

CHAPTER 4

4 CREATIVITY AND INNOVATION

4.1 Introduction

Multitudes of sciences examine the concept and interpretation of creativity. The most important areas include sociology, biology, science and art history, and social and economic psychology. Although all approaches are characterised by the traits of the given domain, all accept that creativity is the ability that promotes the creation of something new (Ivanyi & Hofer 1999:998).

Beattie (1999:2) summarised it by saying that there are not only one or two key factors that are essential for creativity but an ever-changing kaleidoscope of ingredients, which are necessary to meet the transient, dynamic and uncertain environment of a creative process.

Feldman, Csikszentmihalyi and Gardner (1994:8) proposed a framework for creativity research seeing creativity as an expression of several sets of processes operating at several levels that will be used to guide this phase of the research. As for the dimensions of analysis they propose:

- The field which refers to the social and cultural aspects of a profession, job or craft,
- The domain, which refers to the structure and organisation of a body of knowledge evolved to contain and express distinct forms of information, and
- The individual person, the site of the acquisition, organisation and transformation of knowledge that has the possibility of changing domains and fields. For each of the three dimensions of analysis, further differentiation into more specific topics could be achieved.

Although Kuratko and Hodgetts (1989:37) point out that it is important to recognise the role of creativity in the innovative process, where creativity is the generation of ideas that result in the improved efficiency or effectiveness of a system, Brazeal and Herbert (1999:33) remark that the relationship of entrepreneurship to creativity and

innovation has not been examined in detail with an eye towards operational definitions and managerial applications.

Lumpkin and Dess (1998:430) assert that the concept of entrepreneurial orientation (EO) is potentially important to entrepreneurship research. Entrepreneurship orientation consists of autonomy, innovativeness, risk taking, proactiveness and competitive aggressiveness. Innovativeness refers to a willingness to support creativity and experimentation in introducing new products/services and novelty, technological leadership and R&D in developing new processes.

The purpose of this chapter of the literature study is to establish the activity based dimensions of creativity through a content analysis of definitions of the concept (domain investigation). These dimensions will then be compared with the key concepts and dimensions of entrepreneurship as found in the previous chapters in order to establish measurable variables for a questionnaire (field comparison).

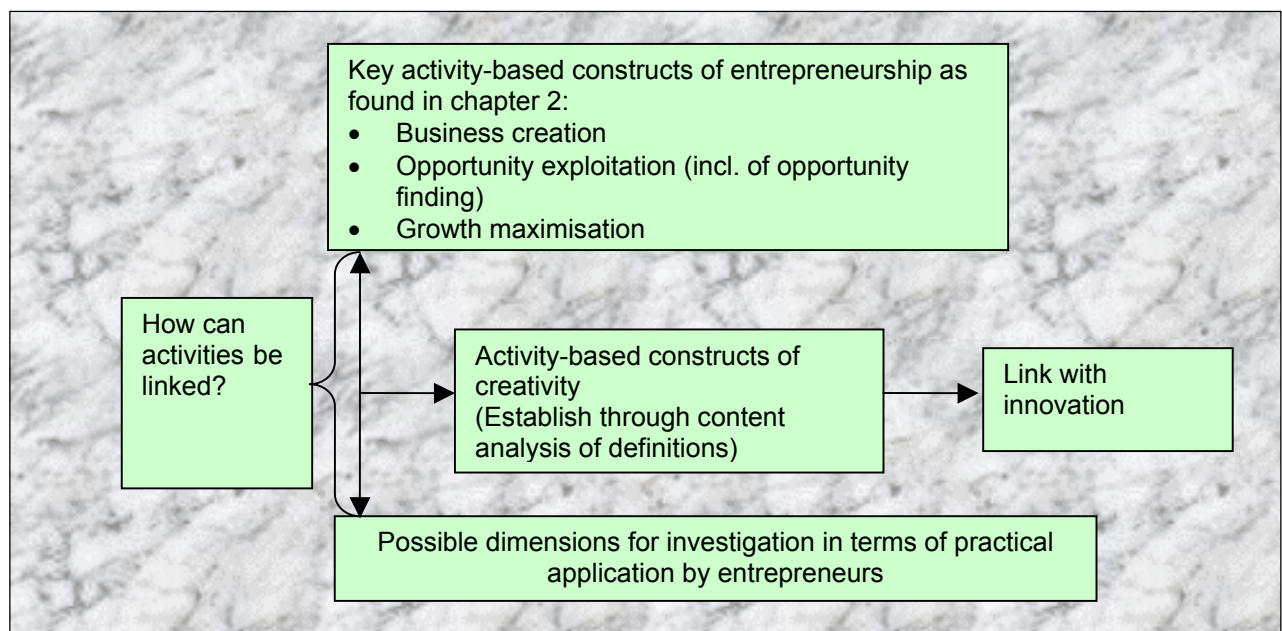


Figure 4.1: Chapter purpose/content

4.2 Various perspectives on Creativity

Various authors have attempted to define the concept “creativity”, which occurs at different levels in society. De Bono (1994:3) points out that “creating a mess” could

in a sense be seen as an example of creativity and that it is only when one starts to introduce concepts such as “unexpectedness” and “change” that one begins to get a different view of creativity.

Amabile (1983:3) indicates that it is necessary to answer two questions in order to understand creativity:

- How is creative performance different from ordinary performance?
- What conditions are most favourable to creative performance?

Creativity can be approached from several perspectives:

4.2.1 Trait Perspective

Early studies in the area of creativity focused (as in entrepreneurship) on the discovering and associating personality characteristics and cognitive abilities with creative achievement (Andriopoulos 2001:834).

Creativity tends to be domain specific however, in the sense that it is an attribution based on the current conditions of the social system – more like judgments of taste, beauty, or goodness. This implies that an individual that is judged to be highly creative in one domain, e.g. music or science will not necessarily be judged highly creative in another domain, e.g. language or business. Excellence in anyone of the areas thus does not have any greater predictive power of possible creativity in another area. Hence, one must conclude that creativity is not an attribute of individuals but of social systems making judgments about individuals. If it is reasoned that creativity only exists within a framework of attributions based on the criteria of domains, and these change within time it stands that creativity is not a natural kind of trait that can be measured objectively such as height, strength, perfect pitch, reaction time or knowledge of languages or mathematics (Feldman *et al.* 1994:56).

To say that creativity is relative to the conditions of the social system does not mean that it is any less important, or less real, than if it had an independent, objective existence. But it does mean, if we wish to understand creativity we must search for it outside the boundaries of the individual person. Amabile, in Fillis and McAuley

(2000:11), supports the above view, indicating that examining creativity from a trait perspective can be limiting insight, since social surroundings have also been shown to impact upon creative behaviour.

4.2.2 Managerial perspective

According to Amabile (1998:77), the creative idea must somehow influence the way business gets done (i.e., implemented) – for instance by improving a product or by opening up a new way to approach a process. Feldman *et al.* (1994:72) controversially points out that creativity should not be seen as accidental where ordinary individuals suddenly produce creative products. In the organisational context therefore creativity *per se* is not enough to ensure success. Creativity must be aligned with the organisational goals (Andriopoulos 2001:839).

4.2.3 Entrepreneurial perspective

An individual's ability to think creatively points to creativity and innovation is the utilisation of creative abilities in the establishment of something (Nieuwenhuizen *et al.* 2003:3).

Feldman *et al.* (1994:52) is of the opinion that it is useful, and sometimes creative, to solve problems, but such solutions are, perhaps less compelling examples of creative capacity. It is the power to find new problems and to fashion products of scope and power that especially marks the creative individual.

De Bono (1994:70) also distinguishes between solving problems and setting problems to ourselves. The second kind of problem solving, he calls "achievement thinking" – a concept broader than "problem solving". This can also be called a "creative orientation" in contrast to a "reactive orientation" that typically acts in response to events, exposing a defensive posture that aims to control the influences of external forces by denying responsibility and avoiding initiative (McManus 1999:5). This view is especially significant in the context of the entrepreneurship domain.

4.3 Dimensions of Creativity

Individuals are not creative in all areas in the same way that a person is unlikely to be intelligent across the board.

4.3.1 General dimensions of creativity

The necessary conditions for creativity are discussed by Fillis and McAuley (2000:8), namely an act that produces effective surprise. The content of the surprise can be as various as the enterprises upon which men are engaged. Couger (1995:7) summarises the requirements for creativity as follows:

- The concept has novelty value (for the thinker or culture),
- The thinking is unconventional in the sense that it rejects or modifies previously accepted thinking (paradigms),
- The thinking requires motivation and persistence over a long period of time (continuous or intermittent),
- The initial problem was vague so that part of the process was to formulate the problem itself, and
- The newness or uniqueness combines with value or utility.

