin 1993:332).

2.4 The creative person

According to Tardif and Sternberg (1988), descriptions of the creative person typically fall into three general categories – these include: (a) cognitive characteristics; (b) personality and motivational qualities; and (c) special events or experiences during their development. Before discussing each of these categories, it is important to note that people are usually creative within particular domains of endeavour, even though people who are creative in different domains may share common traits. Thus, one may be a creative biologist, but a very uncreative novelist, or vice versa. For this reason, domain specificity is often a major consideration when describing creative persons (Csikszentmihalyi; Gardner; Johnson-Laird; Langley and Jones; Perkins; Simonton; Sternberg; Walberg; Weisburg), and according to Tardif and Sternberg (1988), domain specificity goes hand-in-hand with other characteristics such as: using one's existing knowledge in the domain as a base to create new ideas (Csikszentmihalyi; Feldman; Gruber and Davis; Johnson-Laird; Langley and Jones; Perkins; Schank; Sternberg; Torrance; Walberg; Weisberg); being alert to novelty; and finding gaps in domain knowledge (Barron; Perkins; Schank; Simonton; Sternberg; Torrance; Walberg; Weisberg) .

Tardif and Sternberg (1988) have also found that although it is generally agreed that individuals are creative within limited domains, a variety of explanations exist for why individuals differ in their propensities toward and abilities in their domains of speciality. They found, for instance, that Csikszentmihalyi, Perkins, Gardner and Walberg all attribute such specificities to inborn sensitivities to particular types of information or modes of operation. However they also found that Gruber and Davis, and Gardner, discuss unique combinations of "intelligences", while Walberg emphasises highly practiced skills as a factor.

Despite the domain specificity of individual creativity, the literature indicates that there are certain cognitive characteristics that are shared by creative people, regardless of domain. According to Tardif and Sternberg (1988), these characteristics can be grouped into three

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sets as follows: (a) traits, (b) abilities, and (c) processing styles that creative individuals use and possess (Table 1 (page 16) was developed by Tardif and Sternberg (1988) and shows the most commonly mentioned of these characteristics, along with the authors who discuss them). Starting with traits, the four main traits that Tardif and Sternberg have identified in the literature as being commonly associated with creative individuals include: relatively high intelligence; originality; verbal fluency; and a good imagination (434). As far as abilities are concerned, they argue that creative persons share the following cognitive abilities: the ability to think metaphorically; flexibility and skill in making decisions; independence of judgement; coping well with novelty; logical thinking skills; internal visualization; the ability to escape perceptual sets and entrenchment in particular ways of thinking; and finding order in chaos. Finally, they state that creative people can also be characterized by the way in which they approach problems (i.e., style) and that some of the most commonly mentioned styles presented in the literature reviewed include using wide categories and images of wide scope; a preference for non-verbal communication; building new structures rather than using existing structures; questioning norms and assumptions in their domain (asking "why?"); being alert to novelty and gaps in knowledge; and using their existing knowledge as a base for new ideas (434).

Although there are a great many characteristics associated with creative individuals, there is one in particular that Tardif and Sternberg identify as being prevalent among creative people – this characteristic they identify as an aesthetic ability which allows creative individuals to recognise "good" problems in their field and to apply themselves to these problems while ignoring others (435). It is not known what accounts for this sense of aesthetic taste and judgement. Perhaps it is some combination of the aforementioned characteristics; perhaps it is better explained by the personality or motivational characteristics which will be discussed next, or maybe it is a separate factor altogether. Whatever the explanation, they argue that this aesthetic sense is a pervasive feature of creative persons, not just in the arts, but in a variety of domains (435).

As with cognitive characteristics, Tardif and Sternberg argue that there is no one personality or motivational characteristic that can be used to attach the label "creative" to any particular person (435). They are of the opinion, and I agree with them, that creative personalities are composed of a constellation of many characteristics, some of which may be present in one creative individual, but not in another – and thus, mentioned by some authors and not others. The most commonly mentioned characteristics in the literature reviewed by Tardif and Sternberg include a willingness to confront hostility and take intellectual risks (Barron; Gardner; Hennessey and Amabile; Simonton; Sternberg; Torrance; Walberg); perseverance (Gardner; Gruber and Davis; Simonton; Sternberg; Torrance; Walberg); a proclivity to

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Characteristics	B	C	F	G	G&D	H&A	J	L&J	P	Sc	Si	St	Ta	To	Wa	W
Originality	*										*			*	*	
Articulate and Verbally fluent	*										*			*	*	
High intelligence											*				*	
Good imagination	*											*		*		
Creative in a particular domain		*		*			*	*	*		*	*			*	*
Thinks metaphorically	*		*		*							*			*	*
Uses wide categories&images					*						*			*		
Flexible & skilled decision maker		*							*		*	*	*	*		
Independent Judgement	*										*			*	*	
Copes well with novelty												*	*			
Thinks logically	*								*							
Escapes perceptual set	*											*	*			
Builds new structures	*											*		*		
Finds order in chaos	*				*							*				
Asks "why?"									*			*				
Questions norms & assumptions	*								*			*				
Alert to novelty/ Gaps in knowledge	*								*	*	*	*		*	*	*
Existing knowledge = base for new ideas		*	*		*		*	*	*	*		*		*	*	*
Prefers non-verbal communication												*		*		
Creates internal visualisations					*									*		

Table 1: *Cognitive characteristics of creative persons, by author* (taken from Tardif and Sternberg 1988:434).

Key for Table 1:

B	= Barron (1988);	P	= Perkins (1988);
C	= Csikszentmihalyi (1988);	Sc	= Schank (1988);
F	= Feldman (1988);	Si	= Simonton (1988);
G	= Gardner (1988);	St	= Sternberg (1988);
G&D	= Gruber and Davis (1988);	Ta	= Taylor (1988);
H&A	= Hennesey and Amabile (1988);	To	= Torrance (1988);
J	= Johnson-Laird (1988);	Wa	= Walberg (1988);
L&J	= Langley and Jones (1988);	W	= Weisberg (1988).

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curiosity and inquisitiveness (Hennesey and Amabile; Perkins; Simonton; Sternberg; Walberg); being open to new experiences and growth (Barron; Simonton; Sternberg; Taylor; Torrance); a driving absorption (Barron; Hennessey and Amabile; Simonton; Torrance: Walberg); discipline and commitment to one's work (Gardner; Hennessey and Amabile; Simonton: Sternberg; Torrance; Walberg; Weisberg); high intrinsic motivation (Gruber and Davis; Hennessey and Amabile; Perkins; Sternberg; Walberg); being task-focused (Gruber and Davis; Hennessey and Amabile; Simonton; Weisberg); a certain freedom of spirit that rejects the limits imposed by others (Johnson-Laird; Perkins; Sternberg; Taylor; Torrance); a high degree of self-organisation, such that these individuals set their own rules rather than follow those set by others (Feldman; Gruber and Davis; Simonton; Sternberg; Taylor); and a need for competence in meeting optimal challenges (Gruber and Davis; Hennessey and Amabile; Sternberg; Torrance) (435). According to Tardif and Sternberg, the literature also indicates that although often withdrawn, reflective, and internally preoccupied (Simonton; Sternberg; Torrance; Walberg), creative individuals are also said to have an impact on the people who surround them (Feldman; Gardner; Simonton; Torrance) (436).

Also mentioned by Tardif and Sternberg are certain characteristics that were mentioned less often in the literature but that are still generally considered to be important features of creative personalities. These included: tolerance for ambiguity (Perkins; Sternberg; Taylor); a broad range of interests (Simonton; Walberg); a tendency to play with ideas (Hennessey and Amabile; Simonton; Sternberg); valuing originality and creativity (Perkins; Walberg); unconventionality in behaviour (Barron; Walberg); intuitiveness (Barron; Sternberg); seeking interesting situations (Hennessey and Amabile; Sternberg); opportunism (Barron; Taylor; Walberg); and some degree of conflict between self-criticism and self-confidence (Barron; Feldman; Gardner) (436).

When considering comments made by different authors on how creativity and creative individuals function in social environments, Tardif and Sternberg found that, in addition to the conflict between criticism and confidence, there appeared to be a conflict or paradox between socially withdrawn and socially integrated tendencies (436). For instance, consider the statement made earlier: that creative people have an impact on others in their immediate environments, and then consider what Feldman and Gardner have to say when they suggest that what distinguishes creative individuals is their *lack* of fit to their environment. Similarly, others cited by Tardif and Sternberg have discussed creative people's need to maintain distance from their peers, an avoidance of interpersonal contact, and a resistance to societal demands (Hennessey and Amabile; Simonton; Sternberg). Paradoxically, or so it would appear, they cite still other authors who propose that creative individuals have a drive for accomplishment and recognition (Sternberg; Walberg); a need to form alliances (Gardner; Hennesey and Amabile); desire attention, praise and support (Hennessey and Amanile); are

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charismatic (Torrance; Walberg); display honesty and courage (Barron; Torrance; Walberg); are emotionally expressive (Torrance; Walberg), and are generally ethical, empathic, and sensitive to the needs of others (Gardner; Torrance; Walberg). These may seem to be conflicting traits but I have certainly found it possible for these characteristics to co-exist in one individual (436).

The final category, which Tardif and Sternberg identify in the literature, is that of developmental history (436). Many theorists have chosen to study the life histories of particularly gifted or creative individuals in the hopes of identifying similarities in their upbringing – such histories were primarily elucidated by Gruber and Davis, Simonton, and Weisberg – although some aspects of development are also discussed by Csikszentmihalyi, Gardner, Perkins, Sternberg, and Torrance. In reviewing the work of these authors, Tardif and Sternberg identify the following early experiences and demographic characteristics of creative people: being a firstborn (Simonton), having survived the loss of one or both parents early in life (Weisberg), experiencing unusual situations (Walberg), being reared in a diversified, enriching, and stimulating home environment, and being exposed to a wide range of ideas (Gardner). It has also been found, through studying childhood accounts of creative adults, that these individuals were happier with books than with people (Walberg); liked school and doing well (Walberg); had many hobbies (Simonton; Walberg); were omnivorous readers (Simonton); and formed distinct and closely knit peer groups (Czikszentmihalyi; Walberg; Weisberg), yet perhaps also exhibiting marginality (Gardner) (436).

It is also common to find mention in the literature of the tendency for creative individuals to exert sustained effort (Gruber and Davis; Perkins; Walberg; Weisberg) and hence enjoy enduring reputations (Gruber and Davis; Simonton; Walberg), have contributions that demonstrate precocity and longevity (Simonton; Walberg), publish early and get good jobs in the initial stages (Walberg), and, overall, demonstrate voluminous productivity (Gruber and Davis; Perkin; Simonton; Walberg). It is within this category that Tardif and Sternberg identify another discrepancy among the discussions of creativity. This discrepancy is between the intense preparation in the field, which is often stated as a requirement (Czikszentmihalyi; Gruber and Davis; Walberg; Weisberg), and the finding that a moderate level of training (three years of formal university education), or marginality in a field, is more highly related to creative contributions (Hennessey and Amabile; Sternberg)(437).

According to Tardif and Sternberg, having a future career image and definite role models, mentors and paragons while in training are also important factors influencing the development of creative people in many fields (437). Indeed, these features are mentioned by a number of authors, including Simonton, Torrance, Walberg and Weisberg. The importance of having a

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good mentor highlights the key role that teachers can play in this regard for they are in an ideal position to fulfil this role. Unfortunately, however, the opposite appears to be the case for studies have shown that creativity is often severely stunted when formal schooling begins (Hunter cited in Schoombie 1995). One such study, carried out by Neethling (cited in Schoombie 1995), found that 98% of the three to five year old children showed a superior level of creative behaviour. By the age of ten, the percentage of children in this category dropped to 32% and by the age of fifteen, only 10% showed the same ability. Prince (cited in Kaplinski 1979) carried out a similar study and reached roughly the same conclusions. Thus, it would seem that instead of encouraging creative behaviour, the traditional education system emphasises conformity and uniformity. If this is still the case, and I have no reason to believe it is not, teachers are clearly not being the role models and mentors that they could be in this regard.

2.5 The creative process

The most widely quoted analysis of the creative process is put forward by Graham Wallas (1926). According to this analysis, it is possible to divide the creative process into several stages: preparation; incubation; illumination; and elaboration (cited in Martindale 1999). The preparation stage is the stage in which the problem is investigated from various directions and according to Wallas includes "the whole process of intellectual education with its training in experimental and logical procedures, as well as the process of acquainting oneself with background facts and knowledge" (cited in Lytton 1971:11). In short, preparation involves thinking about or learning the mental elements thought to be relevant to the problem at hand. A solution is not usually reached at this time unless the problem is a trivial one (Helmhotz cited in Martindale 1999). Instead the problem is set aside and allowed to 'incubate'. During this stage, the individual is not consciously thinking about the problem; rather it is simmering below the level of consciousness (Lytton 1971). Following this process of incubation, the solution often suddenly becomes apparent – this is the stage of illumination or inspiration (Martindale 1999). This stage is not confined to the 'flash of insight', but includes the psychological events that immediately precede and accompany its appearance (Lytton 1971:11). Finally, during the stage of elaboration, the new idea is subjected to logical scrutiny and put into its final form (Martindale 1999).

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Wallas (1926) is not the only theorist to divide the creative process into stages, although more recently this has been done to aid training in creative problem solving techniques – the theory being that if the creative process can be broken down into stages which can be learnt, then it will be possible to increase one's creative potential. Lumsdaine and Lumsdaine (1995) provide an example of such an approach for they argue that creative problem solving has five distinct steps that correspond with different, distinct mindsets or thinking modes. In their opinion, creative problem solving comprises a sequence of successive phases of divergent

thinking followed by convergent thinking, and it is their view that if these stages are learnt and applied, one's creative ability will be greatly increased (18). Thus, Lumsdaine and Lumsdaine argue that during the first phase, we should collect as much information about a problem area as possible, then analyse the data and condense it into its major causes or factors. According to them, this is when we should be using the 'detective mindset' (1995:18). As 'explorers' we should then brainstorm the context of the problem and related issues, before our thinking converges on a problem definition statement, which must be expressed as a positive goal. This should then be followed by a brainstorming session – the object of which is to get as many "wild and crazy" ideas as possible (known as the 'divergent thinking artist mindset'). This divergent thinking must then be carried into what they label the 'engineer's mindset', as the ideas are elaborated, but then the focus should shift to include idea synthesis and convergence in order to arrive at better and more practical solutions. Next, as 'judges' we must use divergent thinking to explore criteria and make constructive improvements to the final ideas in order to overcome flaws; a stage which is followed by more convergent thinking, and which results in decision-making and selection of the best idea for implementation. According to them, implementation itself is a new problem that requires creative problem solving, and so as 'producers', we are again involved in alternate periods of divergent and convergent thinking. In conclusion; they argue that creative problem solving is thorough and takes time – for in their own words, "the quality of ideas improves if the mind is given enough time to incubate and think through the problem" (18).

Torrance (1965) provides a similar conception of the creative process, for he describes creativity as

> the process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so on; identifying the difficulty; searching for solutions, making guesses or formulating hypotheses about deficiencies: testing and retesting them; and finally communicating the results (cited in Jones 1993:134).

This definition is more applicable to a particular type of problem solving, however, and so Newell, Shaw and Simon (1962) have developed a set of criteria which must be met in order for the problem solving to be considered creative. According to them, any problem solving may be creative to the extent that one or more of the following conditions are satisfied:

- The product of the thinking has novelty and value
- The thinking is unconventional, requiring modification or rejection of previous ideas
- The problem as initially posed was undefined, so that part of the task was to formulate the problem itself

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- The thinking requires high motivation and persistence over a long span of time (continuously or intermittently) or at a high intensity

(Newell, Shaw and Simon 1962:65-66)

Indeed, by far the greatest amount of agreement amongst authors who write about the creative process is that it takes time (Tardif and Sternberg 1988). Some authors like Csikszentmihalyi, Gruber and Davis, and Johnson-Laird even believe that the very nature of creativity depends on the time constraints involved and the opportunity to revise, or nurture, the outcomes once produced. Although not all theorists emphasise time to the same extent, it is generally agreed that the creative process is not something that occurs in an instant with a single flash of insight, even though insights may occur. However, the view that creative processes take time does not mean that insight is no longer thought to be an important aspect of creativity – quite the opposite in fact – for many authors acknowledge the role of insight in the creative process. What differs from author to author is how 'insight' is defined and their opinion of the specific role it plays in the creative process. For instance, there are those who imply that creativity is little more than building on an initial insight (Feldman; Taylor), whilst others believe that flashes of insight are small but necessary components of the creative process (Gardner; Langley and Jones; Sternberg and Torrance).

Another aspect of the creative process alluded to in the above descriptions and definitions is that of formulating the problem. Barron, Csikszentmihalyi, Gardner, Gruber and Davis, Perkins, Sternberg and Walberg all suggest that creative processes involve an active search for gaps in existing knowledge, problem finding, or consciously attempting to break through the existing boundaries and limitations in one's field. Another view taken by Barron, Feldman, Gardner, Schank, Simonton, Torrance and Weisberg is that creative processes result from a previous failure to find explanations for phenomena or to incorporate new ideas into existing knowledge, or from a general drive toward self-organization through the reduction of chaos (Tardif and Sternberg 1988).

Just as there are certain personality characteristics that are shared by creative people, regardless of domain, there are several general characteristics of creative thinking that have been identified and which are not thought to be domain-specific. Torrance (cited in Foster 1971), for example, argues that creative thinking – regardless of domain – comprises the following traits of creativity: sensitivity to problems, fluency of ideas, flexibility and originality. Through studying creative people from a variety of disciplines, Torrance found that they all showed a certain sensitivity to their surroundings, both human and physical, such that they were able to recognize problems and begin thinking about them; they had many ideas (fluency) and were able to communicate them; they could envisage a breadth of ideas on a

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single topic (flexibility); and they were able to produce ideas which were different from those produced by others (originality) (cited in Foster 1971). Similarly, the work of Tardif and Sternberg (1988) reveals that creative thought processes, regardless of the problem on which they are focused, are thought to involve the following: transformations of the external world and internal representations by forming analogies and bridging conceptual gaps (Barron; Feldman; Gardner; Gruber and Davis; Johnson-Laird; Langley and Jones; Schank; Simonton; Sternberg; Taylor; Weisberg); constant redefinition of problems (Sternberg; Torrance; Weisberg); applying recurring themes and recognizing patterns and images of wide scope to make the new familiar and the old new (Barron; Feldman; Gardner; Gruber and Davis; Langley and Jones; Sternberg; Taylor; Torrance); and nonverbal modes of thinking (Gruber and Davis; Sternberg). They also found that a number of the authors (Barron; Feldman; Gardner; Gruber and Davis; Simonton; Torrance) agreed that, irrespective of particular content, the processes involved in creation require tension and that there are at least three different ways in which tension can be observed in creative processes (431). First, according to Tardif and Sternberg's review, one may be faced with conflict between staying with tradition and breaking new ground at each step in the process; second, tension may lie in the ideas themselves, such that different paths to a solution or different products are suggested; and third, it may exist in the constant battle between unorganised chaos and the drive to higher levels of organization and efficiency within the individual or the society at large (431).

Although accounts of the creative process differ in terms of the number of stages thought to be involved and the order in which these stages occur, the process itself is essentially the same. In fact, if one looks deeply enough, the process identified by Wallas can be seen to be the basis of almost all accounts of the creative process in existence today (Torrance 1988:45).

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2.6 The Creative Environment

The study of the context in which creativity occurs, while enjoying some precedence in the fields of technology transfer and management of innovation (Mahajan and Peterson 1985, Rogers 1983, Tushman and Moore 1988), has only recently gained any kind of significant academic attention in the fields of psychology, education, and other social sciences (Plucker and Renzulli 1999). Amabile's work (1983, 1996) on the social psychology of creativity opened the academic door for other "systems" approaches to the study of creativity, such as Sternberg and Lubart's (1991, 1992, 1995) Investment Theory of creativity, Rubenson and Runco's Psychoeconomic Theory (Rubenson 1990, Rubenson and Runco 1992), Kasof's (1995) Attributional Perspective, and Amabile's (1988) own work with innovation management in organizations. The common characteristic of systems approaches like these is an emphasis on the environment in which creativity occurs. The implications for creativity education are substantial, and researchers are beginning to investigate the ways that systems

approaches can be used to develop creativity-fostering environments in educational settings (Plucker and Renzulli 1999). What follows are some of the main findings of researchers interested in the role that the environment plays in the fostering of creativity.

Amabile (1988) has found in the course of conducting several studies that there exists a strong and positive link between a person's motivational state, or motivational orientation, and the creativity of a person's performance – and she argues that it is the social environment, or at least certain aspects of that environment, that determines this orientation. Guiding her investigations is what she has termed the *intrinsic motivation principle of creativity*, which states that people will be most creative when they feel motivated primarily by the interest, enjoyment, satisfaction, and challenge of the work itself – not by external pressures (Hennessey and Amabile 1988:11).

This claim is supported by accounts of the phenomenology of creativity, for most reports from and about creative individuals mention their intense involvement in, and unrivalled love for, their work. However, although references to the sustaining delights of creative endeavour abound in such accounts, this exhilaration is in no way automatic (Hennessey and Amabile 1988). Hennessey and Amabile have found that the love felt for "one's craft" (and again we encounter the notion of domain-specificity) can be quite delicate and easily overshadowed by pressures in the environment (1988:11).

The number of studies investigating the impact of social-environmental constraints on motivation is substantial, and by employing a variety of techniques and paradigms, researchers have successfully demonstrated the undermining effects of a variety of constraints (Hennessey and Amabile 1988). If we are to accept Amabile's argument that there exists a strong and positive link between a person's motivational orientation and the creativity of a person's performance, then it would seem appropriate to review some of the findings of these studies.

Although the impact of monetary rewards has received the greatest amount of attention, money is not the only reward that has been found to significantly decrease intrinsic motivation. Everything from good-player awards to marshmallows has produced the expected decrements in intrinsic motivation (Greene and Lepper 1974, Harackiewicz 1979, Kernoodle-Loveland and Olley 1979, Ross 1975).

Another finding that has significant implications for creativity education is the result of a study carried out by Lepper, Sagotsky, Dafoe and Greene (1982). This study was designed to

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determine whether or not one activity presented as a means to doing another activity would undermine subsequent intrinsic motivation, regardless of which activity was the means and which was the end. It was found that regardless of the specific task used, intrinsic motivation was undermined for the task that had been presented as the means.

Lepper and Greene (1975) also investigated the effects of surveillance on the intrinsic interest of preschoolers. The knowledge that they were being watched via video cameras had a significant undermining effect on the children's intrinsic motivation. A subsequent investigation conducted by Thane Pittman and his colleagues (1980), extended these findings with the demonstration that direct surveillance by another individual will also decrease children's intrinsic motivation for a play activity.

A year after the study conducted by Lepper and Greene (1975), Amabile, DeJong and Lepper (1976) conducted a study which examined the effect of deadlines on intrinsic motivation and found that college students who were given deadlines demonstrated less subsequent intrinsic motivation in the experimental task than did their control counterparts. The detrimental effects of expected evaluation on intrinsic interest have also been reported by Smith (1974), and Karnoil and Ross (1977) – who expanded this paradigm to include the effects of both informative and non-informative rewards – found that unless rewards contain explicit information about competence, they tend quite consistently to undermine intrinsic motivation.

Studies that look specifically at the effects of these constraints on creative behaviour support the proposition that intrinsic motivation is conducive to creativity, whereas extrinsic motivation is detrimental (Hennessey and Amabile 1988), and as it is the environment that determines motivational orientation, teachers would do well to take note of the findings cited above. There are other factors to consider too, however, and as Shallcross (1981) gives the most comprehensive account of these, I would like to review her work in more detail.

Shallcross argues that human beings respond to their environments either actively or passively, and that an active response is more likely in those who have had the opportunity to develop a sense of self-worth through a supportive environment, particularly in the formative years (12). In her opinion, the same principle applies to the creative environment, for an environment that will nurture creative behaviour will be one that is supportive of the individual. According to Shallcross, support is not false praise, but honest support that dignifies the individual. Thus, the creative environment allows for mistakes, encourages experimentation, openness and risk taking, and provides a climate that enables learners to explore their own potential (11).

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According to Shallcross, the creative environment takes into consideration three major factors: the physical climate, the mental climate and the emotional climate. Knowing what we do about individual styles of learning and the variety of motivational strategies that teachers use to reach different kinds of students, it is desirable – in her opinion – to account for all three of these major factors. In doing so she argues that one sets the stage for both intended and unintended learning (or motivation toward learning) to occur (13).

With respect to the physical climate; Shallcross has a number of practical suggestions to make and as these suggestions would make a solid basis for the development of guidelines in this area I would like to cover them in some detail. Firstly she stresses the importance of organising classroom space to allow for a variety of activities to take place. In her opinion, this means providing a space where students can work in groups but also places where they can work in pairs or alone. If dividers or bookshelves aren't available, she suggests using things like cardboard cartons or old curtains, and if materials are really scarce, training students to imagine the dividers. Whatever, the case, she believes that teachers need to provide a setting that affords the kinds of spaces appropriate to different kinds of pursuits. Creativity will only be manifest when a student feels comfortable and secure – something that only happens when they are allowed to learn in the manner that best suits their needs. Some students work better on their own and thus need to have some sort of space that has been allocated to them alone – at least for a given period of time – such as a portion of a table, a pillow on the floor, a traditional desk facing a window; any spot they can claim as their own (14).

In addition to having a space of their own, Shallcross argues that students need to have a secure place to keep the material they are working on (15). She calls this place the "keeping place" and stresses that it can be any sort of container: a shoe box, a compartment in a cabinet, a large envelope, a file holder, a desk. Shallcross argues that if a teacher is serious about developing a climate for creativity, then s/he must stress the importance of respecting each other's private spaces and properties. This argument is based on the recognition that creative behaviour requires students to take risks, to try new things, to dare to be different, and thus, teachers need to guarantee students a certain amount of privacy while they are in the process of taking a risk. She also points out that teachers (and parents) have an unfortunate tendency to intervene earlier than they should, usually while the learner is working something out for him/herself. The temptation to point out problems, to indicate where improvements could be made, or to give helpful hints is often very strong. Interventions of this kind often discourage rather than encourage creativity however, and ensure that the learner misses out on the very important process of working something out for her/himself. The student's physical private place helps build the emotional support crucial to creative productivity (15).

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Other physical-climate factors mentioned by Shallcross include areas to display students' work: cork boards, tables, shelves, orange crates – anything that can be contrived to give prominence to their creations. She also argues that resource materials need to be within reach; these resources might include scrap paper, newsprint, tape, glue, pencils, markers, scissors as well as books, maps, atlases, encyclopaedias and other library-type resources, games, and puzzles. Whether the school is well resourced or not, Shallcross argues that most teachers manage to equip their classrooms with a variety of materials and emphasises that their availability to students at crucial moments can play an important role in encouraging creative behaviour (15).

With regard to the mental climate, Shallcross has more practical advice to give. In her opinion a desirable mental climate is one that challenges but does not overwhelm. She argues that early challenges should have built-in success for the student – for it is through meeting success that they will be encouraged to continue learning. Challenges should then become developmentally more difficult as progress is made. In her opinion, learning occurs when an individual connects with a stimulus, animate or inanimate, subjectively or objectively, serendipitously or deliberately, thus creating meaning for the learner. As learners have different learning styles and interests, she argues that it is important to provide a variety of stimuli to account for the differences in what individual students will respond to (16). (Teachers looking for practical activities to do with children of differing learning styles are referred to Shallcross 1981)

In conclusion, Shallcross states that it will serve little to establish the appropriate physical and mental climates if the emotional atmosphere is not one that is supportive. According to her, a supportive emotional climate affords students the personal security to respond to the physical and mental stimuli that their teacher or their peers have placed before them. It is the security they feel that the established ground rules will not be violated. According to Shallcross these ground rules are personal guarantees that allow students to grow at their own rate, retain the privacy of their work until they are ready to share it, and prize their possible differences. Of utmost importance in the establishment of a creative environment is an atmosphere of trust and Shallcross argues that regardless of the age of the students, such an atmosphere must be established and maintained. This requires constant demonstration and reinforcement on behalf of the teacher. Violations of trust, particularly with young children, may prevent a student from ever taking risks again and can be the most detrimental factor in any effort to evoke creative behaviour (19). Honest support is also extremely crucial. Children are quicker than a lot of adults at recognising falseness. Praising a student's work when he or she knows it is a mess is not supportive and creates mistrust. How one offers criticism is the important thing. Criticism that implies that the person is not worthwhile is completely in error. Criticism

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that states that a product isn't worthy of the person's usual performance or potential ability will not be destructive (20).

Another important point that Shallcross raises, and that I feel is significant enough to mention here, is that there exists – particularly amongst teachers – a gross misconception with regard to nurturing creative behaviour. In this regard she has the following to say:

> Creativity in the classroom does not mean chaotic conditions that allow students total freedom to express themselves. Nor does it imply the abdication of the role of the teacher as person in charge. A teacher can never relinquish that primary responsibility for the physical and psychological safety of students. Setting the climate for productivity does not mean creating a totally unstructured, anything-goes condition. In reality, creative productivity imposes upon the individual a good deal of self-discipline and is most effective when the individual is provided with sufficient structure to feel basically secure. People are more willing to risk if they know their whole foundation won't be obliterated as a possible consequence (Shallcross 1981:14).

Shallcross is not the only researcher to offer practical suggestions on how to foster and nurture creativity in the classroom environment. For instance, Torrance and Goff (2002) suggest that teachers should teach children to appreciate and be pleased with their own creative efforts; be respectful of the unusual questions children ask; be respectful of children's unusual ideas and solutions; show children that their ideas have value by listening to their ideas and considering them; encourage children to test their ideas by using them and communicating them to others, as well as through giving them credit for their ideas. Teachers must also provide opportunities and give credit for self-initiated learning; provide chances for children to learn, think and discover without threats of immediate evaluation; accept honest errors as part of the creative process; and establish creative relationships with children through encouraging creativity in the classroom and providing adequate guidance.

Similarly, Moran (2002) argues that teachers can encourage creativity by providing an environment that allows children to explore and play without undue restraints; adapting to children's ideas rather than trying to structure the child's ideas to fit their own; accepting unusual ideas from children by suspending judgement of children's divergent problem-solving; using creative problem-solving in all parts of the curriculum; using the problems that naturally occur in everyday life; allowing time for children to explore all possibilities, moving from popular to more original ideas; and by emphasising the process rather than product. And Mehta (2002), who is also concerned with the practical aspect of encouraging creativity in the classroom, suggests that teachers should accept different answers to problems; encourage students to think and respond, to ask questions and to ask "why"; encourage differences of opinion; give children opportunities to try things out for themselves; never impose their own answers and methods on the students; and allow for individual variation.

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Practical suggestions of this kind abound in the literature and the internet is a veritable treasure trove of suggestions – those interested in the practical aspect of creative education would do well to explore these further. Having reviewed the literature relevant to this project I would now like to focus on the research itself.

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CHAPTER THREE

RESEARCH DESIGN

The reasonable man adapts himself to the world: the unreasonable one
persists in trying to adapt the world to himself. Therefore
all progress depends on the unreasonable man.
(George Bernard Shaw: Man and Superman)

3.1 Introduction

Although studies of creativity can be partitioned in any number of ways, I have found it helpful (for reasons already discussed) to examine them in terms of how they contribute to our knowledge of the creative person, process, product and environment. I now want to examine a further partitioning which will help to position my own study within the field of creativity research – that is the partitioning between explicit and implicit theories of creativity.

3.2 Explicit and Implicit Theories of Creativity

Explicit theories are constructions of psychologists or other scientists that are based on, or at least tested by, data collected from people performing tasks *presumed* to measure psychological functioning (Sternberg 1985:607). Implicit theories, on the other hand, are constructions that reside in the minds of all individuals. Such theories need to be discovered rather than invented because they already exist, in some form, in people's heads. Discovering these theories can be useful in helping to formulate the common cultural views that dominate thinking about a given psychological construct. They can also help us understand or provide bases for explicit theories, because such theories derive, in part, from scientists' implicit theories of the construct under investigation. The data of interest in the discovery of people's implicit theories are people's communications, in whatever form, of the construct under investigation (Sternberg 1985).

By far the largest number of studies of creativity concern explicit theories and it is these studies that have played a major role in conceptualising creativity (Sternberg 1985). Indeed, my own understanding of creativity, and thus, the material presented so far, derives in large part from explicit theories of creativity. These theories are of different kinds – for example Guilford's (1950) theory is psychometric, Getzel's (1975) theory is cognitive, Barron's (1965, 1968) theory is clinical, and Amabile's (1983) theory is social-psychological – however, they all have one thing in common: they all draw from data based on the exercise of what theorists allege is creative psychological process (Sternberg 1985). Seldom have researchers gone out and asked the people whose job it is to make daily judgements of psychological process, what criteria they use to do so. My study is an attempt to address this issue. Explicit theories tell us little about how informal evaluations are made – the kind of evaluations that teachers are expected to make on a daily basis – implicit theories do, however, and so it is with this aspect of creativity research that my project is concerned (Sternberg 1985).

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Sternberg (1985) puts forward some convincing arguments about the importance of doing implicit theory studies, and asserts that if we are concerned with how judgements of abilities are actually made in the everyday world, then the study of implicit theories has at least as much relevance as does the study of explicit theories, perhaps even more so. Although Sternberg (1985) emphasises the role of implicit theories as precursors to explicit theories, he believes that implicit theories are of interest in their own right. As I share this view, I would like to highlight the reasons he gives to support this argument.

Firstly, he argues that terms like intelligence, creativity and wisdom are used in everyday discourse with no or minimal definition, and that it is useful to know what people mean when they use these terms (621). This is similar to my own concern over the lack of guidance given in the curriculum. As we have seen, terms relating to creativity are used throughout official documents but they are never explained. In neglecting to explain these terms, the curriculum designers are making the dangerous assumption that teachers share an understanding of these terms. There is evidence to suggest, however, that there exist significant cultural differences in understanding of concepts like creativity – a finding which is problematic when the curriculum is intended to be implementable in a range of contexts. For this reason I feel that it is important to know what teachers from a variety of teaching contexts and backgrounds mean when they use the term creativity. This will reveal whether there is in fact a shared understanding and whether there is a need for guidelines in this regard. It would also provide useful information for the development of such guidelines should they be needed.

Secondly, I recognise, as Sternberg does, that people evaluate the intelligence, creativity, and wisdom of themselves and others with some regularity, and that it is worthwhile to know the psychological bases on which these evaluations are made (625). In terms of my own project, I have chosen to focus on teachers in particular for they have to make these kind of judgements on a daily basis. As it is important that we have teachers who are able to encourage creative behaviour, I wish to find out what implicit rules govern their evaluations of the creative person, product, process and environment – these responses will then have to be looked at in the light of the findings from the various explicit theory studies already cited, for as Sternberg rightly argues: "People could be wrong, underinclusive, or overinclusive in their notions of psychological constructs [like creativity] and so investigations of implicit theories must be supplemented and related to investigations motivated by explicit theories"(625). Another argument for the importance of finding out to what extent implicit theories correlate with measures derived from explicit theories is that a knowledge of peoples' implicit theories may help us to broaden and change our explicit theories as we come to realise those aspects of cognition, or affect, that the current explicit theories of creativity do not encompass, but possibly should encompass (625). I hope that in this way my own study will help to develop and extend current understandings of creativity.

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3.3 Theoretical Framework

Most implicit theory studies carried out in the past have been undertaken by researchers adopting a psychometric approach to the study of creativity. This approach is concerned primarily with the statistical measurement of creativity, and for the past 15 to 20 years researchers have used psychometric methods to measure the creativity of products, to investigate the environmental characteristics that are associated with creativity, to refine measures of idea generation and evaluation, and to develop new measures of the personality characteristics associated with creative behaviour. Whilst my concern is not with the quantitative measurement of these aspects of creativity, I do find distinctions between the creative product, process, person and environment to be useful and have used them as a framework for my own study. However, my own study breaks away from psychometric tradition by being qualitative in nature. Thus, instead of using statistical methods to quantify my data, I will be using an inductive approach to data analysis. Such an approach to data analysis is one of the defining characteristics of qualitative research. As Goertz and LeCompte (1981) note, a deductive approach to data analysis is characteristic of the traditional scientific method. In this instance, hypotheses are generated prior to beginning the study, indicating the relevant data to be collected, and the resulting data is mathematically analysed to determine whether the hypotheses have been confirmed or disconfirmed. Inductive approaches are quite different in that data are collected that relate to a focus of enquiry. Hypotheses are not generated a priori and so the relevant variables for data collection are not entirely predetermined; neither are the data grouped according to predetermined categories. Instead, what becomes important to analyse emerges from the data itself, out of a process of inductive reasoning (Maykut and Morehouse 1994).

I chose to do a qualitative rather than a quantitative study for a number of reasons, not least of all because I felt it was the most appropriate method to adopt, given the nature of my research interests. According to Strauss and Corbin (1990), some areas of study naturally lend themselves more to qualitative types of research, and mine is a case in point for I do not think it is appropriate or helpful to quantify understandings, particularly of a concept as complex as creativity. In addition, qualitative methods allow one to give the intricate details of a phenomenon that are difficult to convey with quantitative methods. In this regard, Bruner argues in *Actual Minds, Possible Worlds* that the examination of people's words and stories captures the particulars of people's lives and understandings, whilst the positivist paradigm with its mathematical approach "seeks to transcend the particular by higher and higher reaching for abstraction, and in the end disclaims in principle any explanatory values at all where the particular is concerned" (1986:13). In other words, from the qualitative perspective, to present such situations mathematically by using statistics, would be to strip the experience of its meaning, that is, the meaning as conveyed by the participants (Maykut and Morehouse 1994). I have thus chosen to focus on the patterns of meaning evident in the data rather than

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their statistical significance, and whilst I do make use of graphs and percentages, these are for illustrative purposes rather than statistical measurement.

3.4 Approach

In their attempts to understand the phenomenon they are studying, qualitative researchers may choose to adopt any number of approaches in their analysis of the data. The choice of approach will depend on the level of interpretation necessary and the purpose of the research. For example, Strauss and Corbin (1990), and Maykut and Morehouse (1994) describe the following three approaches to analysing qualitative data – these three approaches can be thought of as varying along a continuum ranging from a low level of interpretation and abstraction to the high-level of interpretation and abstraction required for theory building.

The first approach, which they liken to the work of a journalist, is that taken by the researcher who intends to present the data without any analysis. The goal is to let the research participants speak for themselves as much as possible, to tell their stories without interpretation. According to Maykut and Morehouse (1994), a collection of personal journal entries or autobiographical stories, organized for coherent reading but not systematically analysed, would be examples of this approach.

The second approach is that taken by a researcher who is primarily concerned with accurately describing what s/he has understood and reconstructing the data into a "recognizable reality" for the people who have participated in the study (Maykut and Morehouse 1994:122). Although this approach requires some selection and interpretation of the data, description is the primary aim. Many researchers adopting this approach become adept at "weaving descriptions, [respondents'] words, fieldnote quotations, and their own interpretations into a rich and believable descriptive narrative" (Strauss and Corbin 1990:22) – a technique known as 'accurate description'. The interpretations made of the descriptive material vary in their level of abstraction – not all of the interpretive commentary is, strictly speaking, theoretical in nature (some researchers even have this as part of their aim), however, some of the interpretations found in descriptive research suggest an interest in theory building (Maykut and Morehouse 1994), which is the third approach to data analysis identified by Strauss and Corbin (1990).

Those who adopt the third approach are concerned with developing theoretically informed interpretations that are grounded in reality, for they believe that this is the most powerful way to bring reality to light (Strauss and Corbin 1990). This approach is known as grounded theory, for it is theory that is "inductively derived from the study of the phenomenon it represents" (Strauss and Corbin 1990:23). The development of theory requires the highest level of interpretation and abstraction from the data in order to arrive at the organising

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concepts and tenets of a theory to explain the phenomenon of interest (Maykut and Morehouse 1994). The theoretical formulation that results is not only used to explain the reality but is also used to provide a framework for action (Strauss and Corbin 1990).

As my sample is too small to be used in developing any kind of generalisable theory, it was not possible to adopt a grounded theory approach in the analysis of my own data. I thus chose Strauss and Corbin's second approach to data analysis: description with a certain amount of interpretation. However, instead of weaving the description and interpretation together, I have chosen to begin with as objective a description of the data as possible (allowing you, the reader, to reach your own conclusions) before presenting my own interpretations. This is done in recognition of the fact that as a human being, my interpretations will be greatly influenced by my past experiences and the way I see the world.

3.5 Methodology

Having decided on an approach, it was necessary for me to choose an appropriate methodology. In this regard, there were several seasoned qualitative researchers whose work provided the basis for my own. For instance, I found Glaser and Strauss's (1976) *constant comparative method* of data analysis to be well-suited to my purposes, although this method of analysis was originally developed for theory building (Maykut and Morehouse 1994). Lincoln and Guba (1985) also provided me with important procedural detail with regard to the steps involved in analysing data using the constant comparative method – detail that has proven essential to rigorous analysis.

3.5.1 Data Collection

To understand the world under investigation, people's words and/or actions are used by qualitative researchers. In my case, I chose to focus on people's words rather than their actions for the scope of the project did not allow for both. The reason I chose to concentrate on the former was because as Maykut and Morehouse point out, "words are the way that most people come to understand their situations. We create our world with words. We explain ourselves with words. We defend and hide ourselves with words" (1994:18). The task of the qualitative researcher is to find patterns within those words and to present those patterns for others to inspect while at the same time staying as close to the construction of the world as the participants originally experienced it (Maykut and Morehouse 1994).

I chose to use a questionnaire as my primary data collection instrument as this method provided me with the most efficient way to access the 'words' I needed to carry out this task. In designing the questionnaire, I was very conscious of the fact that, as Maykut and Morehouse point out, "the questions we ask will always to some degree determine the answers we find" (1994:43). To avoid personal bias in this instance, I allowed the literature to determine the questions I asked by using the 4P's as an organising framework. I also chose

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to use open-ended questions in the hopes that this kind of pre-determination would be kept to a minimum. In addition two sets of pilot studies were done to determine the correct wording and ordering of the questions.

3.5.2 The sample

In qualitative research, participants or settings (such as schools or organizations) are carefully selected for inclusion, based on the possibility that each participant or setting will expand the variability of the sample – this is known as purposive sampling. Purposive sampling increases the likelihood that variability common in any social phenomenon will be represented in the data, in contrast to random sampling which tries to achieve variation through the use of random selection and large sample size (Maykut and Morehouse 1994).