Amabile (1983:37) developed an assessment technique for creativity, showing that it is possible to obtain high levels of agreement in subjective judgements of creativity even when the judges are working independently and have not been trained to agree in any way. Three cluster dimensions for judgment were developed including the following concepts:

Cluster 1 - Creativity cluster

- Creativity – a subjective judgement of the degree to which a design is creative
- Novel use of materials – the degree to which a work shows novel use of materials
- Novel idea – the degree to which a design shows a novel idea
- Effort evident – the amount of effort that is evident from the product
- Variation in shapes – the degree to which the design shows good variation of shapes

- Detail – the amount of detail in the work
- Complexity – the level of complexity in the design.

Cluster 2 - Technical cluster

- Technical goodness – the degree to which the work is good technically
- Organisation – the degree to which the design shows good organisation
- Neatness – the amount of neatness shown in the work
- Planning – the amount of planning evident
- Representational – the degree to which the design shows an effort to present recognisable real-world objects
- Symmetry – the degree to which the overall pattern is symmetrical
- Expression of meaning – the degree to which the design conveys a literal, symbolic or emotional meaning to you.

Cluster 3 - Aesthetic judgments

- Liking – a subjective reaction, the degree to which the judge likes the design
- Aesthetic appeal – in general the degree to which the design is aesthetically appealing
- Would you display it - the interest you would have in displaying this design in your home or office.

4.3.2 Dimensions of creativity in business

Creativity when undertaken in complex social settings could be considered a subset of innovation, which is in turn a subset of change (Brazeal & Herbert 1999:39). An important purpose of creativity in business is adding value, creating value and designing opportunities (De Bono 1994:71).

Boden (1994:75) also indicates that novel ideas must be valuable since “creative” indicates not only that something is new but also that it is interesting in a given domain. She distinguishes furthermore between first-time novelty and radical originality where a novel idea constitutes one that can be produced by the same set of generative rules as are other familiar ideas.

Schumpeter (1947:150) distinguished between the concepts adaptive response i.e., whenever an economy/economic sector adapts to changes according to theory and creative response i.e., whenever something is done outside the range of existing practices.

Ireland et al. (2001:49) identify six domains wherein wealth is created:

- Innovation – the sum of invention plus the commercialisation of that invention
- Networks – patterned relationships between individuals and groups
- Internationalisation – where a company sells its products in nations outside its home country
- Organisational learning – the development of new knowledge that has the potential to influence behaviour and help the firm to create wealth
- Top management teams – the person(s) with the final responsibility for selecting the firm's strategies and ensuring that they are implemented in ways that will create a source of competitive advantage, and
- Growth stimulates success and change and is measured by wealth creation.

The above sensitises the reader to the fact that there could be a myriad of combinations of creativity in business and that there is not necessarily one correct or best way of being creative. This poses a tremendous challenge for trainers and educators of entrepreneurs.

Furthermore, the environment, process and event of entrepreneurial activities, require a holistic analysis rather than a simplistic analysis of the individual elements of entrepreneurship (Beattie 1999:3).

4.4 The Creative Process

Creativity is a process that can be developed and improved (Kuratko & Hodgetts 1989:37). In analysing the entrepreneur's creative thinking processes along the time frame of pre-idea through to the creation of the opportunity, it is recognised that there are a number of key events, strategic windows, stages etc. that the process has to follow.

4.4.1 Elements/Components of the Creative Process

Amabile (1998:4) identifies three components within individuals that are critical for creativity that can be influenced by managers although the first two are more difficult and time consuming to influence:

- Expertise encompasses everything that a person knows and can do.
- Creative thinking skills refer to how flexibly and imaginatively people approach problems and solutions – their capacity to put existing ideas together in new combinations.
- Motivation determines what people will actually do. Amabile (1998:6) identified two types of motivation, namely intrinsic and extrinsic. Extrinsic motivation comes from outside a person, e.g. money. When people are intrinsically motivated, they engage in their work for the challenge and enjoyment of it. The work itself is motivating.

Expertise requires domain relevant skills and includes all skills relevant to a general domain, rather than skills relevant to only a specific task within a domain, assuming that within a particular domain skills used in any specific task will have a great deal of overlap with skills used in any other task. Domain relevant skills include familiarity with and factual knowledge of the domain in question, facts, principles, opinions about various issues in the domain, knowledge of paradigms, performance guides for solving problems in the domain and aesthetic criteria (Amabile 1983:69).

4.4.2 A Framework/Model of the Creative Process

Fillis and McAuley (2001:13) link the creative concept and the creative person through appropriate encouragement:

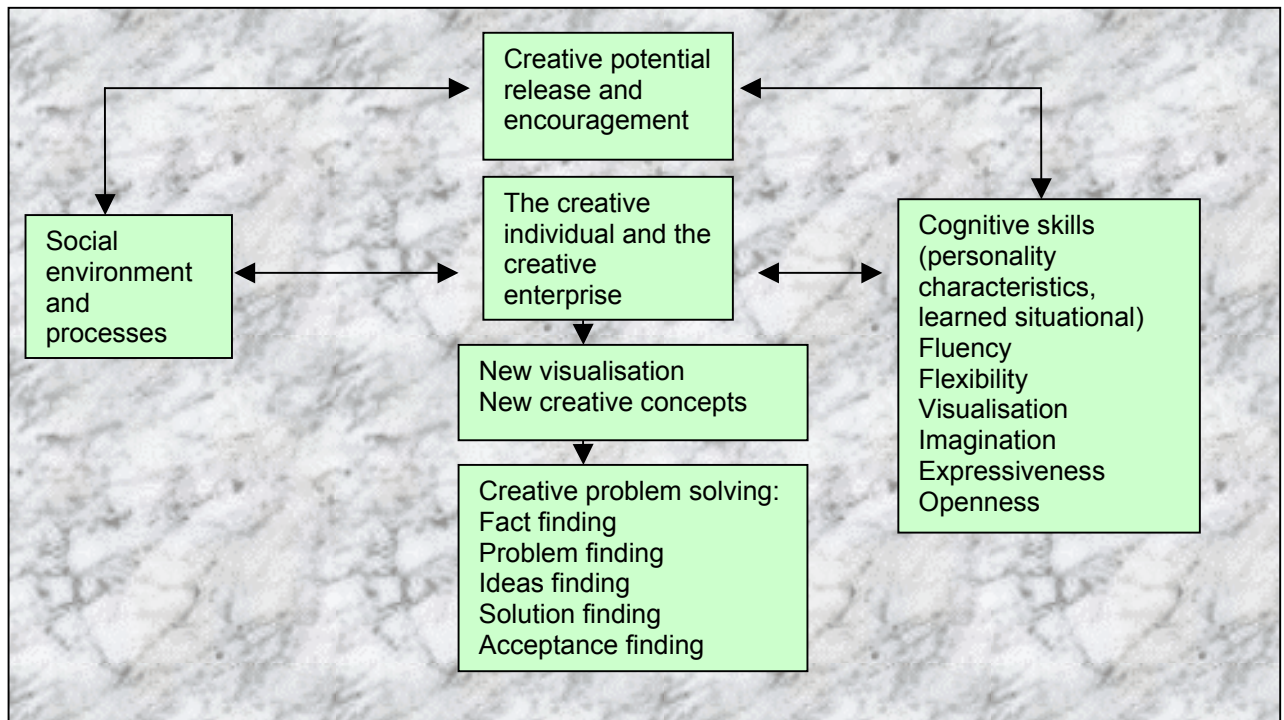


Figure 4.2: How creativity occurs at the entrepreneurship interface (Fillis & McAuley 2001:13)

The input of cognitive skills also influences the process and should result in creative problem solving as long as the environment is favourable. Brazeal and Herbert (1999:34) proposed a model of the entrepreneurial process integrating the respective roles of change, creativity and innovation.