For the purposes of my own research I chose to build a purposive sample using a strategy known as maximum variation sampling. Maximum variation sampling allows the researcher to understand a phenomenon by seeking out persons or settings that represent the greatest differences in that phenomenon. This strategy also provides the researcher with a method by which the variability characteristic of a random selection can be addressed, whilst recognising that the goal of qualitative study is not generalisability (Maykut and Morehouse 1994). It was not my goal to build a random sample, but rather to select persons or settings that I thought would represent a range of experience with regard to the phenomenon of interest: creativity. Thus, it was my working knowledge of the contexts of the individuals and settings that led me to select them for inclusion in my own study (Maykut and Morehouse 1994).

As I wanted to use teachers from as diverse a range of teaching contexts and social and ethnic backgrounds as the scope of this project would allow, three very different contexts were identified and one school from each of the contexts chosen to make up my sample – the choice being limited to primary schools only. A short description of each will follow. In order to protect the identity of these schools I will use a colour to represent each of them.

The pink school is located in a predominantly English speaking, low-density, upper middle-class suburb (context P). The school is well-resourced, clean and in a pleasant setting, surrounded by well-established gardens, trees and well-kept sports fields. On arrival, I was able to find shady parking and was greeted by students on my way to the office. A small fountain graced the entrance to the administrative section where I was asked by the receptionist to wait for assistance. Student art adorned the walls and there were colourful notice boards to look at while I waited. The principal was brusque and efficient, his office spacious and well-appointed – that he ran a tight ship there could be no doubt. Admittedly, I was there during class time but I was struck by how quiet it was.

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The yellow school is located in a predominantly Afrikaans[1] speaking, medium density, lower middle-class suburb (context Y). The houses in the immediate neighbourhood are brightly coloured, the emphasis being on the house rather than the garden – it seems that each resident wants his/her house to be bigger, better and brighter than his/her neighbour's. The school itself looks somewhat run-down and bare; the gardens are not well established and although there are sports fields they are in need of attention. I was struck by the lack of trees in the immediate vicinity. To enter the school one has to be buzzed in at the gate. Security seems to be quite tight at this school for the receptionist sits behind a glass window similar to that of a bank-teller. Again I was asked to wait for assistance; this meant that I had to stand out in the corridor, which was dark and deserted. The school was clean, almost sterile – I was reminded of a hospital. Polished concrete stretched out in all directions. Whilst I waited, a couple of students came past and greeted me politely. Before long I was ushered into a large office-cum-boardroom where I was asked to take a seat. Some fish swam lazily in a big tank on the bookcase and the walls were covered with pictures and letters. The school song, written in calligraphy, dominated the wall opposite the principal's desk. The principal himself was soft spoken and amenable, although he looked tired and run-down. He was more than willing for his school to participate in my project but warned me that his teachers were over-worked and might not be very co-operative as far as filling out my questionnaire was concerned.

The green school is located in a predominantly Xhosa[2] speaking, high density, working-class neighbourhood (context G). Dwellings in the area comprise a mixture of shacks and low-cost housing. It is dry and dusty and there are few trees. The school itself looks quite new and a lot of effort has been made to establish a garden around the school. A photograph in the main office shows what the grounds looked like just after the school was built – the difference is amazing. On arrival I drove straight into the school for the gate was wide open. Although there is not a car park as such, there is a large open area that is used for this purpose. A few women were sitting under some trees at the far end of the "car park" selling sweets to the students. The women and some of the students waved as I arrived. It was very noisy and chaotic – the school day was over. My visit caused quite a stir and students shouted and waved at me as I made my way to the administrative section, which is completely separate from the main school block. I was shown into an office where two people sat at desks working. A large safe took up most of the wall to the right of the desks, two of the walls had notice boards on them and the third had large windows. There were two comfortable armchairs in front of the desks and I was asked to take a seat. Before long I was ushered into

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[1] Afrikaans is a language descended from Dutch and is spoken by many "white" and "coloured" South Africans.
[2] Xhosa is an indigenous African language spoken by the Xhosa people who inhabit the Western and Eastern Cape Provinces of South Africa.

the principal's office. She was extremely friendly and welcoming and said that she would arrange for me to meet the teachers – the only principal to do so. A meeting was called and I was shown to the staff room where I was able to speak to the teachers about my project. Although seemingly reluctant at first, they each took a questionnaire and were the most efficient of all the schools in getting them back to me.

Each school was given 10 questionnaires – the pink school returned 8 of these, the yellow and green schools returned 7, giving me a total response rate of 22/30. Respondents were given the option of using their home language in filling out the questionnaire but only one respondent chose to do so.

3.5.3 Data analysis

The process of qualitative data analysis is one of culling for meaning from the words of the participants in the study, framed by the researcher's focus of enquiry (Maykut and Morehouse 1994). This search for meaning is accomplished by first identifying the smaller units of meaning in the data, which will later serve as the basis for defining larger categories of meaning – a process referred to by Lincoln and Guba (1985) as *unitising* the data.

In order to be useful for analysis, each unit of meaning identified in the data has to stand by itself, i.e., it must be understandable without additional information, except for knowledge of the researcher's focus of inquiry (Maykut and Morehouse 1994). Once I had identified the units of meaning, I coded them to their source and separated them out into those that referred to the person, those that referred to the product, those that referred to the process and those that referred to the environment. Responses from the pink school were highlighted in pink, those from the yellow school in yellow and those from the green school in green. This was done to reveal patterns across the schools and to enable me to connect responses to a particular school quickly and efficiently.

The next step was to identify recurring words, phrases and topics in the data. These were written on a large, clean sheet of paper (known as a discovery sheet) and posted up on my wall. This process of generating an array of recurring concepts, phrases, topics, patterns and themes grounded in the data is known as "discovery" (Maykut and Morehouse 1994:133) and is a way of uncovering what is salient in one's data.

The *constant comparative method* of analysing qualitative data combines inductive category coding with a simultaneous comparison of all units of meaning obtained (Glaser and Strauss 1976). As each new unit of meaning is selected for analysis, it is compared to all other units of meaning. If there are no similar units of meaning, a new category is formed. In this process there is room for continuous refinement; initial categories are changed, merged, or

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omitted; new categories are generated; and new relationships can be discovered (Goertz and LeCompte 1981).

My initial categories were drawn from the discovery sheet – each word/phrase providing me with a provisional category name. Choosing one of these words/phrases at a time, I examined the units of meaning to see if there were any that belonged under the provisional category name (Maykut and Morehouse 1994). Those that seemed to 'look' or 'feel' alike were placed together and stuck onto a large poster. The 'look/feel alike' criteria were advanced by Lincoln and Guba (1985) as a way of describing the emergent process of categorising qualitative data. The researcher asks himself, or herself, whether the unit of meaning on one card is very similar to the unit of meaning on another card. In this systematic and painstaking way, salient categories of meaning are inductively derived (Maykut and Morehouse 1994).

If a data card did not fit under any of the provisional categories originally on the discovery sheet, then a new category was made and a tentative name given to it. I also found that sometimes a data card belonged under more than one category name. In this case a copy was made and the card was placed under both/all of the appropriate category names (Maykut and Morehouse 1994). Once several cards had been grouped together using the look/feel alike criteria, it was necessary to write a rule that would serve as the basis for including (or excluding) subsequent data cards in the category. Lincoln and Guba (1985) suggest writing this rule as a *propositional statement* – a general statement of fact grounded in the data. These statements begin to reveal what one is learning about the phenomenon under study and are a critical step in arriving at one's research outcomes (Maykut and Morehouse 1994). A description of these categories is given in Chapter Four.

Once these tentative categories had been established it was necessary to study them more closely and identify those that could stand alone, and those that formed salient relationships and patterns (Maykut and Morehouse 1994). These were picked out and are discussed in Chapter Five, along with appropriate findings from the literature.

3.6 Trustworthiness of the Research

There are a number of features that give a reader confidence in the reported outcomes of a research project. For instance, a reader is more likely to trust the findings of a research report that provides clear and detailed information about a) the purpose of the study; b) how participants and/or settings became part of the sample; c) the specific people or settings studied; d) the data collection and analysis procedures used, and e) the findings or outcomes (Maykut and Morehouse 1994). This I have done to the best of my ability, particularly with regard to the research process and outcomes, for Maykut and Morehouse (1994) identify these particular features as being crucial in judging the credibility of a study.

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In addition to providing clear and detailed descriptions of the research process and outcomes, there are several aspects of the research process itself that contribute to the trustworthiness of this study:

(1) Literature Control

The findings are discussed in the light of the relevant literature. This is known as a Literature Control and is a way of enhancing the reliability and trustworthiness of a study (Schoombie 1995).

(2) Audit Trail

In employing the above methods of data collection and analysis, I have developed a permanent audit trail of my research effort (Lincoln and Guba 1985). This documentation would allow me to walk others through my work, from beginning to end, enabling them to better understand the path I took and to judge the trustworthiness of my outcomes.

(3) Peer Debriefers

According to Maykut and Morehouse (1994), the aspects mentioned above are sufficient for laying the foundation for a credible study, however, they do say that one can increase the trustworthiness of one's research still further by including others in the research process. In the case of my own research project I had several 'peer debriefers' who walked through my audit trail periodically, raising questions of bias when necessary, and thereby increasing the trustworthiness of my data.

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According to Krefting (1991), the reliability of qualitative research can also be increased by means of triangulation. Triangulation can be defined as the use of a combination of two or more theories, data sources, methods and researchers when investigating a phenomenon (Kimchi, Polivika and Stevenson 1991). Thus, to fulfil this criterion, the results of the research should be compared with at least two sources so as to increase the reliability of the research. In carrying out a literature control, as well as using independent peer debriefers, I have fulfilled the requirements of triangulation.

3.7 Shortcomings and Limitations

The use of multiple methods of data collection is a further way to increase the credibility of one's research findings (Maykut and Morehouse 1994). For this reason I had intended to conduct follow-up interviews in addition to handing out the questionnaires. However, the Western Cape Education Department does not grant permission for research to be conducted

in the fourth term and unfortunately my respondents took far longer filling out the questionnaires than I had expected – in fact, I only got the last of the questionnaires back at the end of the third term. This delay meant that I was unable to conduct the follow-up interviews as planned. It would also have been valuable to have feedback from the research participants themselves (Maykut and Morehouse 1994), but this was not possible due to deadline pressures.

In choosing to use as varied a sample as possible, I had to include respondents whose mother tongue was not English. Due to time constraints and resource limitations, I was not able to translate my questionnaire into Afrikaans and Xhosa, although I did give respondents the option of using their mother tongue in filling out the questionnaire. Only one chose to do so, however. This meant that I had to be very careful when drawing conclusions from the data, for what at first appeared to be an inaccurate understanding of creativity, often turned out to be a misunderstanding of the question.

Some might argue that the size of my sample also constitutes a shortcoming in that it is not very large. However, where sample size is a critical component of positivistic studies (because it directly influences the robustness of the statistical tests used to measure the significance of numerical data and the generalisability of study results), it is not quite as critical in qualitative studies (Maykut and Morehouse 1994). Qualitative researchers (who have the time and the resources) usually use techniques like saturation and diminishing returns to determine sample size. To reach saturation, researchers continue to collect data and analyse it in an ongoing process until they uncover no new information. Although I did not have the time or the resources necessary to reach saturation in this way, I feel satisfied that I had a large enough sample to fulfil my objectives. Indeed, Lincoln and Guba (1985) have found that a carefully conducted study can reach the saturation point with as few as twelve participants and probably no more than twenty. Twenty-two people were involved in my own study.

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It might also be argued that my study is limited in that it focuses only on the teachers' understandings of this concept and not on their practice. In fact, it had always been my intention to find out whether teachers put their understandings of creativity to use in the classroom, but this would have meant that in addition to the questionnaire and the analysis I would have had to do classroom observations – something which I quickly realised was beyond the scope of a mini-dissertation. Thus, I have chosen to focus this study at the level of understanding, recognising that understanding constitutes the potential for action. Indeed, without understanding there can be *no* intended action. If I find that teachers have a limited understanding of creativity then it is at the level of understanding that this issue needs to be addressed. If, however, I find that teachers have a thorough understanding of this concept,

then a follow-up study will need to be conducted to find out whether these understandings are being put into practice – if not then this issue would need to be addressed at the level of practice rather than at the level of understanding.

As an interactive model, such as the 4 P's, is the key to understanding the nature of creativity (Jones 1993), it provides the ideal framework from which to judge the teachers' understanding of this concept. What follows then, is a description and an evaluation of the teachers' responses as they pertain to these four areas.

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CHAPTER FOUR

DESCRIBING THE DATA

Be daring, be different, be impractical, be anything that will assert integrity of purpose and imaginative vision against the play-it-safers, the creatures of the commonplace, the slaves of the ordinary.
(Sir Cecil Beaton)

4.1 Introduction

In keeping with the framework that I have chosen for this dissertation, I will be structuring the description and analysis around those findings that relate to the teachers' understandings of the creative product, person, process, and environment. I have also chosen not to weave the description and interpretation together, but rather to begin with as objective a description of the data as possible, before presenting my own interpretations and reflections (this will be done in Chapter Five). I say 'as objective a description as possible' because I realise that the act of categorising itself represents a certain amount of interpretation.

4.2 The Creative Product

Creative products (whether tangible or intangible) need to exhibit certain characteristics if they are to be distinguished from their non-creative counterparts. To discover what teachers in my chosen sample considered these characteristics to be, I asked them to list the attributes that they thought were characteristic of a creative product. A summary of the findings reveals that these teachers consider a product to be creative when it demonstrates one or more of the following: it has an impact on those who come into contact with it; it exhibits some form of originality; it demonstrates that considerable thought went into making it; it is accessible; it is thoroughly done; it is hand-made; it is durable; it has aesthetic appeal; it demonstrates artistic ability; it is expressive; it is valuable; and/or it demonstrates transcendence by moving beyond the boundaries of the known into the unknown. This list represents the range of characteristics that teachers might associate with the creative product, some of which were more popular than others (See Figure 2, overleaf). It is also possible to identify characteristics which are mentioned (or emphasised) by one or two of the schools and not by the other/s, suggesting that there exist different understandings across the schools. Although the sample is not large enough to determine whether these differences are context-specific or culture-specific, the fact that these differences exist at all is important for it indicates that the term creativity is not going to be interpreted in the same way by all schools (or all teachers for that matter) – something which is problematic given the lack of explanation provided in the curriculum documents. Although the differences across the schools are not the focus of this thesis, I have indicated the response rate per school as a subset of the data for those who are interested. A brief account of the main differences is also included at the end of this thesis (Appendix 2, page 105).

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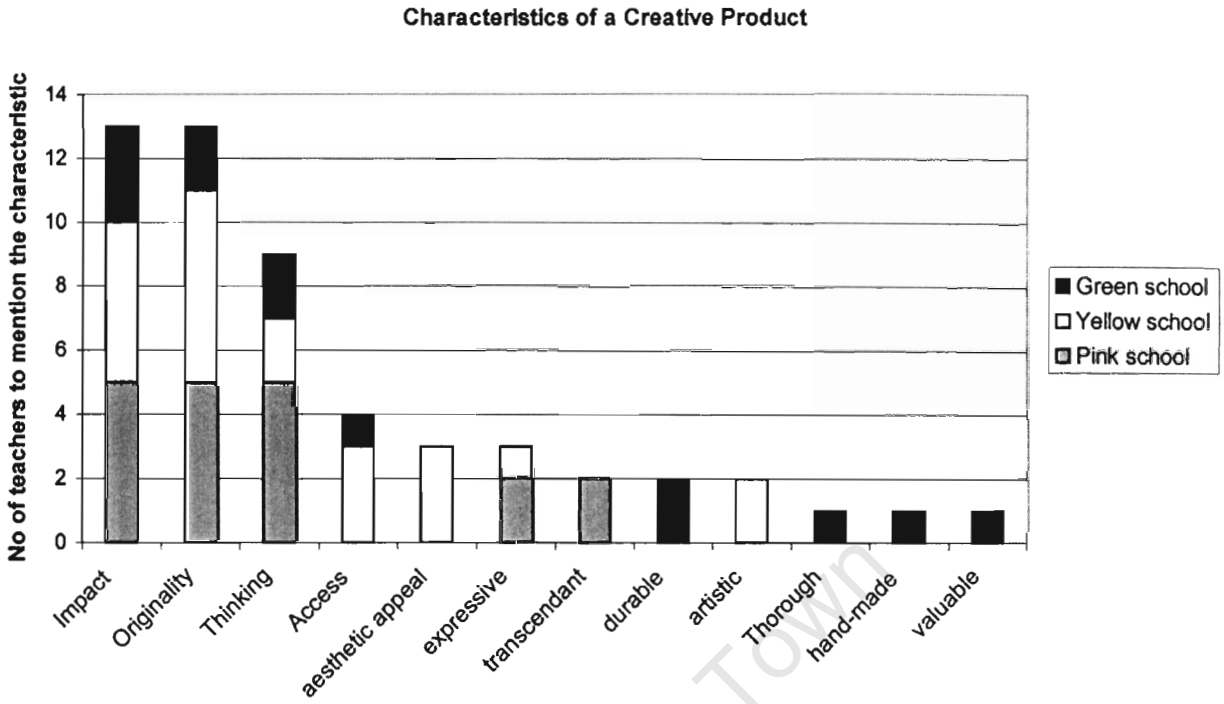

Figure 2

As this is a representative sample (refer to Saturation Point in Chapter Three, page 39), each of these characteristics is important – even if mentioned by only one respondent. What I am trying to establish is the range of characteristics that these teachers associate with the creative product. This means that if a characteristic is mentioned then at least one of these teachers is using it to determine whether a product is creative or not. This raises the possibility that others (not included in this sample) might judge the creativity of a product in the same way. It also means that the more popular a characteristic is in the eyes of these respondents, the more popular it is likely to be in general. With this in mind, the most popular view of the creative product seems to be that it has an impact of some kind, it exhibits some form of originality and/or it shows that considerable thought went into the making of it. It is also interesting to note that in addition to being the most popular, these three characteristics are the only characteristics to be mentioned by respondents from each of the schools.

What follows is a description of the data as it applies to each of the characteristics shown on the graph (Figure 2, above).

4.2.1 Impact

This characteristic was mentioned 38 times by 13 respondents and an examination of these responses reveals that there are three ways in which the creative product can be seen to have an impact on people's lives. According to these respondents:

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1) The creative product could have an impact on people simply by capturing their attention – in this case, the creative product would stand out from other products by being "striking", "eye-catching", "fascinating", "interesting" or "impressive";

2) The creative product could have an impact on people by changing their lives in some way, usually by enabling them to see or do things differently as a result of experiencing the product. In this instance the creative product "motivates", "inspires", "stimulates" or "makes the observer re-think their own views / see a different side"; or

3) The creative product could have an impact on people by performing some kind of function in their daily lives. This might be done either by fulfilling some deep, psychological need or desire (in this instance it "brings pleasure", it "satisfies", "it entertains", it has "meaning"); or through performing a practical function of some kind (in that it is "useful", "functional", "practical", "solves problems" or has "a reason for being there").

4.2.2 Originality

The quality of originality was mentioned 18 times, also by 13 respondents, and was evident in responses that described the creative product as being "one-in-a-million", "mind-refreshing", "new", "novel", "different", "unusual", "unique", "imaginative" or "original". "Original" was the most popular of these terms being used by seven of the 13 respondents.

4.2.3 Thinking

Nine respondents felt the creative product had to demonstrate that considerable thought went into the making of it, this being evident in comments like, "the creative product is well thought out", it "comes from thinking", it is "deep in character", it "shows deep thinking", "it is clever", "it shows progression / adaptation of idea to form new idea" and it "shows more creative thinking was applied on it". Although not always specified, it seems that in the majority of cases the creative product is seen to be the result of higher order cognitive processes, suggesting that students need to be above average in some way to produce a creative product (they need to be "clever", capable of "deep thinking" or at least able to adapt an old idea to form a new idea).

4.2.4 Access

This characteristic is mentioned by four respondents and an examination of the relevant responses reveals a consideration for two types of access: physical access and mental access. The first of these is implied in responses that describe the creative product as being "genuine" or "natural". This would suggest that these respondents judge the creativity of a product on whether it has been made from materials that are available and accessible in the immediate environment. The second type (mental access) incorporates those comments that

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have to do with user-friendliness such as: "it must be user-friendly", "usable – many people are able to access it and use it in a way that suits them". The issue here is whether the average person can understand how to use the product – if so, it seems that these respondents will consider it to be a creative product.

4.2.5 Aesthetic Appeal

The three respondents who mentioned this characteristic were concerned with the appearance of the product and felt that it had to be "attractive", that it had to "fit in with [a] colour scheme [or] objects of similar shape and sizes and textures". Alternatively, it must show "good use of colour or shades [or have an] interesting and unusual shape".

4.2.6 Expressive

Creativity as expression is a recurring theme throughout the data. An examination of the data as a whole (and not just as it applies to the creative product) has allowed me to identify two types of expression, both of which seem to be linked (at least in the minds of these teachers) to creative behaviour. The distinction between the two types is made out of consideration for the primary purpose of the expression. With this in mind, the first type has to do with the personal need to express emotions, thoughts, feelings and/or desires – this type of expression may be verbal or non-verbal and is reflected in a range of mediums (I shall call this '**personal expression**'); the second, has to do with the inter-personal need to communicate or convey a message – this type of expression is for the most part verbal (I shall call this '**inter-personal expression**'). Only the first type is mentioned in conjunction with the creative product and is reflected in the following comments: a creative product is something which is "a reflection of the person's personality", something which "expresses ideas [and / or] emotions" or something which "captures [the person's] innermost thoughts". This could be closely related to *originality*, for it was agreed that to be creative the product should be unique in some way. Personality is something unique to each individual and thus if reflected/expressed in the product will help set it apart from other products. In this way, the product fulfils the *originality* criterion outlined above.

In most cases the type of expression is specified. In this instance, however, there is one respondent who simply said that the creative product is "expressive" – without specification it is not clear which type of expression the respondent is referring to; perhaps this term is used inclusively to refer to both types.

4.2.7 Transcendent

A couple of respondents felt that to be considered creative the product would have to move beyond the boundaries of the known into the unknown. To fulfil this criterion, the creative product would have to "change" existing ideas into something new, it would have to "show progression / adaptation of [an existing] idea to form a new idea".

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4.2.8 Durable

Durability was an important consideration for two of the respondents and was evident in the following descriptions: "a creative product is something which can be used more than once" or "something which normally lasts for a number of years, such as furniture and motor cars." According to these respondents, it should also be "strong" and it should "endure".

4.2.9 Artistic

Two respondents felt that the creative product could be something that showed artistic ability. This was conveyed in responses that described the creative product as being "artistic", "stylistic" or "crafty" (given the emphasis that the yellow school seems to give to the arts, I think this respondent uses the word "crafty' in the sense of 'arts and crafts' rather than the dictionary usage of the word).

4.2.10 Thorough

This characteristic was evident in the following description: "the creative product is something which is not half done...it is well prepared and is thoroughly done". For this respondent it would seem that the product must reach a state of completion before it can be considered creative. It is implied, however, that completion alone is not enough for it is possible to complete something in a "slap-dash", sloppy fashion. Thus, the respondent adds that the product must be well-prepared and thoroughly done.

4.2.11 Hand-made

For this respondent, it was important that the product be "hand-made", "self-created" and "self-built" to be considered creative, suggesting that s/he would not consider a factory or machine-made product to be a creative product.

4.2.12 Valuable

According to another respondent, the creative product is "precious", something that you "cannot just play around with" and "something that one gives value to". This respondent also uses the word "perfect" in describing the creative product and argues that it should "fill a space – so much so that the one using it must feel that it is supposed to be there all the time. So although it is new, the vacuum it fills must be a space that cannot be replaced by anything else and the one who uses the product must feel like it was supposed to be there a long time ago anyway". I like this description because it reminds me of what Bruner (1962:3) terms "effective surprise". According to Bruner, "effective surprise" is the hallmark of a creative enterprise (3). In his own words "effective surprises...seem...to have the quality of obviousness to them when they occur, producing a shock of recognition, following which there is no longer astonishment" (3) – it is as if the product had always been there. Like this respondent, however, Bruner notes that surprise is not enough – in his opinion, what is

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produced must be useful as well as surprising (cited in Nickerson 1999). And in this respondent's opinion it must be valuable too.

All of the above responses taken together represent the range of ways in which these teachers judge the creativity of a product. This means that if a product meets one or more of these criteria, it will be considered creative by one or more of the teachers in this sample – and in all likelihood by other teachers too.

4.3 The Creative Person

According to the literature, descriptions of the creative person generally include an account of their cognitive characteristics; their personality and motivational qualities; and special events or experiences during their development (Tardif and Sternberg 1988). Although my respondents did not mention this third category, their descriptions did contain a mixture of the first two, supporting Sternberg and Lubart's finding that "people's implicit theories of the creative person contain a combination of cognitive and personality elements" (1999:10). In the questionnaire I asked teachers to list the attributes that they thought were characteristic of a creative person (Section 2, page103) – the response rate was overwhelming. This indicates that there are a large number of characteristics associated with creative individuals. According to these teachers, a creative person is someone who is a fluent, original, divergent or independent thinker; s/he may also be someone who is motivated; fearless; expressive; artistic; imaginative; original; knowledgeable; articulate; resourceful; sensitive; observant; gifted; independent; confident; optimistic; patient; critical; practical; selfless; flexible; introspective; capable of childlike wonder; aesthetically reactive; a non-conformist; uninhibited; someone who has an impact on others and/or someone who is open to new ideas. Although it is uncommon to find someone who displays all these characteristics, it seems that some combination of the above is necessary before a person will be considered creative – at least by the teachers who make up this sample. Figure 3 (overleaf) shows the spread of the data as it applies to the creative person.

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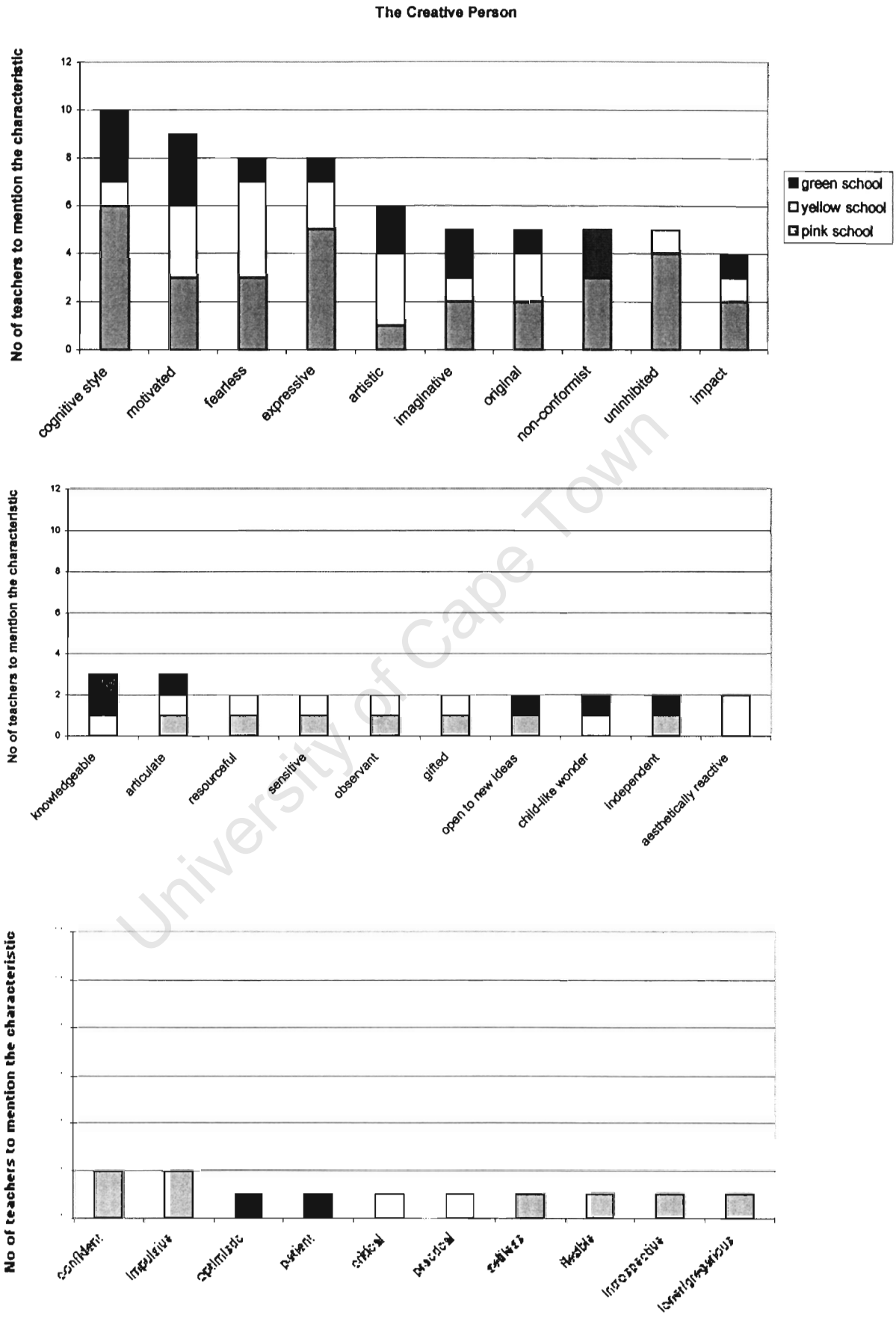

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Figure 3

What follows is a description of the data as it applies to each of these characteristics.

4.3.1 Cognitive style

An examination of the data reveals that the characteristic mentioned by the largest number of teachers, 10 in all, is that of cognitive style. According to these teachers, the creative person demonstrates one or more of the following:

- Ideational Fluency
- Lateral/Divergent Thinking
- Independent Thinking
- Original Thinking
- Transcendental Thinking

The first of these has to do with quantity and speed of thought and is illustrated in responses like "always full of ideas", "thinks fast", "free thinking"; the second is demonstrated in responses like: "thinks laterally", "is a lateral thinker", "divergent", "often very "right-brained"; the third was mentioned by three respondents who all said that the creative person "thinks independently"; the fourth is illustrated in responses like: "has original ideas", "has interesting thoughts or ideas", "thinks differently"; whilst the fifth is evident in the following description: "a creative person would be able to think beyond what the system demanded immediately but what future implications could be resolved".

4.3.2 Motivation

The data also reveals that a number of teachers consider the creative person to be a highly motivated individual. In fact, this characteristic was mentioned 24 times by nine respondents making it the most emphasised characteristic of all those cited. According to these respondents, the creative person demonstrates one or more of the following, all of which indicate a high level of motivation:

- drive
- energy
- enthusiasm
- vision
- purpose

Responses that indicate drive include "never gives up", "focussed", "has focus", "shows determination"; those that indicate energy include "active", "dynamic", "industrious", "productive", "pro-active"; enthusiasm is evident in the following: "generates enthusiasm", "enthuses others to accept their ideas", "passion", "passionate", "inspired", "emphatic", "grabs at an opportunity..."; those that demonstrate vision include "ability to foresee the end

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product", "vision", "clarity", "has clear thinking perspectives in what appears at first to be a hopeless situation"; and those that indicate purpose include "has a mission", "is a goal getter".

4.3.3 Fearlessness

According to 8 respondents, the creative person is someone who (is) "daring", "explorative", "adventurous", "a fighter", "isn't afraid to experiment", "able to take a risk and believe in his ideas", "has not lost their spirit of adventure into paths never trod before" and/or "explores novel, alternative approaches". All these responses allude to a certain quality of fearlessness – they describe a person who is not afraid of the unknown, who is prepared to take risks and to do things differently.

4.3.4 Expression

As discussed briefly before (page 44), I have been able to identify two types of expression in the data: **personal expression** (verbal or non-verbal expression of emotions, thoughts, feelings and/or desires – motivated by personal need) and **interpersonal expression** (usually verbal – motivated by the interpersonal need to communicate/convey a message). Both types of expression are mentioned in this case, the first is more common, being demonstrated in responses like "ability to experiment and produce something which reflects their personality, feelings, thoughts", "in touch with and expresses their ideas, emotions", "capable of putting innermost 'thoughts' on paper in an eye-catching way", "expresses themselves freely"; the second being demonstrated in responses like: "gives messages to people by writing books, songs, poems and drama", "capable of making a statement to a community, the world".

4.3.5 Artistic ability

Six respondents felt that the creative person had to be artistic in some way, suggesting that creativity is more commonly associated with the arts than the sciences. One of these respondents provided a long list of possibilities, describing the creative person as being someone who has "the skill for creative writing, poetry, artworks or paints, crafts, tapestry, the ability to produce films, dramas [or] dance sequences". The lack of reference to other domains making it clear that she places creativity firmly within the arts. This pattern was continued in further descriptions of the creative person and is evident in the following responses: a creative person is someone who is "artistic", "dramatic", able to "express [themselves] artistically", "sensitive to colour, words, feelings", able to "compose" music or "excels on / at interior decorating". In this regard, it is interesting to note the dictionary definition of 'art', which includes the following: "the products of man's creative activities; works of art collectively, esp. of the visual arts, sometimes also music, drama, dance, and literature" (Collins English Dictionary 1986:83).

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4.3.6 Imagination

Several respondents described the creative person as being imaginative, stating that a creative person is someone who is "able to create things...showing imagination" or who has "imaginations of doing something" or simply someone who "has imagination" or "is imaginative". Although, at least one respondent from each school mentioned this characteristic, I am rather surprised that only five out of 22 teachers described the creative person as being imaginative. I would have thought that people would use these terms almost interchangeably – a theory that does not seem to be borne out in the data.

4.3.7 Originality

Although originality has been mentioned before under '*Cognitive Style*', I have also chosen to include it as a category of its own. This is done because in some instances originality seems to be regarded more as a personality characteristic than a cognitive characteristic. Responses that describe the creative person as someone who is "innovative", "original", or who "possesses originality" are a case in point. I have also included here those responses that describe the creative person as someone who is "able to use the product in a creative way" or able to "make something no one else has or can make".

4.3.8 Non-conformist

A handful of respondents describe the creative person as being a non-conformist. Their descriptions paint a picture of someone who is "unconventional"; who "sees things differently" or "from another angle"; who "doesn't like to be told how to do things"; and who "likes to do things the way they want to and at the time that they want to do that particular thing in – so it is usually when they feel like doing things, not being told what to do".

4.3.9 Uninhibited

This characteristic is very similar to the above but there is a subtle difference. Whilst the above is more of a social characteristic, describing how the creative person deals with authority, or established ways of seeing and doing things, this one is more of a personality characteristic. It is also interesting to note that the term "non-conformist" tends to have negative connotations (synonyms for this term being "rebel", "dissenter", "maverick", "radical", "eccentric", "oddball" (Word '98 Thesaurus)), whilst the term "uninhibited" tends to have positive connotations (synonyms for this term being "outgoing", "candid", "open", "natural" (Word '98 Thesaurus)). My own respondents use the term "uninhibited" as well as synonyms like "spontaneous", "impulsive" and "not inhibited" in their descriptions of the creative person.

4.3.10 Impact

Just as the creative product was seen to have an impact on those who came into contact with it, so the creative person is seen to have an impact on those around him/her. This is demonstrated in comments like: the creative person "generates enthusiasm", "enthuses

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others to accept their ideas", "changes...attitudes", "grabs at an opportunity to create an image in a child's mind" (This last response refers to the impact a creative teacher can have on his/her students).

4.3.11 Knowledgeable

According to three respondents, the creative person is someone who is knowledgeable or who uses their knowledge as a base for new ideas. According to them, this person is someone who is "aware of the latest trends – locally and internationally", "who is aware of various dramatic genres" and / or "has a fair knowledge of the various cultures in their community so that they can tap or use those ideas". They also describe a person who "is always seeking knowledge", who "acquires more skills" and "explores more knowledge" and who enables others to "discover how much knowledge they already have".

4.3.12 Articulate

Three respondents describe the creative person as someone who is articulate. According to them, this person is "capable of making a statement to a community/the world", s/he is someone who "gives messages to people by writing books, songs, poems and drama" and/or s/he is someone who "articulates good, unusual ideas well".

4.3.13 Resourceful

Just two respondents describe the creative person as being "resourceful". According to these teachers, the creative person is someone who "is good at possessing coping strategies" and who demonstrates "resourcefulness".

4.3.14 Sensitive

According to two respondents, the creative person is someone who is "sensitive". Although one of these respondents did not elaborate, the other was more specific, stating that the creative person is someone who "is clearly sensitive to colour, words, feelings, etc".

4.3.15 Observant

Two respondents described the creative person as being someone who is "observant of their surroundings" or simply "observant".

4.3.16 Gifted

According to two respondents, the creative person is "gifted", "skilled" and/or "talented" suggesting that s/he demonstrates above average ability in a particular domain. The terms "gifted" and "talented" suggest an innate ability, whilst "skilled" suggests an acquired ability – either way, this person is someone who is a cut above the rest, someone who stands out.

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4.3.17 Open to New Ideas

A couple of respondents also described the creative person as being someone who is "open to new ideas" or "broad-minded". This suggests a person who is able to consider views that are different to his/her own, someone who is not confined by their own world-view.

4.3.18 Child-like Wonder

One of the respondents described the creative person as being someone who "has not lost the wonder seen in small and big things". Similarly, another respondent described the creative person as someone who "sees wonders in what other people are doing" and is "able to look at what somebody is doing and say 'aaah that's nice' and want to try something else by just looking at what other people are doing". These comments indicate that the creative person is someone who has not lost his/her sense of wonder – this is someone who is still able to appreciate and marvel at their world, suggesting that they do not take it for granted.

4.3.19 Independent

The following descriptions indicate a certain independence of spirit – something which these two respondents clearly associate with creative individuals. According to them, the creative person is someone who "wants to think or who likes thinking for him/herself and who doesn't necessarily do things because they are told to or do things in a particular way because someone said so – they want to think for themselves and they are able to execute tasks with little help from other people". The creative person may also be someone who "doesn't like to be told how to do things and wants to use his/her own effort or initiative" or who "uses what they like, not what people are used to doing or used to using – they just come up with their own things and then they do them, which is out of the ordinary – they make an effort to do what is outside the normal". These respondents also state that such a person "doesn't like to be disturbed when engaged in an activity because they want the product they come up with after the activity to be something which people look at and admire – so they want to finish and they want to be disturbed in a very minimal way because they dedicate themselves to what they are doing [and] because they use the best of what they can so that whatever they do, people will always admire that".

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4.3.20 Aesthetically Reactive

According to two respondents, the creative person is someone who is capable of aesthetic appreciation and expression. In their own words, s/he "sees the beauty in almost everything and does something about it" and is also able to "create a thing of beauty, whether it be through music, poetry, the arts..."

4.3.21 Confident

Confidence was an important characteristic for two of the respondents for they described the creative person as someone who is "confident" and has "self-belief".

The last few characteristics were mentioned by one respondent each – **optimistic** and **patient** by teachers from the green school; **critical** and **practical** by teachers from the yellow school; and **selfless**, **flexible** and **introspective** by teachers from the pink school. In each case, these were the exact words used by the respondents with the exception of 'selfless' which was the label I gave to responses that described the creative person as being "altruistic (wanting to help others)", "benevolent (not for self gain)" and "empathetic".

4.4 The Creative Process

Just like Wallas (1926) and Lumsdaine and Lumsdaine (1995), many of the respondents (11 of the 13 to understand and answer this question) divided the creative process into a number of successive stages. Those that did not do this simply listed the factors necessary for the creative process to occur rather than stipulating the stages involved in the creative process itself. This observation indicates an interesting split in the data, a split between those factors mentioned as being involved in the creative process (**Process Factors**) and those factors which it was felt that the process was contingent upon (**Controlling Factors**). (Interestingly, the green school only mentioned the latter, for not one respondent from this school described the process as consisting of a number of successive stages).

4.4.1 Controlling Factors

According to these respondents, there are two main controlling factors: time and motivation, both of which are seen to be the responsibility of the teacher to provide. For instance, one respondent emphasises the importance of "motivating the pupil", and another argues that motivated learners will "listen" and "participate" making creativity possible. It would also seem that it is the teacher's responsibility to allow learners "sufficient time – but not too much, else they lose interest" and to provide "clear instructions so that required criteria are met". According to this respondent, this will ensure that learners do not "miss the point while being creative" – a statement which clearly indicates that creativity is not seen by this respondent as an end in itself, nor indeed as a means to an end, but as something that might even detract from the aim of the lesson.

4.4.2 Process Factors

As a group these respondents reveal that there are a number of stages involved in the creative process – these stages I have identified and labelled as:

- Input / Stimulus
- Reflection
- Connection
- Expression

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- Planning
- Experimentation
- Manipulation
- Execution / Completion
- Analysis / Evaluation
- Acceptance / Assimilation

Because not all of the respondents mention all of the stages and because there was a great deal of individual variation across accounts, I have pulled out the commonalities and presented them in the order that makes the most sense to me. For presentation purposes such an interpretation was necessary. With this in mind, please read these as being the stages that the teachers (as a group) identify as being involved in the process and not necessarily the order that the process is thought to occur in.

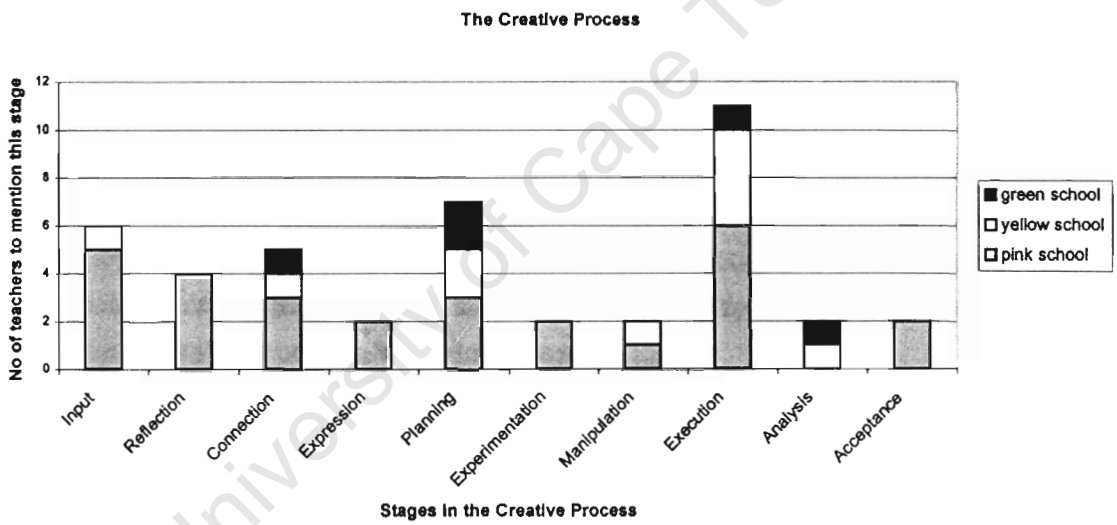

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Figure 4

4.4.2.1 Input / Stimulus

A number of respondents felt that the creative process had to begin with some kind of input or stimulus. According to these respondents, this stimulus might take the form of an "idea", an "observation", a "thought", a "problem" or an "inspiration". As thoughts and ideas of this nature do not usually come out of nowhere but are more likely to be sparked by something that the person has heard or read or seen, a number of respondents mentioned that the input/ stimulus is often preceded by a period of "exploring" or "brainstorming" – the former generates ideas naturally; the latter is a more artificial way of generating ideas. It seems to me, however, that it is possible to have an idea, thought or inspiration, to make an observation or to detect a problem without acting on it and so perhaps it is at this point that the controlling factors come into play. Indeed, I am inclined to think that the successive stages will only take place if the controlling factors are optimal – e.g., the initial stimulus is strong enough and the motivation

great enough to prompt further action. In addition, as we have already seen, there must be enough time available to act upon the stimulus.