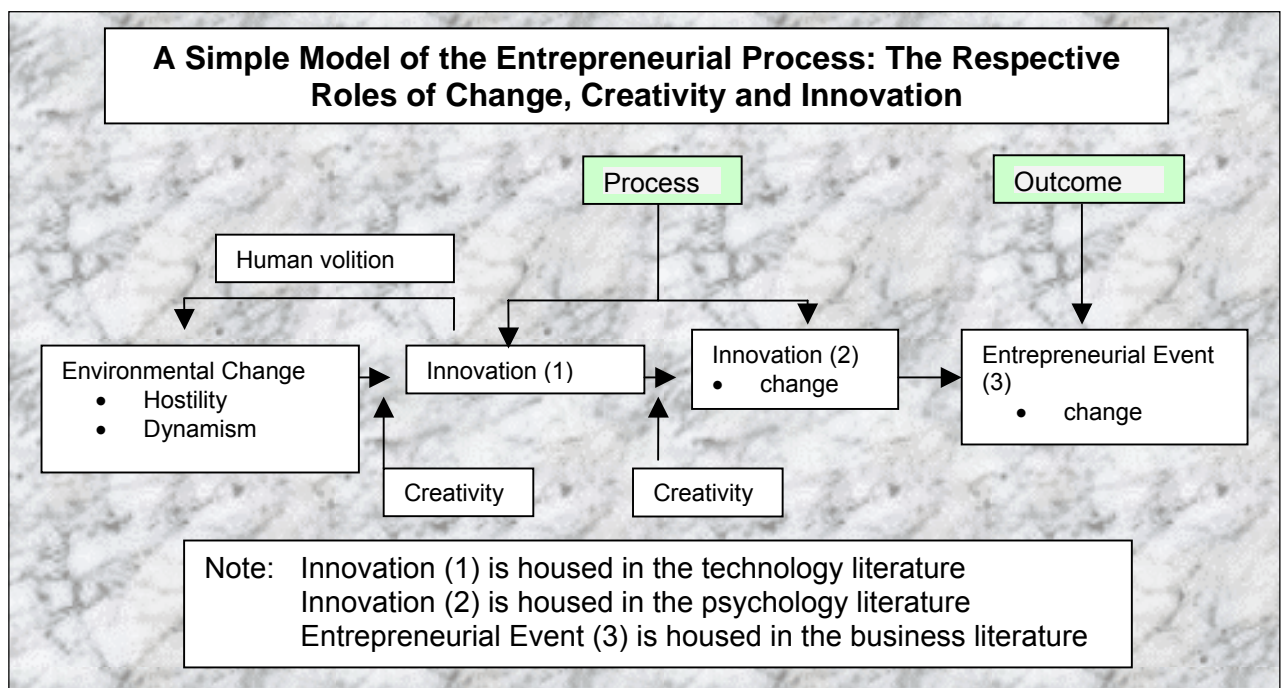


Figure 4.3: A simple model of the entrepreneurial process: the respective roles of change, creativity and Innovation (Brazeal & Herbert 1999:34)

4.4.3 Phases/stages of the Creative Process

The process of creation is in the most simplistic terms the transformation of an idea into an opportunity and the opportunity into a creation (Beattie 1999:3). While it is generally accepted that a process is involved in creativity, there are different opinions regarding the nature of that process. Fillis and McAuley (2000:10) constructed a stages approach to creative development as shown in Table 4.1:

Table 4.1: The Process approach to creativity according to Fillis and McAuley (2000:10)

Creativity Stage	Activity	Psychological Stage
Interest	Environmental scanning	Intuition/emotion
Preparation	Preparing the expedition	Details/planning
Incubation	“Mulling things over”	Intuition
Illumination	The “eureka” experience’	Intuition
Verification	Market research	Details/rationality
Exploitation	Captain of the industry	Details/rationality

Morris and Kuratko (2002:107) summarise seven approaches to stages of the creative process:

Table 4.2: Approaches to stages of the creative process as reported by Morris and Kuratko (2002:107)

Von Oech	Strickland & Carlson	Ray & Myers	Kuhn	Rickards	Kao	Miller
Preparation	Exploring what you have and	Information gathering	Problem recognition	Preparation	Interest	Be aware of your complete current situation
Frustration	what you need	Digestion of material	Naïve incubation/	Incubation	Preparation	
Incubation	Inventing ideas while	Incubation or forget-	Gestation	Insight/ Inspiration	Incubation	Be persistent in your vision
Illumination	roaming	ting the	Information search and	Validation	Illumination	Perceive all
					Verification	

Von Oech	Strickland & Carlson	Ray & Myers	Kuhn	Rickards	Kao	Miller
Elaboration	beyond the obvious Choosing the idea or combination that holds the most promise in terms of strengths and weaknesses Implementing, trying, evaluating	problem Inspiration Implementation	preparation Alternative solution formation Chosen solution implementation Feedback and evaluation		Exploitation	your alternatives Entertain your intuitive guidance Assess and select among your alternatives Be realistic in your actions Evaluate your results

These perspectives have much in common. The so-called creative stages and phases are not watertight compartments and are dependent on each other. There are also times when some of the stages are short-circuited (Beattie 1999:3). At least the following five stages need to be included in a creative process.

4.4.3.1 Problem/Question/Challenge – The Preparation phase

During the preparation phase one becomes sensitive to the issues and problems in a field of interest. It is very important to ask the correct question in order to understand the real problem.

In the context of opportunity recognition, preparation refers to the background and experience the entrepreneur brings to the opportunity recognition process. Such knowledge is derived from life experiences (Hills, Shrader & Lumpkin 1999:2).

Ucbasaran *et al.* (2001:62) highlighted three main areas of difference between individuals that may help us understand why certain individuals recognise opportunities while others do not: knowledge (and information) differences, cognitive differences, and behavioural differences. These are further described as:

- The ability to make the connection between specific knowledge and a commercial opportunity requires a set of skills, aptitudes, insights, and circumstances that are neither uniformly nor widely distributed. The extent to which individuals recognise opportunities and search for relevant information can depend on the make-up of the various dimensions of an individual's human capital. The process of search and opportunity recognition can be influenced by the cognitive behaviours of entrepreneurs. Search behaviour can be bounded by the decision maker's knowledge of how to process information as well as the ability to gather an appropriate amount of information. Experience may not strictly enhance opportunity recognition ability. Habitual entrepreneurs associated with liabilities (e.g., over-confidence, subject to blind spots, illusion of control, etc.), resulting from their prior business ownership experience, may also exhibit limited and narrow information search behaviour. Further, entrepreneurs having high levels of confidence sought less information.
- The ability of entrepreneurs to learn from previous business ownership experiences can influence the quantity and quality of information subsequently collected. Previous entrepreneurial experience may provide a framework or mental schema for processing information. In addition, it allows informed and experienced entrepreneurs to identify and take advantage of disequilibrium profit opportunities. This entrepreneurial learning goes beyond acquiring new information by connecting and making inferences from various pieces of information that have not previously been connected. These inferences build from individual history and experience and often represent "out-of-the box" thinking. Heuristics may be crucial to making these new links and interpretations.

Some people habitually activate their mental schema for processing information and can notice it in the midst of an otherwise overwhelming number of stimuli. This may explain why the pursuit of one set of ideas and opportuni-

ties invariably leads entrepreneurs to additional innovative opportunities that had not been recognised previously.

4.4.3.2 Discovery phase (Incubation phase)

It is critically important to have a prepared mind to ensure that the seeds of ideas germinate. The prepared state of mind acts as a catalyst for stimuli, which provides the beginning of the discovery phase of the creative process. As a rule, the creative solution does not simply come. Incubation involves thinking things over. Incubation refers to that part of the opportunity recognition process in which an entrepreneur is contemplating an idea or problem. Morris and Kuratko (2002:106) also term this phase the frustration phase.

4.4.3.3 Eureka stage (Insight/Illumination phase)

The storage of sensory stimuli is subjected to abstraction and modification as a function of the entrepreneur's previously structured knowledge base. The prepared mind is assisted at this stage by insight, intuition, and perception and utilises the cognitive tools of scenarios, schemata, visualisation, etc.

4.4.3.4 Crystallisation phase/Evaluation phase

Although the process is continuous, the crystallisation phase provides thinking space where decision taking can be put on hold for further information, clarification before the verification of the answer to the problem. It involves research into whether a concept is workable and it is an aspect of creativity that could be challenging since honesty is critical (Hills *et al.* 1999:3).

4.4.3.5 Implementation stage/Elaboration phase

After crystallisation as a result of understanding and insight happens the process either can be terminated or cleared to proceed. The idea is fleshed out and the business plan developed. The how, when and where the creation will materialise and gain acceptance in the marketplace is the implementation phase of the entrepreneurial creative process.