4.4.2.2 Reflection

A number of respondents feel that the creative process involves a period of reflection during which time the person takes "time out to ponder [and] put ideas together". It is a chance to "survey the situation", "consider possibilities" and allow for "quiet reflection of ideas".

4.4.2.3 Connection

Connection refers to the stage in the process where new ideas are related to old ideas – it refers to the connection between the known and the unknown, between the part and the whole, between the old and the new. In this regard one of the respondents states that one has to "think of a solution whereby the known can be blended in or thrown out in order to find a way of producing the finished product". This respondent also says that one needs to be able to see "the part of the whole (the big picture)". Other respondents mention the role that "understanding", "memory", "interpretation", "classification" and "consolidation" play in the creative process – all of which involve the connection between old ideas and new ideas.

4.4.2.4 Expression

This stage of the process involves the "exchange" or "sharing and transfer of idea/s" and is mentioned by 2 respondents. Although these respondents do not go into too much detail, one of them does give some insight into the nature of this exchange by saying that the "active expression of idea/s" may be "non-verbal [or] verbal".

4.4.2.5 Planning

This stage was mentioned by a large number of respondents and involves the transformation of ideas into written or diagrammatic form. Examples given include "plans", "layouts", "mind-maps", "drafts" and "designs". Planning requires both "vision" and "imagination" but once the plan is drawn up, the next few stages can be accomplished with relative ease.

4.4.2.6 Experimentation

This would be the stage where ideas and plans are put to the test or at least – as one respondent puts it – tested "against the possibility of success".

4.4.2.7 Manipulation

According to two respondents it would be necessary at some point to "edit / change [the initial idea/plan, in order to produce] the final, neat completed draft". One of the respondents actually used the word 'manipulation' to describe this activity, providing me with a suitable label for this stage of the creative process.

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4.4.2.8 Execution / Completion

This was the stage mentioned by the largest number of respondents and involves the "actual construction or application of the product" – described by other respondents as "creating", "putting into practice", "application of ideas from your creative mood", "implementation" or "execution" – all of which result in the "completion" of a "finished product".

4.4.2.9 Analysis / Evaluation

This could take place at any or several points during the creative process and involves the "analysis" and "evaluation" of ideas/plans/products – this kind of evaluation is made almost continually by the creator him/herself but there may be outside influence from those involved in the creative process or from those whose "job" it is to evaluate the finished product (teachers, customers, peers, etc). According to these respondents analysis of this kind involves "critical and logical thinking", demonstrating that creative thinking is not the only kind of thinking necessary for creative behaviour.

4.4.2.10 Acceptance/ Assimilation

According to two respondents, the public's reaction to the product is also part of the process (I use the word 'public' broadly to refer to those who experience the product – this might be peers, parents, the teacher, etc) – and from their responses it would seem that it is important to these teachers that the idea/product be "accepted" and "assimilated" by others.

Although most of the respondents gave an account of the stages that they thought were involved in the creative process, there was one respondent who summed it all up as follows: "I think that the only thing needed or involved in the creative process is an imagination and the sky is your limit".

4.5 The Creative Environment

According to Shallcross (1981) the creative environment takes into consideration three major factors: the emotional climate, the physical climate and the mental climate. The data appears to support this argument for the responses fall quite nicely within these three categories – for this reason I have chosen to use them as an organising framework for this section. When asked to describe the kind of classroom environment they felt was necessary to foster creativity, the respondents came up with the following considerations:

4.5.1 The Physical Environment

In their descriptions of the creative classroom environment, a number of teachers (10 in all) mentioned the physical environment. These teachers emphasised the need for resources (equipment, books, tools, apparatus), visual stimuli (colourful, interesting walls and décor), as well as space for activities to take place and for learners' work to be displayed. The creative

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environment should also be neat, clean and comfortable. Figure 5 (below) shows the spread of the data in this regard.

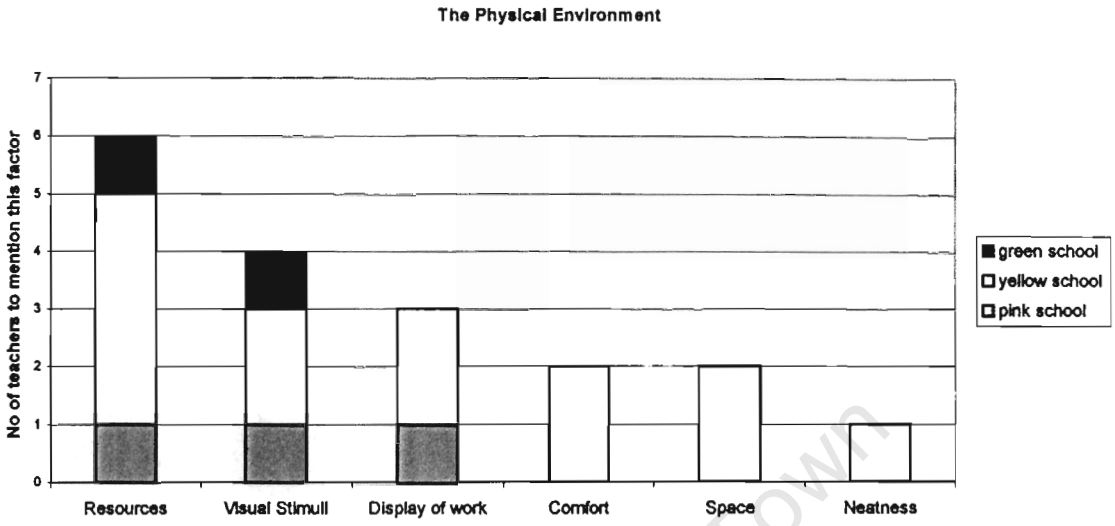

Figure 5

4.5.1.1 Resources

The need for resources was emphasised by six out of the ten teachers. According to these teachers, if creativity is to be fostered in the classroom, then there needs to be an "ample supply of tools / apparatus" and an "organised library with artistic pictures and suitable reading materials covering all sections, e.g., fantasy, realistic fantasy etc." Similarly, "resources and equipment should be available"; there should be "books to read at any stage"; and there should be "apparatus for showing pupils the situations that they are inexperienced into". Apart from encouraging creativity, one of the respondents believes that "equal access to resources and redress of imbalance promotes nation building".

4.5.1.2 Visual Stimuli

Four of the ten teachers feel that if one is to foster creativity then the physical environment needs to be "filled with colour" or "brightly coloured", with "interesting walls" and "décor". For one respondent this would be achieved by using "distinguished, creative colours on walls and charts".

4.5.1.3 Display of Learners Work

The visual stimuli described above are those provided by the school/teacher but the learners may also contribute by having their own work on display. Three teachers mentioned the importance of displaying learners' work, particularly if one intends to encourage further creative behaviour. In their own words, "learners work must be displayed in the classroom"; there must be "enough space to display the learners work"; there must be "an area in the

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room to display work safely" or it should be "a classroom where pupils may display much of their own work, posters, etc".

4.5.1.4 Comfort

Two teachers mention that one needs to provide a "comfortable environment" if one is serious about encouraging creative behaviour. This is closely linked to the need for space, for one of these respondents says that "the room must be large enough to house every learner comfortably", saying that "we feel like sardines in a tin can at the moment".

4.5.1.5 Space

Space is not only needed for comfort but also for creative expression. According to two of the respondents the creative environment is one that is "conclusive to projects" and which has the space to allow learners to "complete experiments". There should also be "an area in the room to do dramatizations etc."

4.5.1.6 Neatness

One respondent felt that in order to encourage creativity, one would need to provide a "neat and clean classroom with some plant life".

4.5.2 The Mental Climate

Eleven respondents gave consideration to the mental climate when describing the kind of classroom environment that they felt was necessary to foster creativity. In this regard, teachers felt the creative environment would be one that was conducive to learning by being vibrant and interactive, as well as through providing challenging and developmentally appropriate tasks. According to these teachers, the creative environment should also be a place where learners are exposed to a wide variety of genres and mediums in which they can express themselves.

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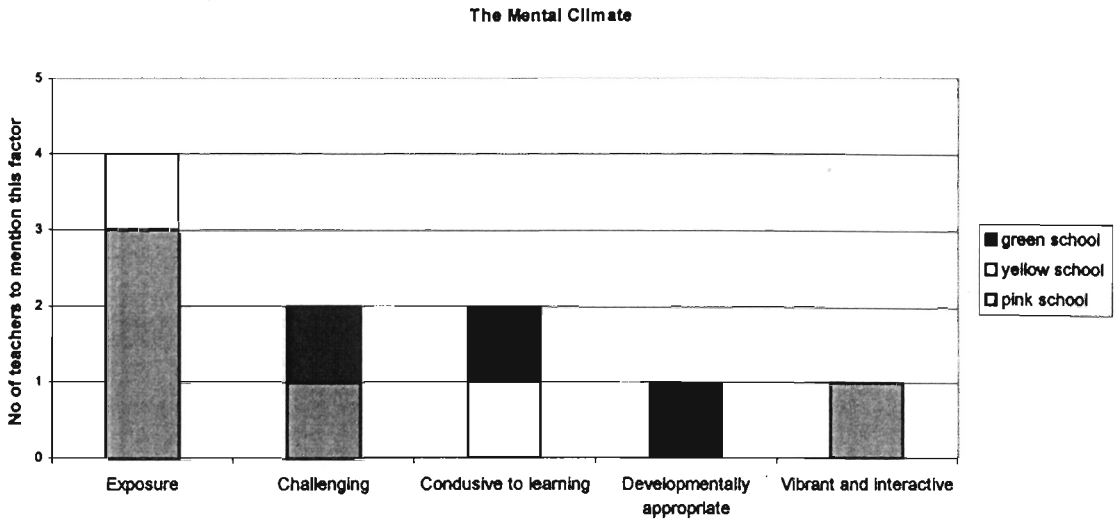

Figure 6

4.5.2.1 Exposure

Four of the eleven respondents emphasised the importance of "exposing the children/learners to various mediums in which they can express themselves" – examples included "speech, music, art, dance [and] writing" as well as "exposure to different forms of art, models [and] magazines". Another respondent felt that one could foster creativity through "visual, oral, written etc. stimuli," whilst the fourth felt that a wide variety of opportunities "presented through stimulation and motivation" would enhance creative activity.

4.5.2.2 Challenging / Stimulating

One of the two respondents to mention this characteristic described the creative environment as being "stimulating" and one "which challenges". According to this respondent, "expectations should be set and the correct 'vibe' created" – however, she did say that this might be "difficult [to do, due to] the differing personalities of the pupils [and] those who demand constant attention". The other teacher felt that the "classroom environment should be one where learners meet challenges that force them to come up with creative solutions without help from teachers".

4.5.2.3 Conducive to learning

Two respondents replied simply that the creative environment should be one that is "conducive to learning".

4.5.2.4 Developmentally Appropriate

According to one respondent, activities should be developmentally appropriate if one intends to encourage creative behaviour. In her own words, activities "should be in the level of the pupils [for] grade 2 pupils will not understand laboratory instruments".

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4.5.2.5 Vibrant and Interactive

One respondent described the creative environment as being "vibrant" and "interactive" suggesting that this would be a classroom (or workspace) where a lot of activity and interaction was taking place – a striking contrast to the traditional stereotype of rows of quiet submissive children facing the blackboard.

4.5.3 Emotional Environment

According to the 11 teachers who mentioned this factor, the creative environment is one which is welcoming, supportive and relaxed, it is a place where students feel free to express their own opinions without fear of judgement, and where they feel respected and valued.

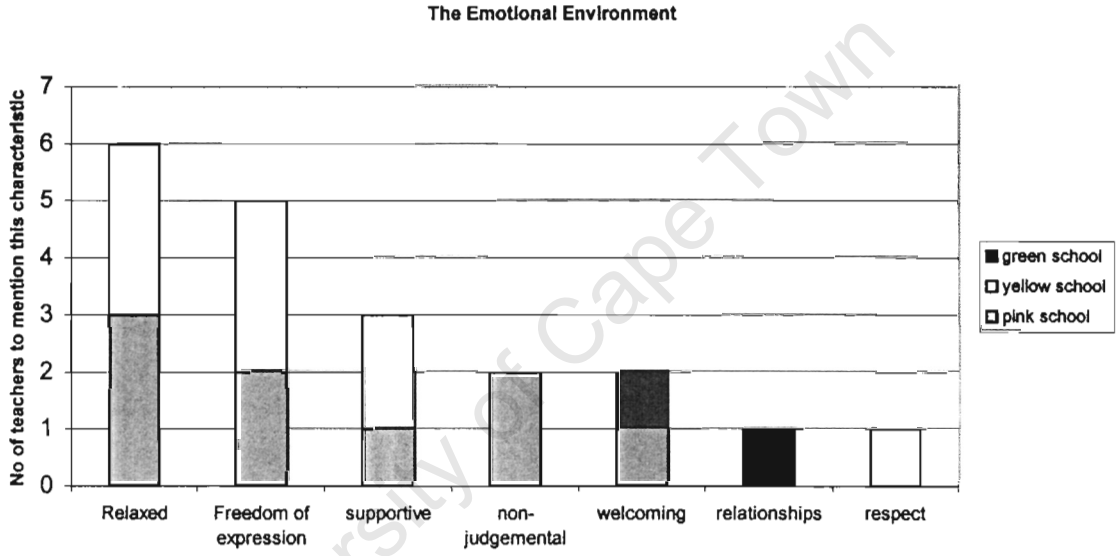

Figure 7

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4.5.3.1 Relaxed

According to six of these eleven teachers, the "atmosphere must be peaceful and relaxed", "calm and relaxed", "stress free" or simply "relaxed" if creativity is to be fostered. Two of these teachers even suggest how such an atmosphere can be achieved by saying that one could play "soft, soothing music to calm learners".

4.5.3.2 Freedom of Expression

Five teachers stressed the importance of allowing learners to express themselves freely. In this regard, the teachers felt that the creative environment would be one in which "the child is able to express him/herself freely without restriction", where learners are able to "say it as it is". It would be an environment which "nurtures and protects freedom of expression" and which "gives kids freedom to speak their minds". It is also a place where "learners are encouraged to express their ideas" and where they "feel free to express themselves".

4.5.3.3 Supportive

Three respondents felt that the creative environment needs to be a "supportive" environment in order to "foster self-confidence" and "provide therapy for healing of traumatised learners/learners with special needs". A supportive classroom "would be a classroom in which positive recognition is given to everything the learner does".

4.5.3.4 Non-judgemental

Closely related to all of the above is the need for a non-judgemental environment – I include it as a category of its own because two teachers mention it directly; it is however, implied in the above categories as well. According to these two teachers, the child should be told that their "ideas are never wrong" so that they are not "worried about doing something wrong that will make the teacher angry or upset". It is also important not to be "critical" or to "over-analyse".

4.5.3.5 Welcoming

According to two teachers, an environment that fosters creativity is one that is "inviting", has a "welcoming atmosphere" or provides a "warm reception".

4.5.3.6 Relationships

According to this respondent, an environment conducive to creativity is one that fosters "healthy relations".

4.5.3.7 Respect

In one respondent's opinion, an environment which fosters creativity is one that "promotes non-racism, non-sexism and respect for human value and dignity".

Further examination of the data reveals that a number of respondents think that it is not possible to establish a creative environment without a creative and motivated educator or without creative and motivated students. According to these respondents, the educator interested in fostering creativity must be "creative" him/herself; s/he must be "well prepared" but also "flexible" in that s/he is "prepared to deviate from normal constraints – which often limit challenges beyond the given curriculum". Lessons must be "planned – to allow freedom but avoid chaos" and "varied – to allow broad scope for ideas [and] experimentation". As far as the students are concerned, they should be "willing to listen, learn, do, ask, answer and think" for it is believed that "where they have good behaviour for creativity, there won't be much hesitation to do whatever is required".

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4.6 Conclusion

As we have seen, this thesis aims to:

1) find out and articulate what teachers in a range of teaching contexts mean when they speak about creativity;
2) evaluate these understandings in the light of what the theory has to say; and so
3) determine whether intervention of any kind is necessary

Having articulated these understandings it is now time to evaluate them. This is done because, as Sternberg points out, these teachers could be "wrong, underinclusive, or overinclusive in their notions of psychological constructs [like creativity and so] investigations of implicit theories must be supplemented and related to investigations motivated by explicit theories" (1985:625).

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CHAPTER FIVE

EVALUATING THE DATA

It is tremendously important to our society that our creative talent be identified, developed and utilized. The future of our civilization, our very survival depends on the quality of the creative imagination of our next generation.
(Torrance cited in Isaksen, Murdock, Firestien and Treffinger 1993:3)

5.1 Introduction

We need teachers who are able to encourage creativity in their classrooms. To do this successfully, however, they need to have a broad and accurate understanding of what this entails – this chapter is an attempt to determine whether these teachers have such an understanding.

What follows then is an evaluation of the data using the literature as a yardstick for my own interpretations.

5.2 The Creative Product

Creative products (whether tangible or intangible) need to exhibit certain characteristics if they are to be distinguished from their non-creative counterparts. According to the literature, the key characteristics of a creative product are originality (sometimes referred to as novelty) and function (or value) (Mayer 1999) – this being demonstrated in the following statements:

- "Any definition of creativity...must include the essential element of novelty...[but] novelty alone...does not make an act or an idea creative; relevance is also a factor. Since the creative act is a response to a particular situation, it must solve, or in some way clarify, the situation that has caused it to arise" (Kneller 1965:3-6);
- "Creativity is the ability to produce work that is both novel (i.e., original, unexpected) and appropriate (i.e., useful...)" (Sternberg and Lubart 1999:3 – also supported in research carried out by Lubart 1994, Ochse 1990; Sternberg 1988a, Sternberg and Lubart 1991, 1995, 1996);
- "[the creative process involves] those mental events by which an organism intentionally goes beyond its prior experience to a novel and appropriate outcome" (Lumsden 1999:153);
- "Creativity is the generation of ideas that are both novel and valuable. Ideas, here, is intended in a very broad sense to include concepts, designs, theories, melodies, paintings, sculptures, and so on" (Boden 1999:351);
- "Although not everyone considers it possible to articulate clear objective criteria for identifying creative products, novelty is often cited as one of their distinctive characteristics, and some form of utility – usefulness, appropriateness, or social value – as another" (Nickerson 1999:392);

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- "creativity is reflected in the generation of novel, socially valued products" (Mumford, Reiter-Palmon and Redmond 1994:3);
- "Creative products, be they poems, scientific theories, paintings or technological advances, are both novel and acknowledged to be valuable or useful in some way" (Gilhooly 1982:123).

The data appear to support the literature in this regard because the characteristics of *originality*, *function* and *value* were all mentioned by at least one of the teachers in this sample – the difference is in the emphasis given them for although *originality* attracts the highest response rate of all the characteristics, (reflecting the emphasis given it in the literature), *function* and *value* are given less emphasis than expected. In fact, of the three characteristics mentioned under **Impact,** *function* attracts the lowest response rate of them all (5 teachers mention this characteristic, whilst the *life-changing* and *attention-grabbing* aspects were mentioned by 6 teachers and 9 teachers respectively). This is interesting because the literature mentions the *life-changing* and *attention-grabbing* elements only in passing, placing its emphasis instead on the *functional* aspect. In my own opinion, these attributes are equally important as the *functional* element – if not more so – for I would be unlikely to identify a product as being creative if it did not at first capture my attention in some way, just as I would be more likely to identify a product as being creative if it changed my outlook or behaviour somehow. That a number of the respondents also mention the *life-changing* and *attention grabbing* elements as being just as important as *function* when identifying creative products suggests that they have a more inclusive understanding of what constitutes a creative product than that presented in the literature. Indeed, some of these respondents do not feel that the creative product necessarily has to perform a function at all – it may simply be eye-catching or striking. Perhaps this view is a result of the ever-increasing emphasis placed on visual stimuli in today's consumer societies. Producers are forced to compete for the public's attention by making their products bigger, better and brighter than the rest. In the classroom context, the same principle would apply for it is more likely that the product which stands out from the rest, the product which captures the teacher's attention, will be the product that will be considered the most creative.

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5.2.1 Value

Another characteristic that is not emphasised to the same degree by the respondents as by the literature is that of *value*. Although popular in the literature, this is one of the least emphasised characteristics of all those mentioned by the respondents. In fact, it was only mentioned by one of the 22 teachers who made up the sample, indicating that this characteristic is not commonly associated with creativity in these contexts. Perhaps this is because the respondents are all primary school teachers and it is unlikely that primary school

children will produce anything of great social value. Even so, teachers need to be aware of this characteristic.