4.4.4 Creative techniques

There are various techniques that can assist people to think and act more creatively. Nieman and Bennett (2001:405) mention a number of techniques that are integral to the various stages of the creative process:

- Random input stimulates the creative thinking process
- Problem reversal
- The 5 W's/H, or questioning technique (who, what, where, when, why & how)
- Association technique
- The discontinuity principle

4.4.5 Key Concepts of Creativity

The following constructs were identified from the literature study:

4.4.5.1 Create

The Oxford dictionary (1999:34) defines "create" as to bring into existence, originate. Sometimes this term is used synonymously with the term "improvise", especially in the business context, where it is defined as to compose, provide or construct (make do).

Miner, Bassoff and Moorman (2001:304) considered improvisation in a learning context and defined it as a distinct type of real-time, short-term learning that has links with long-term organisational learning.

4.4.5.2 Thinking

Thinking is the ability to form new combinations of ideas to fulfil a need or to get "original" though appropriate results by the criteria of a specific domain. De Bono (1994:11) indicates that the purpose of the brain is to establish and use routine patterns and that cutting across patterns is thus not a natural behaviour of the brain.

Skills in this regard include focusing, information gathering, memory, organising, analysing, generating, integrating and evaluating. Carl Rogers (as quoted by McManus 2000:7) drew the attention to "extensional" orientation as the primary con-

dition of individual creative behaviour. Extensionality requires a lack of rigidity that allows boundaries to be permeated and shifted, tolerance of ambiguity and an open awareness of whatever information is currently available to experience.

4.4.5.3 Purposefulness

Purposefulness also seems to be a unique quality of human thought and human behaviour. This purposefulness or intentionality is born of an ability to reflect on experience, both internally and externally, as well as a tendency to believe in the possibility of making changes to better achieve our ends.

Reflectiveness alone, however, would not explain the tendency to modify the environment. Indeed, certain disciplines are designed to use reflection as the basis for accepting life as it is. Being aware of the fact that a habitat does not fulfil all of the desires and aspirations a person might conjure up, would not necessarily lead to a commitment to try and change it. The combination of purposefulness with reflectiveness has become indispensable to the formation and evolution of culture. At this point, the three processes can only be described independently, it is obvious however, that their interaction will provide the most revealing insights. Much the same could be said of the broadest level of the framework for studying creativity presented by the individual, the domain and the field. However, until the various components of the system are described adequately, interaction studies will not be feasible (Feldman *et al.* 1994:31).

4.4.5.4 Change

The central problem in understanding creativity is to understand change, a constant process of renewal and regeneration – how is it experienced and how is it controlled? Given that change creates higher levels of uncertainty, ambiguity and risk it can be asked how do changes occur? Can there be changes in knowledge or experience that go beyond what already exists? What is the relationship between the individual's experience of change and a decision to create changes that alter aspects of the world?

Piaget in Feldman *et al.* (1994:89) attempted to provide an explanation of change in knowledge structures through a process termed equilibration. His formulation was revolutionary in at least two respects. First, it indicated transformations not only in the individual's store of knowledge but in the very mental structures that are the sources of that knowledge. Thus not only does knowledge change but knowledge-gathering capabilities also change. Second, Piaget proposed that changes in knowledge come about not just from mental reflection but also from action, which he defined as the desire to understand the world through activity, exploration, and interpretation (Feldman *et al.* 1994:89).

However, Piaget failed to report any theoretical importance in differences between universal re-organisations of knowing systems (the famous four stages of development) and non-universal re-organisations such as considered in entrepreneurship. Non-universal re-organisations are those transformations in knowing systems that apply to a particular domain of knowledge but are not universally attained. Such changes are not guaranteed to occur in all individuals or for mastery of all bodies of knowledge, but they nonetheless are developmental in all other essential senses of the term. Because development in non-universal domains is not guaranteed, there is more of a role for individual talent or inclination, on the one hand and for specific domain-related influences, on the other (Feldman *et al.* 1994:90).

Change is generally considered in the entrepreneurship literature as an antecedent of the entrepreneurial event. Although change appears to be a prerequisite for entrepreneurship, change alone does not necessarily result in entrepreneurial behaviours (Brazeal & Herbert 1999:35). Unresolved problems create uneasiness and uncertainty, provoking 'outsiders' to look for a new paradigm, even though the current paradigm might be useful and doing well in solving most problems in the field (Lumsdaine & Lumsdaine 1995:21).

There are different types of change: developmental, transitional and transformational. Schumpeter (1947:150) distinguished between the adaptive response and the creative response, to change indicating that creative response changes social and economic situations for good. It can be deduced that creative response supports transformational change. Key to creative response is creative thinking that

leads to the taking of different stances that question the adequacy of existing domains of understanding and occurs when a person believes that the world can be changed through his/her efforts.

4.4.5.5 Imagination

Piaget (in Feldman *et al.* 1994:26) found that the ability to represent movement mentally (i.e., physical transformation) was one of the last to be achieved in children. This might be an indication that the rational conscious mind does not deal easily with transformation, but is nonetheless able to learn about it through experience with changed and changing reality. It is as if the conscious mind has been constructed to create a constant world, to behave as if things are not changing, but static, and to go about its business with this purpose as a central goal. Only reluctantly does the conscious mind entertain transformation.

4.4.5.6 Knowledge

It can be stated that all firms operate with some kind of technological knowledge base. Aldrich and Martinez (2001:6) name three of the most likely sources of entrepreneurial knowledge:

- Previous work experience
- Advice from experts, and
- Imitation and copying.

Shepherd and DeTienne (2001:5) found that the level of prior related knowledge has been found to increase abilities to evaluate and utilise outside knowledge by creating a “knowledge corridor” that allows individuals to discover certain opportunities. The opportunities also tended to be more innovative.

Managers and entrepreneurs differ in the way they apply and evaluate their knowledge. Instead of applying rational and scientific principles, entrepreneurs often rely on cognitive biases and heuristics. In the context of a decision-making process, biases and heuristics are cognitive mechanisms and subjective opinions that guide behaviour. The two most distinctive biases of entrepreneurs are overconfidence and representativeness. Entrepreneurs tend to overestimate their capabilities and often

generalise about a person or a phenomenon based on a few observations (Aldrich & Martinez 2001:7).

4.4.5.7 Problem Solving

Williams (1999:10) mentions that although creativity has been defined as the development, proposal and implementation of new and better solutions to problems this might be restricting the value of creativity because in a business situation, exploitation of opportunities is a vital task for managers and one in which creativity is called for.

4.4.5.8 Improvement

Improvement can be seen as the biggest “potential” use of creative thinking (De Bono 1994:68). By improvement is usually meant finding a “better” way of doing things where “better” can mean at a lower cost, in less time, with fewer errors, with less energy, with less wastage, etc. Improvements can be made on the basis of experience, new technology, new information, analysis and logic.

4.5 Content analysis of definitions

The purpose of content analysis is to, inter alia, reveal the focus of attention of individuals or groups and hidden values conveyed through text (Rafaely 2001:2). Qualitative content analysis tries to use the methodological strength of content analysis for systematic analysis of textual material. Central points of the procedures of qualitative content analysis are:

- Fitting the material into a model of communication after having determined from what part of the communication inferences will be made (i.e., to aspects of the communicator, to the situation of text production, to the socio-cultural background, to the text itself or to the effect of the message),
- Rules of analysis (the material is to be analysed step-by-step, following rules of procedure, devising material into content analytical units),

- Categories in the centre of analysis the aspects of text interpretation, following the research question, are put into categories, which were founded and revised within the process of analysis,
- Criteria of reliability and validity (the procedure has the ability to be inter-subjectively comprehensive, to compare the results with other studies in the sense of triangulation and to carry out checks for reliability (Mayring 2001:2).

4.5.1 Texts to be examined

An exploratory literature study was done in order to establish what creativity is, how it is defined and how entrepreneurship is being linked to it. In this process various definitions were used, from a variety of sources in the field of small business and entrepreneurship, including encyclopaedias, dictionaries, books and periodical articles.

This literature study guided the development of "units of analysis" to be used in the quantitative content analysis of the definitions of creativity.

4.5.2 Questions asked and constructs used

To count and classify all possible context factors surrounding a text is an almost impossible task and therefore it is necessary to determine the contextual limits in the pursuit of textual analysis. For purposes of this study the following questions were asked:

- Which constructs can be identified as representative of the concept "creative"?
- Which of these constructs are indicative of entrepreneurship?
- Can certain constructs be identified as uniquely delimited to the entrepreneurial domain, whilst simultaneously indicative of creativity and innovation?

4.5.3 Units of analysis

Various definitions of the concept "creativity" as found in the literature study were analysed against key concepts identified through the literature study for the concept "entrepreneurship". Since the focus of this research is on activities that entrepreneurs engage in and specifically the activities of the creative process in the entre-

preneurship domain it was decided to analyse the verbs used in the definitions. Nouns are embedded in an existence of being, while verbs are associated with emergence, with entrepreneurship as becoming. Accordingly we associate entrepreneurship with "organising" – of, e.g. images and resources – not with "organisation" (Hjorth & Johannisson 1997:11).

4.5.4 Categories of responses

Against the background of the literature study the following categories of responses were identified:

- Creation
 - Creative problem solving
 - Purposeful thinking
 - Idea generation
 - Evaluation/Distinguishing between ideas and opportunities
 - Insight
 - Implementation/Acceptance finding
- Synthesising
 - Creative problem solving
 - Purposeful thinking
 - Idea generation
 - Visualisation of growth
 - Imagination
 - Evaluation/Distinguishing between ideas and opportunities
 - Visualisation of growth
 - Imagination
 - Insight
 - Improve
 - Implementation/Acceptance finding
- Modification
 - Creative problem solving
 - Purposeful thinking
 - Idea generation
 - Evaluation/Distinguishing between ideas and opportunities
 - Visualisation of growth
 - Imagination Insight
 - Transformation/Change
 - Implementation/Acceptance finding

These categories were analysed and refined into a colour-coded coding scheme that corresponds with the view of linking the activities of creativity (i.e., creation, synthesising and modification) with venture creation, opportunity exploitation and venture growth maximisation.

4.5.5 Coding scheme

The coding scheme for analysis of the definitions of creativity was specifically developed with the view of tying in with entrepreneurship. The following key concepts were identified for counting:

- Creation/**Creating** – the construct “implementation” identified in subsection 3.5.3 was seen to be the most representative of the concept.
 - **Create/Produce**
 - **Invent**
 - **Develop/Initiate/Generate/Form**
 - **Achieve**
 - **Implement**
- Synthesis/**Synthesising** (building up separate elements into a connected whole/theory/system) – putting together an opportunity
 - **Think**
 - **Discover**
 - **Visualise**
 - **Imagine**
 - **Understand**
 - **Know**
 - **Solve**
 - **Evaluate**
 - **Improve**
- **Modification/Modifying** of ideas, etc to develop a business concept/opportunity
- **Transform/Change**
- **Influence/Communicate/Interact**

These concepts (and certain synonyms indicative of the concepts) were highlighted/identified in definitions of creativity.

4.5.6 Data Collection

Various definitions were collected during the literature study. The focus was on business resources but the sources used were diverse, including dictionaries, encyclopaedias, books, periodical articles etc. The collection of definitions used, in no way claims to be comprehensive but strives to relate creativity to small business.

4.5.7 Recording

The problem of defining the operational meanings of the categories of analysis is the principal focus in recording (Krippendorf 1980:59). The main categories as identified were used in a table format to enable counting of the concepts, striving to keep the categories mutually exclusive.

Table 4.3: Content analysis of definitions of creativity

	Creation /Creating	Synthesis /Synthesising	Modification / Modifying
Feldman et al. (1994:1) define creativity as the achievement of something remarkable and new, something which transforms and changes a field of endeavour in a significant way.	1		2
Creativity is the process through which invention occurs, that means creativity is the enabling process by which something new comes into existence Brazeal and Herbert (1999:35).	2	1	
Creativity is a process that initiates a product or process that is useful, correct, appropriate and valuable to a heuristic task (Dollinger 1995).	1	1	
Creativity in its fullest sense involves both generating an idea and manifesting - making something happens as a result. To strengthen creative ability you need to apply the idea in some form that enables both the experience itself and your own reaction and others in order to reinforce your performance. As you and other applaud your creative endeavours, you are likely to become more creative (Ned Hermann, in Lumsdaine & Lumsdaine 1995:14).	3	1	

	Creation /Creating	Synthesis /Synthesising	Modification / Modifying
Creativity is playing with imaginative possibilities, leading to new and meaningful interactions while interacting with ideas, people, and the environment (Lumsdaine & Lumsdaine 1995:14).	1	1	1
Creativity is the ability to consistently produce different and valuable results (Levesque 2001:5).	1		
Some degree of creativity occurs whenever people solve problems for which they had previously no learned or practiced solution. Creativity is the process of sensing problems or gaps in information, forming ideas or hypotheses, testing and modifying these hypotheses and communicating the results (Torrance 1994:7).	1	3	2
Creativity deals with the generation of alternatives and ideas that can be used in the problem solving process. Creativity is changes in perceptions and concepts (De Bono 1995:16).	1	1	1
Creativity is the ability to develop new ideas refers to imagination and the ability to think originally and can be described as applied imagination or the establishing of a new idea. It can be seen as an active, stimulating, uplifting process of growth towards an unknown unique output, achievement or creation in times of difficulty or opportunity (Kroon 1998).	3	3	
Creativity is often associated with the terms: different, unique, unusual, out of the ordinary. Creativity is also a method that offers a unique perspective about a certain thing, a novel but appropriate behaviour (Jewler 1989).	1		
Creativity is the thinking processes that result in the development and generation of new ideas while innovation is the practical application of the concept in order to reach set goals on a commercial/profit basis (Majaro 1988).	2	1	
Being creative is seeing the same thing as everybody else but thinking of something different (Fillis & McAuley 2000:8).		1	

	Creation /Creating	Synthesis /Synthesising	Modification / Modifying
Mooney (Beattie 1999) attempted to define creativity in terms of what is referred to as creative. He considered four approaches to creativity: <ul style="list-style-type: none"> the creative environment, the creative product, the creative process, the creative person. 	1	1	
Creativity is ability, it is a mental activity, it takes place in conditions that facilitate or inhibit creativity, its product is creative outcomes. It is a sudden insight, a leap ahead or a spark, all of which emphasise discontinuity with the past state (Amabile 1983).	1	1	1
Amabile (1998) distinguished creative behaviour as a product or response that will be judged as creative to the extent that it is a novel and appropriate, useful and correct approach to the task in hand. She furthermore believes that creativity is a function of expertise, creative thinking skills and motivation.	2	1	
Schumpeter (1947:150) identified what he termed "creative response" to economic conditions. Creative response has at least three essential characteristics, namely: It can always be understood <i>ex post</i> , but practically never <i>ex ante</i> - that is to say it cannot be predicted by applying the ordinary rules of inference from the pre-existing facts, It shapes the whole course of subsequent events and their long-run outcome, and It has something to do with the quality of the personnel available in a society, with the relative quality of personnel in a particular field and with individual decisions, actions and patterns of behaviour.	2		
Creativity is bringing together of knowledge from different areas of experience to produce new and improved ideas. Creativity is not something limited to chosen few, it's a fundamental part of being human. All of us are naturally creative and intent new approaches to problems as we go about our daily lives. Creativity involves us in the constant discovery of new and improved ways of doing things, it means challenging well tried and traditional approaches and coping with conflict and change which this inevitable causes (West 1997).	1	2	1

	Creation /Creating	Synthesis /Synthesising	Modification / Modifying
Creativity is the generation of ideas that result in the improved efficiency or effectiveness of a system (Kuratko & Hodgetts 2001:121).	1	1	
Creativity is the soul of entrepreneurship. It is required in spotting the patterns and trends that define an opportunity. It is needed to develop innovative business concepts. Most importantly, the corporate entrepreneur has to be highly creative in getting a sponsor, building and using a network, obtaining management buy-in for the concept, forming a team, coming up with resources, and overcoming the many obstacles that will be thrown into his/her path (Morris & Kuratko 2002:104).	3	2	
Among theorists and practitioners alike, there is a view that creativity is something to do with processes that produce new and valued ideas (Richards 1999:22).	1		
Creativity is taking something that perhaps you believed would never come to pass, declaring it possible, and then working to make it a reality (Hargrove 1998:3).	1	2	
Creativity is considered to consist primarily of subjective processes occurring within such people and creative persons are seen in isolation. Creativity is the circular processes occurring among people through interaction and mutual influencing of behaviour (The Psychological Association of South Africa 1992:44).			1
Creativity (adverb): Having the power or ability to create things, showing imagination and originality (Oxford paperback dictionary 1994).	2	1	
Creativity is the ability to visualise, foresee, generate, and implement new ideas (Hellriegel, Jackson & Staude 2001:180).	2	2	
Bringing something into being that is original (new, unusual, novel, unexpected) and also valuable (useful, good, adaptive, appropriate) (Ochse1990).	1		
Creativity is a generative or productive way of experiencing reality, including the perceiver's own self (Smith & Carlsson 1990:5).	2	1	

	Creation /Creating	Synthesis /Synthesising	Modification / Modifying
A creative individual solves problems, fashions products, or poses new questions within a domain in a way that is initially considered to be unusual but is eventually accepted within at least one cultural group (Feldman et al. 1994:71).	1	1	1
TOTAL	38	28	10

Twenty five (25) of the twenty seven (27) definitions included some reference to creation/creating whilst twenty (20) of the definitions had references to synthesis and eight (8) definitions referred to modification.