5.2.2 Thinking

Whilst these teachers gave less attention to *function* and *value* than expected (given their prominence in the literature), the opposite is true for *thinking*. *Thinking* is not usually mentioned in studies of the creative product, it being a characteristic that is more commonly associated with the creative process than the creative product. However, these respondents seem to be of the opinion that the thinking must be reflected – indeed almost visibly evident – in the final product and so they include it as a characteristic of the creative product as well as the creative process. Perhaps this emphasis is due to the fact that thinking is generally considered to be an 'academic' activity whereas creativity is not, and so maybe by emphasising the thinking aspect of creativity, these teachers believe they are giving creativity some educational respectability? Creativity is also, in a way, more 'controllable' if it is perceived largely as a kind of thinking for it can then be assigned to a particular area of academic practice. It is human nature to want to categorise and assign labels to things, for in this way we can exercise a certain amount of control over our environment, and as creativity is one of the most complex of human behaviours, it is tempting to want to pigeon-hole it in some way, to contain it somehow – perhaps teachers find this is a convenient way to do so? It is dangerous to adopt such a narrow view, however, for creativity is much broader than this. It is not a self-contained unit, something that can be taught in and of itself, rather it is "the heart of any truly educational experience" (Egan and Nedaner 1988:11). We will never be truly successful in our attempts to educate for creativity if we assign it to a particular area of academic practice. Instead it should inform all that we do, all of the time. I am not convinced that any of these teachers view creativity in this way. Thus, a shift in understanding is needed before anything constructive can be done in this area.

Of further concern is the fact that the majority of teachers to mention *Thinking,* seem to view the creative product as being the result of higher order cognitive processes. To be sure, this view is represented in the literature but it is considered to be rather old fashioned, particularly in the light of more recent discoveries. For example, Weisberg (1986, 1993) and Sternberg and Lubart (1999) argue that creativity involves essentially *ordinary* cognitive processes yielding extraordinary products – a view which is supported by a number of other theorists. Similarly, Stewart (1950) is of the opinion, that creative thinking can occur even if the idea produced has already been produced by someone else at an earlier time. This view implies that as long as the idea is new to the individual who produced it, it can be considered creative. Boden (1999) calls this kind of creativity P-creativity, for in her opinion, novelty may be defined with reference either to the previous ideas of the individual concerned or to the whole of human history. The former definition concerns P-creativity (P for psychological), the

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latter H-creativity (H for historical). P-creativity is certainly more common in the classroom context. Such findings suggest that "creative thinking can take place in the mind of the humblest woman or the mind of the most distinguished statesman, artist or scientist" (Torrance 1988:43). As a result, creative thinking is regarded by many theorists familiar with the field of creativity research, as being a general ability that all possess to some degree – rather than a rare, innate ability that only a privileged few possess. Proponents of this view also believe that creative ability is capable of being nurtured and developed given the right conditions.

Those who are not familiar with these recent developments still tend to believe that creativity is a gift that a privileged few possess. This has important implications for education, as the particular view that teachers adopt with regard to this issue will influence whether they believe that creative thinking is something that can be encouraged in the classroom context. If they are of the opinion that it is a trait that one is born with – one either has this ability or one doesn't – then they are unlikely to spend much time trying to encourage it. If, however, they believe that everyone has this ability and that it can be nurtured and developed, they are more likely to see it as something worthy of encouraging. In this instance, most of the teachers who mention this characteristic adopt the former view and see creative thinking as a higher order cognitive ability that only a few possess. It is doubtful, therefore, that they are doing much to encourage its development in the classroom context.

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5.2.3 Expressive

The data reveal that central to a number of these teachers' understandings of creativity is the notion of self-expression. Expression is, in fact, the only characteristic to be mentioned in conjunction with the creative product, person, process *and* environment, emphasising how important it is seen to be. Once more this emphasis might be related to the context within which these teachers operate, for all of them have undergone extensive OBE training. OBE places creativity firmly within the Arts and Culture learning area, and a reading of the relevant curriculum document reveals that the Arts and Culture learning area is seen to be "a crucial component [in] developing our human resources [for it] will help in unlocking the creativity of our people..." (Intermediate Phase Policy Document 1997: AC-2). In addition to using terms like "artistic" and "cultural *expression*", the document also asserts that "Arts and Culture are at all times concerned with expression and communication" (Intermediate Phase Policy Document 1997: AC-2). It is hardly surprising then that *expression* is central to these teachers' understanding of creativity.

Of interest in this regard is the work of Taylor (cited in Powell Jones 1972) for he suggests that various levels of creativity exist. According to him, the first level is that of *expressive creativity* which involves spontaneous independent expression – in this case the quality of the

product is unimportant for it is the act of expression that is of primary concern. The second level is that of *productive creativity*. At this stage there is a tendency to control free play and improve technique and thus more emphasis is given to the quality of the product. At the third level, *inventive creativity*, invention and creativity are important characteristics and involve a perception of 'new and unusual relationships between previously separated parts'. The fourth level, the *innovative*, is found in a few people only. Here there is a modification of the basic foundation of a whole field of study in the arts or sciences. Only geniuses will work at the final *emergentative* level where the product emerges in its most fundamental and abstract form (cited in Powell Jones 1972:18).

Of concern to me is the emphasis placed (by both the teachers and the curriculum) on the most basic of these levels and the scant attention given to the others. I am not confident that these teachers are aware of the other levels – something which is particularly worrying when, according to Taylor (1959), most school children, given the opportunity to do so, can move successfully through the first two levels, and with good teaching and satisfactory motivation, can in time enter the third stage. Without a consideration for the other levels, learners are unlikely to move beyond the most basic level of creativity, that of *expressive creativity*.

5.2.4 Transcendence

Although the majority of these teachers seem to be unaware of the existence of various levels of creativity, there are two teachers who come close to such an awareness for they describe the creative product as being something which transcends the boundaries of existing knowledge by showing "progression / adaptation of idea to form [a] new idea" – a quality associated with *Inventive Creativity* (Taylor 1959). In fact, this quality finds support in the work of several theorists – Kneller (1965), for example. Indeed, he alludes to the quality of transcendence when he argues that "creative novelty springs largely from the rearrangement of existing knowledge – a rearrangement that is itself an addition to knowledge. Such rearrangement reveals an unsuspected kinship between facts long known but wrongly believed to be strangers to one another" (4). Similarly Ward, Smith and Finke point out that "anecdotal and historical accounts from real-world settings highlight the fact that new ideas, even highly creative ones, often develop as minor extensions of familiar concepts" (1999:194).

5.2.5 Artistic/Aesthetic Appeal

Perhaps also as a result of their OBE training, a number of these respondents speak about the creative product as being artistic or having aesthetic appeal. This characteristic is not something that is mentioned a great deal in the literature, for such understandings are "generally of more interest to the layperson when thinking about creativity" (Tardif and

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Sternberg 1988: 436). To view the creative product as being something which demonstrates artistic ability or aesthetic appeal is to restrict creativity to a particular domain: that of the arts – and whilst this may be useful for identifying creative products within this domain, the literature, as a rule, is more concerned with "whether or not any generalisations can be made about products that are judged to be creative across different domains" (O'Quin and Besemer 1989:268 – also cited in Plucker and Renzulli 1999). Given that it is possible to encourage creativity in all domains and in all learning areas, it is problematic that some of these teachers persist in locating creativity firmly within the domain of the arts – a tendency which is perhaps not surprising given the curriculum's emphasis in this regard.

5.2.6 Hand-made

Although not emphasised in the literature and only mentioned by one respondent, the quality of being hand-made is an interesting one for it raises the question of whether it is possible for a machine to produce something creative. The literature seems divided on this point. For example, O'Quin and Besemer argue that it is possible to find characteristics which are common to creative products "regardless of whether the product is from the arts or the sciences, whether it is mass-produced or home-made, whether it is 'one of a kind' or from a limited edition" (cited in Plucker and Renzulli 1999:44). This statement suggests that mass-produced or machine-made products can be considered equally as creative as home-made products for they are judged using the same criteria. On the other hand, Tardif and Sternberg argue that "creative products are novel – they are not imitations, nor are they mass-produced" (1988:438) – indicating that products cannot be considered creative if they are mass-produced. Whilst there is support for both views it is interesting to note the context within which this particular respondent is operating – that of the green school (see Appendix 2, page 105) – for this may well provide an explanation of why it is so important to her that the creative product be hand-made.

This characteristic also raises the issue of how long a product can be considered creative. The person who came up with the idea in the first place – the concept of a table, for instance – was creative, and therefore the table was considered a creative product. But now that it is so common and now that it is mass-produced and machine-made can it still be considered creative? I would be tempted to say that it cannot, for essentially all subsequent tables are imitations of the first one; unless it incorporates a new feature, in which case it is an extension of the original idea and in this way might possibly be considered creative.

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5.2.7 Accessible, Thorough and Durable

Although mentioned by one or more of the respondents, the remaining characteristics (accessible, thorough and durable) do not find support in the literature. Could these characteristics point to an understanding of creativity that is uniquely African? The literature is entirely Western in origin so the fact that these characteristics do not find support in the literature suggests that they are a departure from the Western conception of creativity. Indeed, from a Western point of view, these characteristics do not necessarily indicate creativity; from an African point of view however, perhaps they do. Clearly these respondents feel that they are indicators of a creative product or they would not have mentioned them. Unfortunately, my sample is too small to determine whether they do in fact represent a uniquely African understanding of creativity or whether they simply represent the views of these particular respondents. I do however, feel that this aspect of creativity research is worthy of further investigation, for the literature reveals that understandings of creativity are deeply bound to cultural context and that these different understandings can help to broaden and extend current understandings of this phenomenon (Runco and Sakamoto 1999:62).

Although the data and the literature differ in terms of the emphasis given to many of these characteristics, that they find support in the literature at all indicates that, *as a group*, these teachers have a satisfactory, albeit over-inclusive, understanding of what constitutes a creative product. On an individual basis, however, the picture is much bleaker, as revealed in the above analysis. In fact, it would appear that only about a third of these teachers are able to successfully identify a creative product. In this regard let us consider the quality of *originality* which despite attracting the highest response rate attributed to any characteristic, is still a cause for concern. If there is one characteristic that is absolutely key to any understanding of creativity it is *originality.* I can say this because it is extremely difficult to find a definition of the creative product that does not mention this quality, whilst it is possible to find definitions that do not mention the other characteristics. This observation has led me to believe that it is the quality of originality, and not any other characteristic, that makes a product creative. This is not to say that the other characteristics are not important; it is just that, as a result of my reading, I believe they function as indicators of the degree of creativity rather than as indicators of creativity per se. To illustrate this point, let us imagine a product that is functional but not original. Compare this product to one that is original but not functional. In all likelihood it would be the latter that would be considered the creative product for it is certainly possible to produce something functional that is not creative, whilst it is less likely, if at all possible, to produce something original but not creative. Thus, it is the quality of originality that determines whether the product is creative or not. To see how function becomes an indicator of the degree of creativity, consider a product that is both original *and* functional. Such a product would probably be considered *more* creative than a product which is simply original.

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If we accept the argument outlined above, it is surprising that only 13 of the 22 respondents mentioned *originality* as a characteristic of the creative product. This means that 9 of these teachers (41% of the sample) do not have an accurate understanding of what constitutes a creative product. A product demonstrating any of the other characteristics mentioned, without also demonstrating originality, is not likely to be creative – yet it would appear that 41% of these teachers would identify it as such.

This is not the only cause for concern, for an examination of the response rates for each of the characteristics indicates that the majority of the responses are attributed to characteristics that do not receive much emphasis in the literature whilst those that are emphasised in the literature attract low response rates, indicating once more that, *individually*, these teachers do not have an adequate understanding of the creative product.

5.3 The Creative Person

The literature abounds with descriptions of the creative person, each study adding more characteristics to the already long list of attributes thought to be associated with creative behaviour. As we have seen in the literature review, the reason for this profusion is that there is no one characteristic that can be used to attach the label "creative" to any particular person – rather, creative personalities are composed of a constellation of many characteristics, some of which may be present in one creative individual, but not in another – and thus, mentioned by some authors and not others (Tardif and Sternberg 1988:435). This phenomenon is reflected in the data (see Figure 3, page 47) for, *as a group*, these teachers are able to come up with a broad range of characteristics; however, none of the teachers mention all of them and only a few teachers mention the same ones. In fact the highest response rate given for any characteristic is 10 (only 45% of the sample), whilst the majority of the characteristics are mentioned by only one or two teachers. This poor response rate indicates a lack of any significant shared understanding and underlines the importance of having guidelines in this regard.

What is important to note, however, is that support can be found in the literature for each characteristic – whether mentioned by one or more of these teachers, and that for the most part those characteristics emphasised in the data (in other words, those characteristics mentioned by three or more teachers) are also emphasised in the literature. The relatively high inter-rater reliability in this regard only serves to emphasise the relevance of these characteristics to creative behaviour and indicates that, even on an individual basis, these teachers have at least some idea of what constitutes a creative person. This however is not enough, for we need teachers with a broad understanding of this concept. A reading of the literature will also reveal that, although support can be found for the characteristics that *are* mentioned, there are a number of important characteristics emphasised in the literature that are conspicuously absent in the data – suggesting that even as a group, these teachers

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demonstrate a somewhat under-inclusive (albeit accurate) picture of the creative person. Tardif and Sternberg's (1988) review of the literature (summarised in Chapter Two, page 14) supports this finding, for a number of the characteristics cited receive no mention in the data at all – these characteristics include the ability to think metaphorically; flexibility and skill in making decisions; finding order in chaos; a preference for non-verbal communication; curiosity; tolerance for ambiguity; having a broad range of interests; the tendency to play with ideas; and so on.

5.3.1 Discovery Orientation

The most obvious gap, however, is the lack of consideration for what Tardif and Sternberg identify as being the most "pervasive feature of creative persons" (1988:431). Indeed, of all the characteristics identified by Tardif and Sternberg (1988) this was the one characteristic that they identified as being *particularly* prevalent in descriptions of the creative person and yet no teacher mentions it. Labelled 'Discovery Orientation' by Getzels and Csikszentmihalyi (cited in Csikszentmihalyi 1999), this characteristic has to do with the tendency to find and formulate problems, and according to Tardif and Sternberg can be considered to be "an aesthetic ability which allows creative individuals to recognise 'good' problems in their field and to apply themselves to these problems while ignoring others" (1988:431). Tardif and Sternberg (1988) are not the only theorists to emphasise the importance of this characteristic, for according to Nickerson "many researchers have emphasized the importance of problem finding and problem definition or formulation – as distinct from problem solving – as being an important aspect of creativity" (1999:395). Examples are; Campbell; Mackworth; Okuda, Runco and Berger; Runco; Runco and Nemiro; and Starko (all cited in Sternberg 1999).

I find this particular gap in the teachers' understanding to be a cause for concern. If this is a pervasive feature of creative persons, then teachers interested in encouraging creative behaviour would have to give learners the opportunity to formulate their own problems rather than setting problems for them. Indeed, many anecdotal reports and numerous research efforts point to the fact that creative insights often occur when a problem is discovered or defined rather than just when solutions are formed (Runco and Sakamoto 1999), indicating that creativity is more than simply problem solving. Without this understanding, it is doubtful that teachers will realise that problem generation, problem construction, problem posing and problem discovery (Csikszentmihalyi 1999) are all a necessary part of creativity education – as necessary as, if not more so than problem solving.

5.3.2 Internal Locus of Evaluation

Another characteristic mentioned in the literature but not by the teachers has to do with the creative person's locus of evaluation. In Rogers' own words: "perhaps the most fundamental condition of creativity is that the source or locus of evaluative judgement is internal. The value of his product is, for the creative person, established not by the praise or criticism of

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others, but by himself" (1970:144). It is not surprising that this characteristic is not mentioned by these teachers for we have to remember the context within which they are operating. OBE is an education system that is based on the evaluation of set outcomes. Continuous assessment of this kind imposes evaluation from without and does not foster or encourage an internal locus of evaluation, a factor of some concern if one is serious about encouraging creative behaviour.

5.3.3 Expression and Artistic Ability

Also of concern is the continued emphasis on those characteristics that have to do with expression and artistic ability. That these characteristics are repeatedly emphasised indicates that they are central to a number of these teachers' understandings of creativity – a fact that I find particularly worrying given the basic level of understanding that the first of these represents and the domain-specific nature of the second (refer to pages 66 and 67). Given that these characteristics are not particularly prevalent in the literature, I am even more convinced that the curriculum is responsible for this view.

5.3.4 Independent

Although the rest of the characteristics emphasised by the teachers are also emphasised in the literature, there are others that are emphasised in the literature but not by the teachers. In this regard, let us consider a characteristic like *independent*. Only mentioned by two respondents, this characteristic is mentioned often in descriptions of the creative person, as an examination of the studies done by Albert and Runco (1987), Bachtold and Werner (1972), Bloom (1956), Busse and Mansfield (1984), Chambers (1964), Davids (1968), Helson (1971) and many others will reveal. The lack of emphasis on this characteristic may also be a function of the context within which these teachers are working. Many of the characteristics associated with creative individuals (independence, non-conformity, impulsive behaviour, tendency to question everything and to resist authority) are generally frowned upon in the classroom context. Teachers need to be aware that these characteristics are often indicative of creativity and should encourage these where appropriate. The low response rate in this regard suggests however, that these are not characteristics that these teachers commonly associate with the creative individual and I rather suspect that they are not characteristics that the teachers like to encourage.

Other characteristics that receive a great deal of attention in the literature but not so much from the teachers are those that have to do with *flexibility, sensitivity, openness to new ideas* and *introspection* (Rogers 1970, Shallcross 1981, Feist 1999). These are key characteristics of the creative person and yet only two respondents mention each of them, indicating that many of the teachers have an inadequate understanding in this regard.

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That these teachers do not have a broad understanding of the creative person is a cause for concern, given that creative children are often puzzled by their own behaviour and desperately need help in understanding themselves and their divergence (Torrance 1970). Simply being understood is often all that is needed to help these learners cope with their divergence and maintain their creativity. Teachers who do not possess a thorough understanding of the creative individual (like those in this sample) will not be able to help in this regard.

5.4 The Creative Process

The creative process was the aspect of creativity that appeared to be the least understood. Five teachers (23% of the sample) left this section blank (the largest non-response rate for any of the 4 P's), suggesting one of three things: 1) that they did not understand this area of creativity; 2) that they did not understand what was being asked of them; or 3) that they did not have time to do this question. Of those who did attempt to answer this section, four teachers misinterpreted the question and only 11 (50% of the sample) described the process in terms of a number of different stages (the rest simply mentioned factors that the process was contingent upon). This means that the range of meanings articulated in Chapter Four was generated from only 13 teachers – 59% of the sample. This is not encouraging, particularly if we accept the argument that "knowledge of the creative behaviours within the process of creating...is vital to future productivity" (Shallcross 1981:9), and that it is possible to increase creative potential by learning the stages and skills thought to be involved in the creative process (Shallcross 1981, Houtz and Feldhusen cited in Isaksen et al 1993, Wechsler 1993, Runco 1993). This requires teachers who know what these stages and skills are. With only half of these teachers demonstrating any understanding of the stages involved in the creative process, I believe that there is a need for guidelines in this regard.

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5.4.1 Process Factors

An examination of the few relevant responses reveals that each of the teachers has a different understanding of what the stages are, how many there are, and what order they occur in. The same is true in the literature, for some theorists divide the creative process into four stages, some into five; some label the stages, others don't; some see the process as consisting of sequential steps, whilst others say there is no set order in which they occur. Despite these differences in opinion, however, there are certain commonalities that can be identified across the different accounts, and a closer examination of the different theories reveals that these theorists are essentially talking about the same things – it is just that they categorise and label them differently. For instance, all accounts of the creative process acknowledge that there has to be an input or stimulus of some kind for the creative process to happen at all. Labelled *first insight* by Kneller (1965), *orientation* by Shallcross (1981) and

problem finding by Feldhusen (1993) this stage (which usually follows a period of exploration or idea generation), involves the detection of an idea or a problem that requires attention. During this stage the creator has no concept of a solution, just the notion of something to be done (Kneller 1965).

Acknowledged by six of the 13 respondents, this stage attracted one of the highest response rates but given that the rest of the process is impossible without this initial input, I am surprised that it is not mentioned by all the teachers. Perhaps the rest of these teachers feel it is so obvious as to be unworthy of specific mention or perhaps they don't see this stage as being part of the process because they are used to supplying the problems themselves rather than allowing the students to identify their own. I rather suspect that this is the case owing to time constraints and curriculum pressures. If so, this is problematic for it means that the learners bypass this important stage (and as mentioned before, creative insights often occur when a problem is discovered or defined, rather than just when solutions are formed (Runco and Sakamoto 1999)). In addition, learners will be more motivated to find a creative solution to a problem that they have identified or chosen themselves as opposed to one that has been chosen for them (Johnson-Laird 1988).

The literature also speaks about the need for a stage during which ideas are explored and generated. It appears that this exploration/generation can happen at numerous points in the process and can precede the *first insight* as well as follow it. (It must be borne in mind that the distinctions between the phases of creation are more conveniences of inquiry than divisions in the process itself – the reality being that they overlap and interpenetrate rather than being distinct and separate phases (Kneller 1965). Needless to say, the creator needs to find out all s/he can about the area of interest if s/he is to identify a problem or find a solution). Labelled *preparation* by Wallas (1926), Kneller (1965) and Shallcross (1981) and *data finding* by Feldhusen (1993), this stage involves a thorough investigation of the field under consideration. During this stage the creator reads, notes, discusses, questions, collects and explores. S/he also advances possible solutions and weighs their strengths and weaknesses (Kneller 1965). Interestingly, the teachers do not mention this stage at all – a fact that is particularly worrying, given the important role that it plays in creative production. Indeed, it is one of the paradoxes of creativity that in order to think originally, we must first familiarise ourselves with the ideas of others – these ideas form "the springboard from which our own imagination launches itself" (Kneller 1965:49). If teachers do not realise the importance of this stage, they will not allow the necessary time for it – this is problematic for if learners bypass this stage they are unlikely to produce anything very creative. This gap in the teachers' understanding leads me to suspect that they view the creative process as being something which only occurs *after* the relevant knowledge has been acquired rather than seeing the acquisition of knowledge as being part of the process. True, one needs a certain

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amount of knowledge in an area to trigger the creative process, but the creator needs to actively seek knowledge him or herself during the process itself if creative inspiration is to occur. Traditionally, what tends to happen in the school situation is that the teacher takes on the responsibility of transmitting the relevant knowledge to the learners. The learners are required to absorb this knowledge rather than discover it for themselves and are expected to retain it and apply it at a later stage. It would appear that this model may still be the one adopted in the contexts under investigation, for none of the teachers mention the need for this phase. Active exploration of the field by the learner/creator is a necessary part of the process – without this phase it is unlikely that significant learning will take place or that anything particularly creative will be produced.

Although the exploration of new material is an essential component of the preparation stage, existing knowledge also plays a role for whilst the creator is exploring the field s/he constantly relates the new information s/he encounters to information s/he already knows. Creative thinking and problem solving are operations performed on information currently arriving and being processed in the cognitive system, by drawing on the knowledge base already in the system. The knowledge base helps us interpret or understand situations or problems confronting us, and it provides specific information and conceptions which we use in adapting, creating and solving (Feldhusen 1993). Although these teachers do not acknowledge the need to explore and investigate the ideas of others before formulating a solution of one's own, they do consider the role that existing knowledge plays in the creative process – as evident in the responses cited under *connection* (Chapter Four, page 55). In this regard, teachers highlight the importance of "recalling past experience and known knowledge" and of thinking of a solution "whereby the known can be blended in or thrown out in order to find a way of producing the finished product". However, new information and old information must work together if the creative process is going to be successful, for an emphasis on one of these without the other will significantly reduce the chances of anything creative being produced. That the teachers emphasise existing knowledge and neglect to mention the role of new knowledge (gained by exploring the work of others) is worrying, and further suggests that 2these teachers see the creative process as being something which only takes place after all the necessary information has been absorbed – an understanding which will ensure that learners bypass an important aspect of the creative process: exploration.

Once the creator has familiarised himself/herself with the work of others, s/he must set this work aside in order to give his/her own ideas freedom to develop. Thus, the process of preparation should be a means to the end of launching one's own work of creation (Kneller 1965). Although only mentioned by four teachers, consideration was given to this stage of the process for these teachers felt that the creator would need "time out to ponder [and] put ideas together", to "survey the situation" and to "consider possibilities".

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Emphasised in the literature – and common to a large number of anecdotal accounts – is the need for some time away from the problem. This stage usually follows the stage known as *preparation* or *data finding,* and is labelled *incubation* in most popular texts (Wallas 1926, Kneller 1965, Lytton 1971, Martindale 1999). This is a time of non-conscious activity in which the creator's ideas 'go underground' – "there the free-ranging unconscious, untrammelled by the literal intellect, makes those unexpected connections that are the essence of creation" (Kneller 1965:51). Not one of the teachers mentions the need for this stage, however, and I rather suspect that the school system does not allow for it. This is an issue of great concern for "inspiration cannot come unless the unconscious mind has gone to work" (Kneller 1965:51). The period of incubation may be long or short, but it *must* take place. If creativity is to be made a priority in the new curriculum, then each of the stages needs to be acknowledged and the necessary time allowed for the successful completion of each stage. Thus, rather than expecting learners to solve a problem or complete a task before being allowed to move on to the next one, they should be given the opportunity to work on something completely different before having to complete the initial task – doing so will allow the period of incubation to take place.

The importance of allowing necessary time for incubation cannot be over-emphasised for the period of incubation is almost always followed by a moment of illumination – suddenly the creator grasps the solution to his/her problem, the concept that focuses all his/her facts or the thought that completes the chain of ideas on which s/he is working (Kneller 1965). In the moment of inspiration everything falls into place. Not surprisingly, given that the teachers do not mention incubation, they do not mention this stage either. An oversight that is problematic, for inspiration is the essence of creative production and is also "one of the most intense joys known to man" (Kneller 1965:53). Learners need to be given the opportunity to experience this joy, and although inspiration cannot be summoned to order favourable conditions can be laid for it. It is thus the responsibility of the teacher to provide these conditions.

Armed with his/her new inspiration, the creator is able to formulate a plan of action. However, before construction of the final product can take place, the creator has to go through a stage often known as *verification* (Wallas 1926, Martindale 1999, Lytton 1971) or less often as *evaluation* (Shallcross 1981). During this period ideas are communicated and evaluated, and plans are made, tested and modified (Kneller 1965). According to Poincaré "it never happens that unconscious work supplies ready-made the result of lengthy calculation" (cited in Kneller 1965:56) and in the words of Eyring, "creativity is rarely a single flash of intuition; it usually requires sustained analysis to separate out the significant factors from the adventitious" (cited in Kneller 1965:56). Thus, the results of the inspiration need to be verified, tested, evaluated, and the consequences deduced (Poincaré cited in Kneller 1965).

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This stage is acknowledged by a number of the teachers and incorporates all those elements that I have labelled *expression, planning, experimentation, manipulation* and *analysis*. It is interesting to note that the teachers mention this stage but not the previous two, for creative production necessarily involves all of them. In neglecting to mention the others, these teachers are describing a process more akin to a particular kind of problem solving than to creative production per se. In fact, there is nothing in their descriptions of the creative process that would distinguish it from any other type of problem solving. I am also even more convinced that these teachers are responsible for setting the problems to be solved rather than allowing learners to explore and define the problem for themselves.

What is also interesting to note is that the teachers give consideration to two types of analysis: that done by the creator and that done by a third party (teachers, peers, consumers). Teachers must be careful not to be too critical during the creative process, however, as criticism may prevent students from taking the risks necessary for truly creative work. Ideally, analysis should be postponed until after the actual production of ideas (Powell Jones 1972).

Interestingly the literature appears to describe only those stages that lead up to the implementation or execution of the final product. In fact, the only theorists to describe the production stage are Lumsdaine and Lumsdaine (1995). According to them, creative problem solving has five distinct steps, each involving alternate periods of divergent and convergent thinking. Their theory argues that implementation itself is a new problem that requires creative problem solving and so the producer is required to go through the whole process once more. This view sees production as the beginning of a new process rather than as part of the initial process. The teachers' responses reveal something very interesting in this regard for not only do the teachers see production as being part of the creative process but they also see it as being the *key* element in the process. Indeed, this is the only time that they agree totally on any characteristic (all the teachers who understood and answered this question mentioned this stage). This convergence indicates that these teachers have a product-oriented notion of creativity and that they value the product over the process. I rather suspect that this emphasis is, to some degree, influenced by the new Outcomes Based Education system. As its name suggests, OBE advocates a system of continuous assessment – it being necessary for learners to demonstrate the required outcomes before they may continue to the next level. As a result, I find myself wondering whether the final product is emphasised by these teachers because it is easier to assess than the process. Such an emphasis has serious implications for creative production, for one cannot produce anything of great creative significance without going through each of the stages described above. Thus, teachers need to see the process as being equally important, if not more so, than the final product and allow the necessary time for it. (Unfortunately this is not always possible due to the many demands

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on their time). It has also been found that the fear of external evaluation has a profoundly negative effect on creative production (Hennessey and Amabile 1988). Thus, teachers need to ensure that they provide learners with opportunities to work without the threat of evaluation, if not all of the time (sadly an unrealistic proposition), then at least some of the time.

It seems that for a couple of the teachers, the process does not even end with production for two respondents take the process beyond production to include *acceptance* – it being important to these teachers that the product be accepted and assimilated by others before the process is complete. This point is an interesting one to raise and is one that does find support in the literature (Sternberg 1999, Csikszentmihalyi 1999). Some theorists even go so far as to say that as long as an idea or product has not been validated and accepted by others, it can be considered original but not creative (Csikszentmihalyi 1999). Such a view sees acceptance as playing a central role in creative production. I am not sure that I share this view, for it is often the case that creative ideas or products (at least when first presented) encounter resistance and are not immediately accepted (Sternberg and Lubart 1999) – in most cases precisely because they are so new and unusual. I do not feel that this makes them any less creative, however.

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5.4.2 Control Factors

Those who did not divide the creative process into a number of successive stages simply listed the factors necessary for the creative process to occur. These factors included time, motivation and imagination – all of which find support in the literature. In fact, by far the greatest amount of agreement in the literature on the creative process is with the statement that creativity takes time. Some authors (Czsikszentmihalyi 1988, Gruber and Davis 1988, Johnson-Laird 1988) even believe that the very nature of creativity depends on the time constraints involved and the opportunity to revise or nurture the outcomes once produced. If time is of such fundamental importance, then it is of great concern that only one of the teachers mentioned it as being a significant controlling factor. If teachers are not aware of this factor, then it is doubtful that they are providing the time necessary for the creative process to be accomplished satisfactorily. I realise that even if the teachers were aware of this, it is doubtful that they would have the time available to do so – this is also an issue of great concern and one which I feel the curriculum should address.

Motivation is also a significant controlling factor and one that is mentioned by a large number of theorists. For example, Hennessey and Amabile (1988) have found that there exists a strong and positive link between a person's motivational state and the creativity of their performance and that the environment is responsible for one's motivational orientation. Although the teachers are not specific about the type of motivation necessary, the literature is

very specific, arguing that people will be most creative when they feel motivated primarily by the interest, enjoyment, satisfaction, and challenge of the work itself and not by external pressures (Hennessey and Amabile 1988). If this is so, the teacher must assume a great deal of responsibility in this regard, for it is his/her job to provide challenging and stimulating learning experiences and to ensure that the learners are intrinsically motivated rather than extrinsically motivated – something which is rare in the classroom environment. Looking at the data as a whole, and not just as it pertains to this area, I find that I am concerned that teachers do not realise the central role that intrinsic motivation plays in the creative process for the emphasis seems to be on external motivators – the fear of failure being an example.

There was only one teacher who mentioned the central role that imagination plays in the creative process. According to this teacher, "the only thing needed or involved in the creative process is an imagination and the sky is your limit". This sentiment is echoed by Sinnott who argues that "imagination...is perhaps man's most distinctive trait, for it makes possible his creativeness" (1970:108).

5.5 The Creative Environment

According to the literature, "the teacher must refrain from forcing creative growth; rather s/he must create conditions which allow creative work to develop" (Powell Jones 1972:25). Indeed, according to Powell Jones, "the actual moment when a child is creative, and realises this – the creative leap – cannot be induced by the teacher but must be allowed for, and is most likely to occur in a particular kind of setting" (1972:25). This setting is described in quite some detail by several theorists, and a reading of their work will reveal that, *as a group*, these teachers have a fairly good understanding of the conditions necessary for creative work. Once more, however, the individual understandings are a cause for concern, for the majority of these teachers demonstrate only a narrow understanding of what constitutes a creative environment.

As we have seen, Shallcross (1981) argues that a thorough understanding of the creative environment takes into consideration three major factors: the physical climate, the mental climate and the emotional climate. The responses show that, *as a group*, these teachers give consideration to each of these. However, an examination of the response rates reveals that this is not the case on an individual basis. Ten out of the 22 teachers mentioned the physical environment, 11 the mental climate, and 11 the emotional environment which means that at the very *most*, only half of these teachers consider all three aspects. If we want teachers who are going to be successful at encouraging creative behaviour they are going to have to demonstrate an understanding of the conditions necessary to do so and I am not satisfied that this is the case in this instance.

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A further reading of the data leaves me even more convinced of the need for guidelines of some kind for there is a definite lack of any significant shared understanding. The response rates are at their lowest in this section – the highest response rate for any characteristic being six. This means that the most popular characteristic is agreed upon by only 27% of the sample. In addition, when one considers that 20 of the 22 teachers responded to this question and that the majority of these characteristics are mentioned by only one or two teachers, it becomes clear that on an individual basis these teachers have a narrow understanding. In fact, a closer examination of the questionnaires themselves reveals that the majority of these teachers only mention one or two factors -- an observation that is cause for concern.

The lack of a significant shared understanding means that there are a number of quite different individual understandings. When these are presented together, they result in a fairly broad range of considerations which, when compared to the literature, can be judged as quite a satisfactory account of the environmental factors necessary to foster creativity (underlining the value of shared knowledge). In fact, only one of the factors mentioned does not find support in the literature and that is *neatness.* According to this respondent "a neat and clean classroom with some plant life" is what is needed if one wishes to encourage creative behaviour. Personally, I do not think that such an environment is particularly conducive to creativity. Creativity is messy, it is active, it is about doing and discovering – and, in my opinion, a classroom that emphasises neatness and cleanliness is unlikely to welcome creative activity of any significance. I am thus relieved that this opinion does not represent a majority view. It does, however, raise the possibility that others, not included in this sample, might share this view.

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5.5.1 The Physical Environment

Keeping with the physical environment, it is interesting to note that the most emphasised factor concerns the need for resources – this I believe to be one of the most common misconceptions about creativity. A common belief, and one that seems to be borne out in my data, is that creative activity is only possible with expensive equipment and apparatus. This is not the case, however. In fact it is more likely that people will be creative in the absence of such equipment for they will be forced to make do with what is available. I am beginning to suspect that 'lack of equipment' is used by many as a convenient excuse not to be creative, when in actual fact creativity is not dependent on expensive material resources of the type described by these teachers – materials that have been collected in and around the school grounds work just as well and don't cost anything. It is important that such materials be within reach at all times, for their availability to students at crucial moments plays an important role in encouraging creative behaviour (Shallcross 1981).

Although the literature does not specifically mention the need for visual stimuli, it is more likely that learners will be creative in an environment that they find interesting and stimulating. The reason the literature does not emphasise this factor could be because the provision of visual stimuli (in the form of colourful walls, posters and charts) does not necessarily lead to creative behaviour – although it is more likely to help the creative process than hinder it. For this reason I would encourage teachers to do all that they can to create an interesting and stimulating environment. It is also important to display learners' work, for this is a way of affirming their creative efforts and encouraging further creative activity (Shallcross 1981).

I am surprised that only two teachers mentioned *space*, for it is mentioned a great deal in the literature. Three types of space are acknowledged (two of which are mentioned by these teachers) – these include space to display work; space to conduct group activities; and space to store unfinished work. The third of these is arguably the most important, and yet it is the only one that is not mentioned by the teachers. According to Shallcross (1981), it is of the *utmost* importance that learners be given a secure place to keep the material they are working on. These private spaces and properties need to be respected because creative behaviour requires students "to take risks, to try new things [and] to dare to be different" (15) – this will only happen if they are guaranteed some privacy while they are in the process of risking. Intervention during this time, even in the form of helpful hints or suggestions, is likely to discourage rather than encourage creativity. "The student's physical private place helps build the emotional support crucial to creative productivity" (15), and as such should be a central consideration when establishing an environment conducive to creativity. I am not confident, however, that these educators realise the importance of this type of space – a concern that further convinces me of the value of providing guidelines in this regard.

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5.5.2 The Mental Climate

As far as the mental climate is concerned, the most popular consideration seems to be that of *exposure*. According to these teachers, it is important to expose children to a variety of stimuli – a consideration that finds support in the work of Shallcross (1981) and Powell Jones (1972). Shallcross argues that teachers need to "provide a variety of stimuli to account for the differences in what individual students will respond to" (1981:16), and Powell Jones asserts that "the essential characteristic of creative work in schools is that every pupil will have the opportunity to create in thought, movement, arrangement, and construction, in a variety of media and materials, something that arises from within them and which is therefore characteristic of them" (1972:32). Of concern is the fact that although *exposure* was the most popular consideration, it was mentioned by only four respondents. This low response rate indicates that the majority of these teachers have a limited understanding of what is needed to establish a creative environment, particularly where the mental climate is concerned. (Of the three (physical, mental and emotional), this aspect received the lowest response rate

overall, suggesting that it is the least understood). However, the few teachers who did consider this aspect mentioned factors that are all emphasised in the literature – and when shared, these understandings provide a fairly accurate account of the elements necessary to establish a suitable mental climate. In this regard consider those responses that have to do with the provision of challenging and developmentally appropriate tasks, and then read what Shallcross has to say on the topic for according to her, "a desirable mental climate is one that challenges but does not overwhelm" (1981:16). She also advises that "early challenges presented to a student or class should have built-in success for the student [for] it is through meeting success that one is encouraged to go on. Challenges should then become developmentally more difficult as progress is made" (1981:16) – advice that is mirrored in those responses that speak about the need for developmentally appropriate activities.

Conspicuously absent from these descriptions is a consideration for the act of discovery – something emphasised a great deal in the literature. Indeed, it has been agreed by researchers and teachers that "children learn best what comes to them pleasantly and as personal discovery" (Powell Jones 1972:28), and for this reason learners should be given the opportunity to discover things for themselves. With a crowded curriculum and the many demands on their time, I suspect that this is not a priority for many teachers. Neglecting to provide opportunities for self-discovery has serious consequences, however, for as Powell Jones points out, "learners who are spoon-fed information for the sake of getting through the curriculum are deprived of opportunities to grow creatively" (1972:28). Teachers *must* provide learners with opportunities for discovery as well as remembering, just as they should allow time for the consideration of facts as well as for the repeating of them. In addition, learners should be taught that a problem has several different interpretations and solutions for this will encourage them to explore other possibilities (Powell Jones 1972).

Once more these teachers neglect to mention the role of imagination. In fact, nowhere do they acknowledge the need for activities that spark or require imagination – something I find surprising when one considers the role imagination plays in creative endeavour. In this regard let us consider man's greatest achievements (communication by written symbols, the invention of the wheel, the domestication of animals...), most of which were novelties that could not have appeared unless there had been someone who could imagine a situation never yet experienced, who could picture in his mind something he had not seen (Sinnott 1970). Imagination is central to creative endeavour for it knows no boundaries: "it can wander not only in the known world but into space, into history, and into non-reality" (Powell Jones 1972:30). For this reason Powell Jones argues that it is "imperative that the school encourages development of the imagination" (1972:29). I wonder how often these teachers provide their learners with opportunities to stretch their imaginations, particularly in light of the fact that they neglect to mention this aspect.

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5.5.3 The Emotional Environment

Providing all the appropriate ingredients for the physical and mental climates will serve little if the emotional atmosphere is not one that is supportive according to Shallcross (1981). In her own words "a supportive emotional climate affords students the personal security to respond to the physical and mental stimuli that their teacher or their peers have placed before them" (19). With this view in mind, it is more than a little worrying that only three teachers mention this factor, for if we accept Shallcross' argument then this low response rate means that, based on their individual understandings, 86% of these teachers would not be successful in establishing an environment conducive to creativity. Closely related to this issue, however, is the notion of a relaxed and stress-free environment – a factor that is emphasised by the teachers as well as the literature. Indeed, of all the factors mentioned here, the need for a relaxed environment was the most popular – although it was only mentioned by six teachers.

Freedom of expression was also a popular consideration and although not emphasised in the literature, Powell Jones has the following to say: "the creative being does not emerge suddenly ...his development is gradual and takes place only in an atmosphere which allows him to express himself" (1972:25).

Only mentioned by two respondents, but of *great* importance in the literature, is the notion of having a non-judgemental classroom climate. In fact, Rogers (1970) goes so far as to say that teachers should provide a climate in which external evaluation is absent, for he argues that when we cease to form judgements of another individual from our own locus of evaluation, we are fostering creativity. As he puts it, "evaluation is always a threat, always creates a need for defensiveness, always means that some portion of experience must be denied to awareness" (1970:147). The current educational context does not allow for such a scenario for its emphasis on demonstrated outcomes means that learners are constantly being evaluated. This emphasis is worrying, for a number of studies have highlighted the detrimental effects of evaluation on creative productivity (Smith 1974, Karniol and Ross 1977, Hennessey and Amabile 1988), indicating that teachers should ensure that learners have the opportunity to work without the threat of external evaluation – if not all of the time at least some of the time. When discrimination of a product *is* necessary, evaluation must be postponed until after the actual production of ideas and the learner must never be made to feel that, because his/her ideas are rejected, s/he is also rejected as a person (Powell Jones 1972). In addition, Hilgard and Sears (cited in Powell Jones 1972) showed a positive correlation between creativity and the demonstration, by teachers, of their willingness to listen to the ideas of their learners. In such an atmosphere learners can permit themselves more leeway in the expression of unconventional ideas without fear of devastating or sarcastic criticism. This will, in turn, create an atmosphere in which learners are more tolerant of unconventional ideas among themselves.