It is necessary to distinguish between analysis and interpretation when looking at the outcomes of the above content analysis. Content analysis has a fundamental assumption about the interest of the text producer and the quantitative profile of the text, namely that the text “hides” the interest of the text producer, but it can be revealed by quantitatively measuring the text (Rosengren 1981:27). The manifest text is coded as above and when relating the measured result to a general communication model, the character of different textual elements can be explained.

The abovementioned results show a focus on “create”/”creating”/”creation” which links with the concept “venture creation” which was one of the key concepts identified for the entrepreneurship domain in chapter two. However, these results need to be measured against the entrepreneurial process which will be discussed in detail in the following chapter.

4.5.8 Conclusion: Creativity

The definitions prioritised constructs indicative of the “creative” concept. This confirms the existence of a school of thought in the entrepreneurship field that entrepreneurship has mainly to do with the creation of businesses or the creation of opportunities for businesses. One has furthermore to conclude that both the constructs “modify” and “synthesise” in this sense actually supports the concept “create” and should actually not be separated from it but rather be seen as ancillary constructs.

In the previous chapter, the results of the analysis of the definitions of “entrepreneurship” established a focus on “opportunity exploitation” as the core to entrepreneurship. The analysis of definitions of creativity suggests that the unique application of creativity in the entrepreneurship field focuses on creation. It could therefore be deduced that a combination of these findings indicates that the unique application of creativity in the entrepreneurship field should focus on the creation of entrepreneurial opportunities, rather than only on venture creation and the skills needed to realise this.

If it is accepted that the process of creation is in very simplistic terms the transformation of an idea into an opportunity and the opportunity into a creation and innovation is seen as the development and introduction of a new product, a new process, or a new service to a market, innovation must be discussed in view of Amabile’s (1998:77) observation that the creative idea must influence that way business gets done.

4.6 Innovation

Economists have accepted that new products and new processes are the main sources of dynamism in capitalist development. Modern growth theories suggested that innovation is a crucial determinant of growth. Schumpeter was among the first to emphasise the role of innovation in the entrepreneurial process. Schumpeter (1934) argued that the ‘innovator-entrepreneur’ causes rather than facilitates economic change. Subsequently, “innovativeness” became an important factor used to characterise entrepreneurship (Lumpkin & Dess 1996:2).

Carrier (1996:9) indicates that although popular mythology would seem, unfortunately, to link innovation exclusively with technology, their research was not confined to any one specific type, and continues that restricting innovation to the field of technology was the equivalent of excluding half the problem by taking only a supply-oriented view. Furthermore other authors, including Gasse and Carrier (1992), Burch (1986), and Saporta (1989) as quoted by Carrier (1996:9), have highlighted the need to broaden the definition of innovation, which could equally be commercial, organisational, institutional, procedural, or social in nature, and could include the creation of new organisational units.

A number of origins of innovation are discussed by Antonites (2000:46):

- The unexpected
- Incongruence
- Process needs
- Change in market - and industry structures
- Demographic changes
- Changes in perceptions, emotions and reasoning
- New knowledge

Roffe (1999:235) identified the following attributes of innovative people:

Table 4.4: Attributes of innovative people

CHARACTERISTIC	ATTRIBUTES OF INNOVATORS
Need orientation	Inventors tend to be achievement oriented and lacking resources find it pays to develop with customer demand, approach potential customers early and adapt designs rapidly
Ambient	A balance of extrovert and introvert, although tending toward introversion
General interests	A wide range of interests
Experts and fanatics	Initiators of companies tend to be pioneers in their technologies and fanatics at problem solving
Intelligence	Higher general intelligence, information storage, recall and analysis
Independence	A high degree of independence and self-sufficiency
Independent judgement	Autonomy of judgement and resilience to peer pressure on conformity in thinking
Vivid representation	An ability to draw attention to the unrecognised or unobserved
Achievement	A particular interest in achievement on problems where their own ability can be a deciding factor
Curiosity	Prolonged curiosity, observation and listening abilities
Intuitive and imaginative	An ability to tune into intuitive feelings and let fantasy in
Conscientiousness	Dedicated, committed and hard-working
Creative tension	Capable of holding many ideas together in creative tension without making a premature resolution of ambiguity and sometimes providing synthesis from disparate notions
Long time horizons	The time horizons for radical innovation make them tend to underestimate the length of time for success
Low early costs	Innovators tend to work with low costs and try to decrease their early risks

CHARACTERISTIC	ATTRIBUTES OF INNOVATORS
Multiple approaches	The innovator can tolerate the unpredictable interactions between the discoverer and the outside world, and cope well with unencumbered and informal development
Flexibility and quickness	The inventor-entrepreneur can design, test and recycle speedily thus yielding timing and performance advantages over slow-moving competitors
Incentives	The inventor-entrepreneur can envisage tangible benefits and personal rewards if they are successful
Availability of capital	If entrepreneurs are turned down by one source, other sources are sought sometimes in creative combinations

4.6.1 Innovation defined

Some ambiguity still surrounds the definition of "innovation" since the word is used to indicate the date of first introduction of a new product or process, as well as to describe the whole process of taking an invention or set of inventions to the point of commercial introduction.

The *Concise Oxford dictionary* (1999:557) describes to "innovate" as "to bring in novelties, make changes in." Innovation, in its broadest sense, comes from the Latin 'innovare' meaning 'to make something new'. Innovation is the sum of invention plus the commercialisation of that invention (Ireland *et al.* 2001:56).

Williams (1999:1) made the following distinctions:

"invent"	to create by thought, devise, originate, contrive, improvise, generate, formulate
"invention"	creation, fabrication, production, origination, gadget, implement, contraption
"inventiveness"	resourcefulness, originality, creativity, ingenuity, imagination Latin: in (in) and venire (to come), i.e., to come upon, or into something for the first time.
"innovation"	introduction, establishment, institution, commencement, novelty, departure from the old, introduction of new and improved methods and things, modernisation, drastic change, breaking of a precedent Latin: innovation (renewal or renovation) based on novus (new) as in "novelty" and "nova"

Interestingly, Janszen (2000:3) defines "innovation" according to the Schumpeterian definition, namely the commercialisation of all new combinations based upon the application of the following:

- New materials and components,
- The introduction of new processes,
- The opening of new markets, and
- The introduction of new organisational forms.

Janszen (2000:3) proceeds to indicate that when only a change in technology is involved it is termed "invention" but as soon as the business world becomes involved, it becomes an "innovation".

According to this definition, innovations are the composite of two worlds – namely the technical world and the business world. Innovation in this sense can be seen as an event, the introduction of something new to the business world as well as a process.

Ivanyi and Hofer (1999:995) broadened Schumpeter's theory, which explained innovation purely as absolute novelty by adding the concept of relative novelty. In view of this, the concept can be differentiated further, from which the following groups can be defined:

- Base innovations - new breakthroughs which open up entirely new areas,
- Developmental innovation - can be realised in already discovered areas, and
- Phantom innovation - innovations which merely serve to improve marketability and do not change the essence of the product or the employed technology.

Dosi (1988:1126) defines technological innovation as the solution of problems where the problems are "ill-structured" in that available information does not provide by itself a solution to the problem. In other words, an innovative solution to a problem involves discovery and creation.

Innovation, as defined by Oerlemans, Buys and Pretorius (2001:2) is the introduction of new and/or improvement of products, services and production processes, the driving force of a nation's economic development and the improvement of competitiveness of its firms.

Kelley and Littman (2002:28) are of the opinion that innovation begins with an eye. Once you start observing carefully, all kinds of opportunities can open up. Scientists, industrialists, anthropologists, artists, and writers have understood this for centuries, and many entrepreneurs understand it intuitively.

Valery (1999:5) defines innovative ability as the use of creative attributes in being inventive. Innovations not only break the mould, they also yield far better returns than ordinary business ventures.

Ford, in Brazeal and Herbert (1999:36), is of the opinion that when defined as an outcome rather than a process, an innovation is the tangible product, service or knowledge that is adoptable or diffusible, meaning it may be utilised in diverse contexts by different individuals.

Fundamentally, innovation means a renewal of elements in production organisations (Sundbo 1998:19). Innovation is the specific function of entrepreneurship, whether in an existing business, a public service institution, or a new venture. Innovation is the act of introducing something new. Maurer *et al.* (1995:524) argued that innovation is the tool or instrument of entrepreneurship. Innovation is the means by which the entrepreneur creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth. At the heart of entrepreneurial activity is innovation: the effort to create purposeful, focused change in economic and/or social enterprises.

For purposes of this study innovation is defined as the successful implementation of creative ideas, i.e., the act of introducing something new into the marketplace.

4.6.2 Characteristics of Innovation

To be effective, an innovation has to be simple, and it has to be focused. Effective innovations start small, trying to do one specific thing. Innovation is work rather than genius, requiring knowledge, ingenuity and focus. If an innovation does not aim at leadership from the beginning, it is unlikely to be innovative enough. Innovation should be pursued systematically and not left to chance.

Innovation is a process of turning opportunities into new ideas and of putting these into widely used practice. “Innovation” is the specific tool of entrepreneurs, the means by which they exploit changes as an opportunity for a different business or service (Jun & Deschoolmeester 2003:2). The author stated furthermore that the innovativeness of entrepreneurs is their propensity to innovate their businesses, their willingness to try the ways which are different from the existing, the enthusiasm to adopt new ideas or new methods to their business, and the eagerness to implement the innovation in their business.

Therefore, the innovativeness of an entrepreneur mainly can be diagnosed through the following :(Jun & Deschoolmeester 2003:4)

- How does he do and what has he done? The commitment and the endeavours he made to fulfil the innovation strategy, e.g. the environment awareness by investigating technology trends, production opportunities, market chance etc, organisation adoption & formation, allocation of resources, technology transfer etc. In general, the effort made by an entrepreneur to build up the innovation of the enterprise is an effective indicator showing an entrepreneur’s innovativeness.
- What has he got the business achieved from innovation? The innovation outputs which contribute to the enterprise’s competence building up.
- What will he do? The strategic postures that he formed or agreed to in the technology innovation strategy plan.

Pheiffer (2002:78) identifies the following five areas of innovation management:

- Innovation strategy i.e., decisions about the type of innovation to be concentrated on, the approach to be taken, e.g. first-to-the-market etc.
- Creativity and idea management
- Portfolio management
- Project management, and
- Human resource management.

4.6.3 Key Concepts of Innovation

Hamel and Prahalad (Sundbo 1998:149) are of the opinion that core competencies as the basis of future innovation processes must meet three criteria to be good, namely the production of customer value, the introduction of differentiation and extendibility.

4.6.3.1 Knowledge

Roffe (1999:229) postulates the notion that knowledge is the only reliable and lasting source of competitive advantage in economic conditions in which the only certainty is uncertainty. It is argued that knowledge is central to innovation activities and constitutes a core corporate capability.

Most firms understand one or a few technologies well and they form the basis of their competitive position. This is not a unitary base, and it often consists of three areas of production-relevant knowledge, with different levels of specificity, namely:

- A general scientific knowledge base
- Knowledge bases at the level of the industry or product field, and
- Within these technological parameters, the knowledge bases of specific firms are highly localised (Oerlemans *et al.* 2001:6).

Knowledge-based innovations differ from all others in the time they take, in their casualty rates and in their predictability. They have the longest lead times of all innovations. There is a protracted span between the emergence of new knowledge and its distillation into usable technology. Then there is another long period before this new technology appears in the marketplace in products, processes or services. Overall the lead-time is something like fifty years and the figure has not shortened appreciably throughout history (Drucker 1998:154).

4.6.3.2 External Focus

Successful innovating organisations have an orientation which is essentially open to new stimuli from outside, e.g. major technological development, key customers and the rivalry from the competitors. Awareness of the customers' demand will reveal

the organisation's action to improve quality and innovation in terms of "total quality management" (Jun & Deschoolmeester 2003:9).

4.6.3.3 Change

When innovation occurs, changes occur, affecting the work methods and practices of individuals (Williams 1999:18). Change is often associated with business growth, however, innovation as a means of creating change, does not always or necessarily generate growth.

Tom Peters (1997:xvi) says that destruction is cool and the only way to survive is to kill your organisation and "repot" it – this according to him is easier than to try and change it substantially. Core to this idea is the acceptance that change is a given and that it might take more time to change than to start something totally new – which might be the only way to beat the competition.

4.6.4 The Innovation Process

The transformation of a new idea or technological invention into a marketable product or process is called the innovation process (Rothwell & Zegveld 1982:101). The innovation process continuously revolutionises the economic structure from within, incessantly destroying the old one incessantly creating a new one. This process of "creative destruction" is the essential fact about capitalism (Elliott 1980:47).

Different approaches can be taken in the innovation process. The approach that a business uses to commercialise an innovation helps determine how much money the business will make from that product in future (Andrew & Sirkin 2003:78). The approaches are neither strategies (e.g. first mover), nor ownership structures (e.g. joint ventures), but are used alongside these. The following three approaches can be identified:

- Integrators control each link in the innovation process chain
- Orchestrators focus on some parts of the commercialisation process and depend on partners to manage the rest
- Licensors sell or license a new product to another organisation that handles the rest of the commercialisation process.

4.6.4.1 Phases/Stages of the Innovation Process

The following five steps can be identified in the innovation process (Maurer *et al.* 1995:788):

- The first stage of the innovation process is idea generation, which involves the development of solutions for problems and identification of opportunities
- The second stage is called championing and entails the selling of the ideas to others in the organisation and securing resources to execute ideas
- Implementation through project leading is the third step of the process where project goals are balanced with available resources and organisational needs
- Gate keeping entails tracking influences outside the organisation, and
- Coaching consist of encouraging and assisting team members.

4.6.4.2 Idea generation

Purposeful, systematic innovation begins with the analysis of the sources of new opportunities (Drucker 1998). Depending on the context, sources will have different importance at different times. Organisations that actively search for change (the root of all innovation), then carefully evaluate the change for an economical or social return are set apart.

Seven sources of opportunity for organisations in search of innovation, four within the organisation itself or the industry and three from outside world – all seven symptoms of change are listed in order of increasing difficulty and uncertainty:

- The unexpected success/occurrences that is gratefully received, but rarely dissected to see why it occurred
- The incongruity between what actually happens and what was supposed to happen
- The inadequacy in an underlying process that is taken for granted
- The changes in industry or market structure that catch everyone by surprise
- The demographic changes caused by wars, medical improvements and even superstition
- The changes in perception, mood and fashion brought on by the ups and downs of the economy
- The changes in awareness caused by new knowledge (Drucker 1998).

4.6.4.3 Championing

The second stage of the innovation process entails selling the ideas to stakeholders and securing resources to execute ideas.

4.6.4.4 Implementation

This phase encompasses activities such as leading teams, planning and organising projects and balancing project goals with available resources and organisational needs.

4.6.4.5 Gate keeping

This phase includes the protection of the invention, the distribution of information and the tracking of influences outside the organisation (Maurer *et al.* 1995:788).

4.6.4.6 Coaching

The coaching phase entails support, mentoring and encouragement by team members as well as by management.

4.6.5 Elements of the Innovation Process

This innovation process (Rothwell & Zegveld 1982:101) can be identified by the following elements:

4.6.5.1 Understanding users' needs

Successful innovators gain precise knowledge concerning the conditions in which the innovation will be required to operate and take great pains to understand, and place priority on meeting users' requirements rather than on satisfying their own egos.

4.6.5.2 Marketing and Sales

Between 70 and 80 % of successful technological innovations arise in response to the recognition of a need of one sort or another (Rothveld & Zegveld 1982:101). The successful innovator determines that the market is sufficiently large before he proceeds with a development. He uses advertising and sales campaigns and educates users in the right uses and limitations of the innovation. The successful innovator is aware of changing market conditions and requirements and of competitive developments elsewhere.

4.6.5.3 Communications

Successful innovators establish efficient internal and external communication networks, e.g. communications between the organisation, the outside scientific and technological community and the market place. Successful innovation proceeds in the light of perceived company strategy.