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An atmosphere of mutual respect and trust is also necessary if one intends to encourage creative behaviour – however, the former is mentioned by only one respondent and the latter receives no mention at all. The low response rate in this regard is particularly worrying when one considers that violations of trust, especially with younger learners, are responsible for most failed efforts to invoke creative behaviour (Shallcross 1981). If I were responsible for drawing up a set of guidelines to help teachers in their efforts to encourage creativity in the classroom, I would make trust a priority – particularly in light of the fact that none of the teachers mentioned it. It is the teacher's responsibility, particularly in the initial stages, to be the role model for and the gatekeeper of an atmosphere of trust, and it is important that they realise this.

The final point to make is that creativity will not take place without a creative and motivated educator – a point raised by six of these teachers. In this regard Powell Jones (1972) suggests that in order to encourage creative effort in children, the teacher must become a fully functioning personality. To do this s/he must participate in "original thinking processes", s/he must "endeavour to eliminate well-established patterns of conventional and negative thought" and s/he must develop "a more active awareness of divergent learning experiences" (24). There is also a need for the teacher to be flexible in his/her thinking and methods. According to him, creative teaching arouses a zeal for learning, and stimulates selective thinking and purposeful action. It proceeds with the conviction that there are within each person impulses that need to be encouraged and nurtured (32). Without a thorough understanding of creativity, however, it is unlikely that teachers will be suitable role models in this regard.

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5.6 Conclusion

In the light of the information presented above, it is clear that these teachers do not have a broad understanding of creativity. This is made even more obvious when we examine the overall response rates, which reveal that the highest response rate given for any characteristic is 13 (59% of the sample), whilst the majority of characteristics attract a response rate of 2. This pattern indicates that there is a lack of any significant shared understanding in this regard and also reveals that on an individual basis these teachers demonstrate an extremely narrow understanding of this concept. This narrow individual understanding becomes still more obvious when we examine the response rates across the 4 P's. A close examination of these figures reveals that the response rates are comparatively high for the creative product and the creative person but low for the creative process and the creative environment (the two areas that teachers have the most control over). If we accept Jones' (1993) argument that an interactive model is the key to understanding the nature of creativity, then this finding is considerable cause for concern. If teachers are to be successful in their attempts to educate for creativity, they will need to demonstrate improved

understanding in each of these areas: a knowledge of one or two of these elements is simply not enough.

Although the individual understandings are a cause for concern, the group understanding is more satisfactory. The high degree of individual variation across responses means that, when combined, these different views make for a much more inclusive understanding of creativity – and if used in conjunction with the literature, would make a solid foundation for the development of guidelines in this regard. Without formal clarification of this kind, it is unlikely that these teachers will be successful at educating for creativity.

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CHAPTER SIX

CONCLUSIONS

To find solutions in school you need knowledge; to find solutions in life you need creativity.
(Lumsdaine and Lumsdaine 1995:5)

6.1 Introduction

If we are to take Rogers seriously (Chapter One, page 5), the findings of this study are alarming to say the least. Without an education system that places creativity firmly at the centre of the curriculum and without teachers who are able to identify and encourage creative behaviour, we cannot hope to be successful at educating for creativity in this country. The findings reveal that we have neither. Although I am basing this conclusion on a sample of three schools, I have no reason to suspect that the findings would be any different if this study were to be carried out on a national basis. Creativity is one of the most complex of human behaviours and as such is deeply bound to cultural context (Runco and Sakamoto 1999). This means that in a multi-cultural society such as this one, it is highly unlikely that there would exist any significant shared understanding of this concept. The elusive nature of the term on its own is enough to ensure the existence of a wide variety of interpretations. Without formal clarification[1] on this issue, how can we ever be successful at educating for creativity on a national basis? And without a curriculum that emphasises creativity how can we expect our teachers to do so? If we are at all concerned about the future of our nation, then this issue needs to be addressed – and with some urgency.

6.2 Conclusions and Recommendations

The narrow understanding demonstrated by the majority of these teachers and the lack of any significant shared understanding indicates that creativity is not something that these teachers talk about or even think about very much. This is problematic for if teachers were to talk about this issue, if they were to share their ideas, they would have a much broader understanding of this concept. The fact that teachers are not doing so indicates that they do not view creativity as a priority. What is really needed is a fundamental shift in attitude, not just at a local level but at a national level too. Creativity needs to be prioritised. And the curriculum would be a good place to start.

Since 1994, enormous time and energy, not to mention money, has gone into the development of a new curriculum for South Africa. Despite all this effort, however, the curriculum is still being revised and is still being met with a great deal of criticism.

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[1] By formal clarification I do not mean that teachers need to be provided with a definition of creativity (as we have seen this is equally problematic, if not impossible, given the elusive nature of the term), rather I mean that teachers need to be provided with a broad and inclusive set of guidelines; a set of guidelines that takes into account a range of cultural understandings and beliefs.

Why? Because it is simply not appropriate in our current context.

We need to educate our children for life and this means providing them with the knowledge and skills that will help them meet future problems creatively. A system of learning based on the evaluation of set outcomes does not allow room for creativity. Such a system, by definition, emphasises product over process, external evaluation over internal evaluation, and extrinsic motivation over intrinsic motivation – all of which have a negative impact on creative production. If creativity is our only hope of survival, it is imperative that we structure the curriculum accordingly. This means placing creativity firmly at the centre of the curriculum and not just in the arts; it means allowing the time necessary for truly creative endeavour; it means emphasising process over product; it means flexibility; and it means the suspension of judgement. In short, it means a whole new curriculum.

This suggestion is not as unrealistic as it may sound. For which makes more sense: spending time and money revising a curriculum that is clearly inappropriate, or using these same resources to develop a curriculum that is more suited to our needs?

It is only once our curriculum prioritises creativity that we can expect our teachers to do the same. Whether it be through the provision of guidelines (as I have argued) or by some other means, *something* needs to be done to foreground creativity. This will encourage teachers to talk about this issue, to share ideas and to put these ideas into practice.

And education would not be the only area affected. A change of this kind would have a ripple effect throughout the whole of society, in all sectors and at all levels. Media. Business. Entertainment. You name it.

Creativity could not help but become a matter of national significance. And change would be inevitable.

Am I being idealistic? Of course! That's what creativity is all about. For what is creativity if it is not imagining a reality that does not already exist and then thinking of ways to make it happen. We need to stop seeing idealism as something negative and start to see it as something positive. Every inventor that ever lived, every act of creation, began with an ideal, a vision of what might be. And in most cases that vision was realised.

We need to become a nation of idealists.

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EPILOGUE

HOW I LOST MY VOICE: REFLECTING ON MY THESIS

Writing this thesis has been one of the most challenging yet rewarding experiences of my life. I have learnt so much, not just about creativity and the field of research but also about myself. There were times when I wanted to throw this thesis out of the window, to give up, to move on; but I learnt to persevere, to push through the hard times, to 'pick myself up, dust myself off and start all over again'. I find myself thinking that the process of writing a thesis must be somewhat similar to motherhood.

It all begins with a half-formed, ill-defined hunch which grows and develops until it becomes something more tangible, more workable, more malleable. An idea is born. Then there are the sleepless nights as thoughts and ideas scream for your attention. For a while you ignore them but they won't go away and you are forced to get up and put them to rest. Gradually you develop a routine and you start sleeping better but there are still occasions when you are rudely awoken by a niggling thought or idea. And at some point you realise this 'thing' has taken over your life: it goes everywhere with you, you think about it all the time, it crops up in every conversation, you can't escape it. Everywhere you go people have advice to give, suggestions to make – they mean well but sometimes you just want to figure things out on your own, to allow your idea to develop and grow into the thing you want it to be, not what everyone else expects. And then it's too late. You have done your part and it's time to let go…

And so here I am with a finished product. Wow. For so long this moment has been a thing of the future and now it is here. I feel relief, exhilaration, excitement and an enormous sense of accomplishment. But there's something else, something I can sense in the pit of my stomach…and I realise with some surprise that it is disappointment. Disappointment? Why should I feel disappointed? And then it comes to me…

Because somewhere along the line I lost my voice.

I had such big ideas for this thesis when I began: this was a thesis on creativity so by George it was going to be creative. It was going to be quite unlike any other thesis ever written! I had plans and ideas - lots of them – it was just a matter of choosing which one to use. The style was going to be informal, that was for sure (I hate all that formal academic stuff: so cold, so impersonal – an instant cure for insomnia). The personal touch: that was what I wanted.

And yet, here I sit, with a thesis that is remarkably like any other thesis I have ever read. Sure, the content is new; but the style is formal, the structure rigid and the over-all effect, cold and somewhat clinical. That I went through the creative process there can be no doubt. The result, however, is not a particularly creative product.

So what happened?

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Expectation is what happened. I did what was expected of me. I towed the line. I played by the rules.

Reflecting on this for a while I realise that I can't be too hard on myself for this. Indeed, all my life I have attended schools and institutions that have favoured the conformist mentality. I have become good at accepting and learning what my teachers and lecturers tell me to. And I have got used to thinking and writing along conventional lines. Indeed, I learnt pretty early on how to play the system: Do what's expected of you and you pass with flying colours. Be unusual or unconventional and you rock the boat. You may even fail. It's just not worth the risk.

I am reminded of something one of my lecturers said as I began writing this thesis: "this is the structure you need to follow if you plan to pass your thesis – stray from this and you will fail." I didn't dare.

Only a few are brave enough to do things differently, to disregard the consequences – these are not the people we need to worry about. The people we need to worry about are the people like me; the people with enormous creative potential; the people who, given the right conditions and the freedom to do so, could be astoundingly creative. The people who are afraid of the consequences.

The fault is not with these people but with the system.

In suggesting this, I am not arguing for a system which allows students to do whatever they want, whenever they want. Or that there should be no consequences for their actions. I am suggesting, however, that as educators we need to err on the side of leniency rather than rigidity. We need to realise that the standard way of doing things may not always be the best way of doing things – that there might be other ways, better ways. However, if we do not allow our students the freedom to explore alternatives, to do things differently, these will never be discovered. And things will never change.

As teachers and lecturers, we need to realise the enormous power we have in this regard. We need to stand in front of our students and see CREATIVE POTENTIAL written on every one of their foreheads. And we need to do something about it.

We could start by expecting the unexpected.

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A final thought:

My supervisor contacted every single university in South Africa looking for an external examiner who was an expert in the field of creativity. He found no one.

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http://www.homestead.com/Fortress_of_infinitude/Fi_Quotes_Creativity_and_Origin.html.

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APPENDIX 1

(Questionnaire)

RESEARCH PROJECT ON CREATIVITY IN EDUCATION

"I don't need any more paper-work in my life" I hear you say – and I understand completely. I realise that your time is limited and extremely precious and so it is with a certain amount of apprehension that I ask you to fill out this questionnaire. Please be assured that the time you do spend on it will be greatly appreciated.

My name is Catherine Feather. I am a student at the University of Cape Town enrolled for a Masters Degree in the Department of Education. In filling out this questionnaire, you will be taking part in an Education Research Project the aim of which is to explore teachers' understandings of creativity.

As I wish to take up as little of your time as possible, only the necessary information is given below. Should you wish to know more about my project, please feel free to contact me at either of the following:

Home telephone: (021) 685 3980
E-mail address: katiefeather@hotmail.com Subject: Creativity Research Project

The questionnaire will ask you for your understanding of what constitutes:

1) a creative product (Section 1)
2) a creative person (Section 2)
3) a creative process (Section 3)
4) a creative environment (Section 4)

The questions are open-ended and space is provided in which to write your answers. Should you need more space please feel free to attach an appendix. It would help if you could mark these appendices clearly so that I know which questions they are referring to.

If English is not your first language, you are welcome to answer the questions in your home language.

Please do not work with others in filling out this questionnaire or read about the topic before answering questions – this will distort the data.

The more information you can give when answering these questions, the more accurate I can be in presenting your views.

I will collect the questionnaire, in person, on the due date (given above).

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Section 1

In the space provided, please list as many attributes as you can think of, that are characteristic of a creative product (separate each characteristic – word or phrase – by using a comma). The following incomplete sentence may help you to answer this question:
A creative product is something which.....

Section 2

In the space provided, please list as many attributes as you can think of, that are characteristic of a creative person (separate each characteristic – word or phrase – by using a comma). The following incomplete sentence may help you to answer this question:
A creative person is someone who.....

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Section 3

In your own words, please describe what you think is (or what stages you think are) involved in the creative process:

Section 4

In your own words, please describe the kind of classroom environment that you feel is necessary to foster creativity. Explain how the factors you mention would help to do this:

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Thank you for completing this questionnaire.

APPENDIX 2

DIFFERENCES ACROSS THE SCHOOLS

In carrying out this study it became apparent that the three schools had quite different attitudes towards – and understandings of – creativity and I felt I wanted to explore these a little further. This exploration turned out to be a most interesting exercise. Unfortunately without an in-depth analysis of the contexts and cultures involved (the task of an entirely different thesis), I could not make any more than tentative suggestions for why these differences exist. As a result this piece may come across as rather simplistic and superficial in its treatment of what are, in fact, hugely complex issues. Given more time, I would have loved to explore these differences further but such an investigation was not possible under the circumstances. (The job of a PHD perhaps?!) Given that these differences were not the focus of my thesis and given that I do not speak with authority on these issues, any interpretations made are entirely subjective and should be recognised as such. That these differences exist at all however, is further proof of a) the danger of assuming a shared understanding of the term creativity and b) the need for guidelines in this regard.

The Green School

An examination of the data will reveal that the school with the lowest overall response rate is that of the green school. There could be many reasons for this but perhaps it has something to do with the fact that there is no word for "creativity" in Xhosa. Without a direct translation, these teachers would have to rely on their own past experiences and world-view to interpret the concept and as such their understandings would be influenced to a large extent by their own cultural milieu. Without an in-depth understanding of this culture, I am not able to say what these influences are, but what is extremely clear is that these teachers see creativity as necessary to survival. For them it is a matter of life and death. It is not a gift that only few possess, but a skill that one must develop if one intends to survive from day to day. In this regard, one of the teachers had the following to say: "the situations that we find ourselves in, in life, force us to come up with solutions – the day to day problems that face us force us to come up with creative ways of getting ourselves out of problems or troubles, so that we can come up with new ideas of how to do things." According to her creativity is brought about by "life's needs: poverty, health, accommodation, not having anything…having to give solutions, having to make solutions, having to come up with solutions to problems, finding oneself in problems that need one to come up with a solution quickly, competition with other people, not being content with what one has [and] wanting to set oneself above others."

These responses give a clear picture of the context within which these teachers operate, a picture which is supported by my own observations. Life is hard; incomes are low; resources

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are scarce. In an environment like this, one needs to be creative to survive another day. It's as simple as that.

Situated in a low income, poorly resourced community such as this one probably also means that one would have to use those resources available in the natural environment – creativity being evident in the way these materials are used and the degree to which they solve a practical problem or meet a particular need. There would also be limited access to mass production techniques meaning that most products would have to be hand-made and due to lack of resources, products would need to be durable so that replacements would not have to be bought at regular intervals. It is hardly surprising then that for most of these teachers a creative product is something which performs a function, solves a problem or is useful in some way; it is hand-made using natural materials which are available in the immediate environment; and is durable as well as thoroughly done. This more functional and practical understanding of creativity would also explain why these respondents tend to place creativity within the Technology learning area.

Also of interest is the fact that a number of respondents from the green school mentioned that criminals are creative for they have to figure out ways of cheating the system (one of these teachers even cited Robert Mugabe as being one of the most creative people he knew.) It was only in this context that consideration was given to what I would view as a negative usage of creativity; however, I did not get the sense that these respondents saw it in this light – perhaps for them this kind of creativity is also seen as being necessary to survival, creativity motivated by need.

In fact, it is this conception of creativity – as being motivated by need – that highlights one of the major differences between the overall understanding presented by the green school and that presented in the literature. Indeed, most studies that are concerned with the motivation for creativity will argue that people will be most creative when they feel motivated primarily by the interest, enjoyment, satisfaction, and challenge of the work itself and not by external pressures (Hennessey and Amabile 1988). I find that I am starting to question this, however, for examples of creativity can be seen all over Khayelitsha[1] and in most cases these have been motivated by external pressures. Take, for instance, the houses that are constructed out of waste materials such as scrap metal, card-board, plastic and so on. Or the businesses that have been set up by local people to earn money and provide the income necessary to survive – an example being the weaving company I visited. Looms have been made using chip-board and rows of nails (materials that are cheap and accessible), a picture drawn on plastic is placed on this frame and fabric (waste material) is wound above and below alternate nails according to the drawing on the plastic – the end result: a hand-made, wall-hanging, rug

[1] Khayelitsha (roughly translated as 'Our House') is a working class township just outside Cape Town. It consists of a mixture of sub-economic housing and makeshift shacks.

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or carpet. Surely survival is as strong a motivator as any? In fact, I would think that a need of this kind would force one to be more creative, not less. Perhaps this particular understanding is an example of how people's implicit theories can help extend current understandings of creativity.

The Yellow School

An examination of the graphs presented in Chapter Four will reveal that the teachers from the yellow school tend to locate creativity within the arts and culture learning area for they see the creative product primarily as being something of aesthetic value, something artistic or something that grabs one's attention. Their continued emphasis on visual over functional characteristics indicates that for these respondents the appearance of the product is more important than its function – quite a different conception to that presented by the green school. For teachers at the yellow school, creativity is not about survival – rather it is about aesthetics and the ability to express oneself artistically. Thus, the creative product is something which is "attractive", "aesthetically appealing", "fits in with [a] colour scheme / objects of similar shape, size and texture", "shows originality and good use of colour or shades [and an] interesting and unusual shape".

This emphasis on appearance is not confined to the creative product for it is also evident in their descriptions of the creative environment. A close examination of the relevant graphs (Chapter Four, pages 57, 59 and 60) reveals that the majority of responses from this school concern the physical environment, whilst scant attention is paid to the emotional and mental aspects. Where the physical environment is concerned, visual impact is important for according to these teachers the classroom should be "filled with colour" or "brightly coloured". It would be very difficult to say whether this particular view of creativity is cultural, contextual or class related but a drive around the neighbourhood will reveal that, at least in this context, there is a decided emphasis on visual impact. All the houses in the area are painted brilliant colours – every shade and hue one can think of. Stained glass and coloured tiles add still more colour to the already kaleidoscopic landscape – it seems the greater the visual impact, the better. Thus, where Khayalitsha residents use waste materials or natural resources to build shelters out of necessity – it being not particularly important what it looks like as long as it is functional – these residents use materials that they have bought (sometimes at great expense) purely for decorative purposes (a principle which is reflected in their understanding of creativity). Perhaps this also has to do with level of income, for with a greater disposable income one is able to spend more money on aesthetics.

For both sets of teachers (green and yellow) creativity is dependent on resources, but for the yellow teachers these resources are bought rather than found; they are manufactured articles rather than raw materials. In this regard, consider Figure 5 (page 57) – the yellow school

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places a great deal of emphasis on access to material resources but these are not just any resources. An examination of the appropriate responses shows that the resources thought to be necessary for creative production are those that are bought ready-made, sometimes at great cost. These include: tools, apparatus, books, equipment. It would seem then that for these teachers creativity is something that happens once the necessary equipment has been provided (i.e, one can conduct science experiments once one has the necessary equipment, one can do a piece of artwork once one has the necessary art materials), whereas it would seem that for the green school creativity is the process of making the equipment itself, equipment which solves a problem of some kind. This means that for the yellow teachers equipment is a means to an end, whereas for the green teachers the equipment is 'the end'!

It would seem then, that for teachers at the yellow school, creativity is somewhat synonymous with artistic ability – it's about aesthetics, it's about appearance, and it's about visual impact. Creativity is not motivated by need nor is it considered a necessary skill; it is, however, an ability that is regarded in a positive light, something that it would be nice to have but not considered essential to one's survival.

The Pink school

The teachers at the pink school do not limit creativity to a particular learning area, like Technology or Arts and Culture, but view it as something that can be demonstrated in a range of learning areas – a broader understanding than any presented so far. They also tend to have a more abstract understanding of the concept for their focus is on the cognitive and expressive elements as opposed to the functional or physical aspects. In their view, creativity is not about the need to survive, nor is it about producing something attractive or aesthetically pleasing; rather it is about the need to express oneself. For these teachers then, the creative product is a form of self-expression; it is a reflection of the creator's thoughts, feelings and emotions; it stands out; it demands attention, and it is life-changing.

Creative expression, according to these teachers, affirms the individual and brings about a sense of self-fulfilment and psychological well-being – something which it would seem is somewhat of a priority for these teachers. The high degree of emphasis given to the emotional environment necessary for fostering creativity, and the scant attention given to the other factors, clearly demonstrates where their priorities lie in this regard.

Also emphasized by the pink school, and not by the other schools, is the creative process itself. It would seem that for these teachers the process of reaching the final product is as important (if not more so) as the end result. In this regard, consider Figure 4 (page 54), which shows that the pink school places far greater emphasis on the creative process than any of

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the other schools and that the majority of the factors mentioned are cognitive in nature. In fact, an examination of the process and product graphs (pages 54 and 42) will reveal that the pink school places far more emphasis on the creative process than on the creative product – the opposite being true for the other two schools.

The nature of the creative product is also very different across the schools for as we have seen, teachers at the green school are most likely to identify a product as being creative if it is functional or solves a problem of some kind (product = a tool); whilst teachers at the yellow school are most likely to identify a product as being creative if it is striking, eye-catching or aesthetically appealing (product = artwork); and teachers at the pink school are most likely to identify a product as being creative if it expresses the thoughts, feelings and emotions of the creator (product = anything from "poetry to painting, interior decorating and even personal dress"). These views present along a continuum from the more concrete conception presented by the green school to the more abstract conception presented by the pink school.

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