4.6.5.4 Effective manufacturing

Successful innovations suffer fewer after sales problems as a result of poor production procedures. They are designed and manufactured in a manner, which is conducive to easy and speedy maintenance. Care is taken to ensure that materials used in construction are compatible with the environment in which the innovation functions.

4.6.5.5 Management

Amabile (1998:4) believes that creativity can be promoted through a supportive work environment. Looking at the typical smaller firm it seems that creativity requires a much longer time frame than many enterprises impose on their workers. This can be linked to one of the key characteristics of the smaller firm: many owner-managers rarely develop past a short-term orientation, being incessantly caught up in day-to-day and short-term operations, instead of investing resources in potentially longer-term outcomes.

Successful innovations are allotted sufficient cash and manpower resources to enable technical problems to be solved effectively, prototypes to be built where neces-

sary. Successful innovators focus resources at critical stages in the process into the innovation to facilitate its progress.

The following principles (Rothwell & Zegveld 1982:102) are critical in realising the full potential of innovation:

- Understanding the basic principles and processes that are enabled by the technology in order to adapt target groups and ways of working so that technology, products, organisations and strategies are evolving in a synchronised way
- Adapting to changing situations, building flexibility into processes and relying on hierarchical planning in stable conditions and distributed decision-making in ambiguous, turbulent situations, and
- Having insight into the dynamics of processes helps in managing the application of new, improved or adapted technology, the organisation, employees acquiring the right skills by means of training and the use of the right co-ordination methods and forming the right partnerships.

In spite of the importance of investment and innovation in the economic development of an area, Hisrich and Peters (2002:15) identify a lack of understanding of the product-evolution process. This is the process through which innovation develops and commercialises goods through entrepreneurial activity, which in turn stimulates economic growth.

The product-evolution process begins with knowledge in the base technology and ends with products or services available for purchase in the marketplace. The critical point in the product-evolution process is the intersection of knowledge and a recognised social need, which begins the product development phase. This point, called iterative synthesis often fails to evolve into a marketable innovation and is where the entrepreneur needs to concentrate his or her efforts (Hisrich & Peters 2002:15). The lack of expertise in this area – matching the technology with the appropriate market and making the needed adjustments – is an underlying problem in any technology transfer. Regardless of its level of uniqueness or technology, innovation evolves into and develops towards commercialisation through entrepreneurship.

4.6.6 Activities of the Innovation process

Håkansson's (Håkansson & Snehota 1995:35) economic network model distinguishes two main types of activities: transformation and transaction activities. Both are related to resources because they change (transform) or exchange (transact) resources through the use of other resources. There are several types of resources, physical (machines, raw components), financial, and human (labour, knowledge, relations).

4.7 The combination of the concepts "creativity" and "innovation" in the Entrepreneurship Domain.

In conclusion it can be said that innovation is different from creativity in the sense that creativity is the generation and articulation of new ideas whereas innovation applies new ideas and implements inventions. Innovation is ideas focused on products that are new, better, faster, more cost effective and possibly more esthetical.

However, new ideas alone do not make a person an entrepreneur. Entrepreneurs can also execute (Bedi 1997:51). Creativity by individuals and teams is a starting point for innovation – the first is a necessary but not sufficient condition for the second. Successful innovation depends on other factors as well and it can stem not only from creative ideas that originate within the organisation but also from ideas that originate somewhere else (as in technology transfer).

Creativity by itself, does not define entrepreneurship. Creativity without innovation does not produce results, and innovation without effective management does not produce marketable products, processes or services (Beattie 1999:2). It follows that people can be creative without being innovative i.e., they have ideas and develop inventions but never implement them. Antonites (2000:34) is of the opinion that it is the combined variables (creativity and innovation) that distinguish the entrepreneur from the general small business person.

Couger (1995:18) illustrated the difference between creativity and innovation as follows in his process:

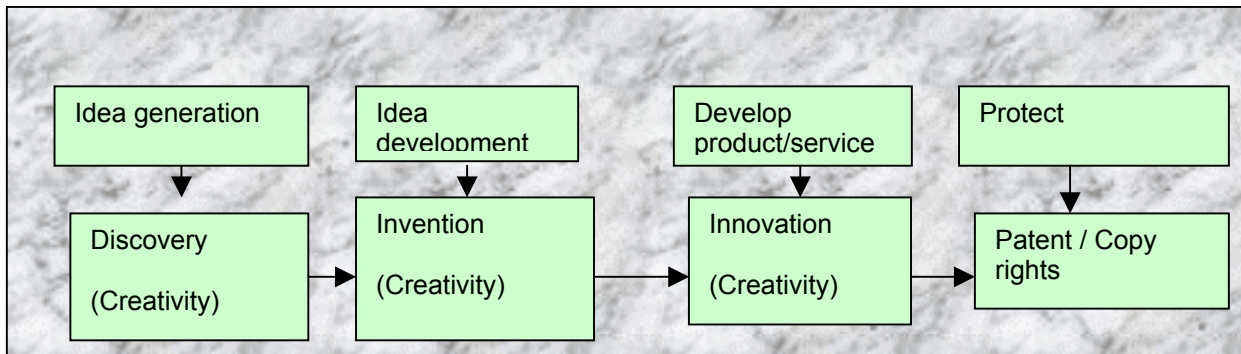


Figure 4.4: The difference between creativity and innovation adapted from Couger (1995:18)

With regard to the application of creativity in the entrepreneurship domain, the first step of the process is for the potential entrepreneur to recognise an opportunity to innovate. To recognise an opportunity to innovate, the entrepreneur must participate in a creative activity. The entrepreneur must make a conscious effort to become acutely aware of his/her environment and his/her customers needs. This requires the skills of the diverger-viewing (experiencing) the environment in different ways, seeking connections between previously unrelated subjects, recognising discrepancies and problems, and generating of ideas (Ulrich 1998:7).

After an opportunity is recognised, the entrepreneur must develop alternative courses of action to take advantage of this opportunity. At this point, ideas need to be enhanced, theories explaining the observed opportunities need to be developed, alternatives need to be compared, criteria established, problems defined, and hypotheses and plans formulated. Here the entrepreneur may want to stimulate thinking, manipulate data, etc.

Next, the various alternatives, hypotheses, and plans need be evaluated and the best one selected for implementation. This requires the skills of the converger. Deficiency at this stage is characterised by poor experimental design, no testing of theories and no focus to the work or plans.

Finally, the plans need to be implemented, necessitating the skills of the accommodator. The entrepreneur must advocate positions or ideas, set objectives, commit to schedules, commit resources, and implement decisions. Weakness in this area

leads to the entrepreneur not completing work on time. Techniques that can be employed under these circumstances would be PERT, critical path scheduling, and goal setting (Ulrich 1998:11).

The above has implications for training of creativity in the entrepreneurship domain. In an attempt to relate entrepreneurship training to creativity, keeping to a general definition of creativity, namely the production of responses or works that are assessed as creative by appropriate judges, three factors essential for the production of such creative works could be identified:

- Domain-relevant skills (factual knowledge, technical skills and special talents)
- Creativity-relevant skills (cognitive style, application of heuristics and working style), and
- Task motivation (motivational variables).

For the entrepreneur to develop/create entrepreneurial opportunities, he should combine all of these in a focused way.

4.8 An Evaluation of the work done

The above definitions and descriptions show some confusion with regard to the delimitation of the concepts "entrepreneurship", "innovation" and "creativity", especially with entrepreneurship and innovation defined in the same terms. This confusion combined with a limited number of references in entrepreneurship literature to creativity and innovation education in the domain, indicate that the relationship of creativity and innovation to entrepreneurship has not been rigorously examined with an eye towards operational definitions in the entrepreneurship education domain and the eventual pedagogical applications.

4.8.1 Creativity

The psychological trait theory examines creativity from an individual perspective and Guilford in Fillis and McAuley (2000:9) concluded that creative personality is a matter of patterns of traits (i.e., aptitudes, interests, attitudes and temperamental qualities) that are characteristics of creative persons. Rampley in Fillis and McAuley (2000:9) is of the opinion that the notion of creativity is problematic since it appears to be in-

herently linked to genius, imagination and subjectivity of judgement, which are conceptually problematic and difficult to measure.

De Bono emphasised the skills needed to be successfully creative i.e., to be able to primarily change concepts and perceptions are primarily thinking skills, including lateral thinking and creative thinking. De Bono as quoted by Antonites (2000:36) also emphasised the fact that creativity is a logical process and if/when individuals understand the process as logical he/she would be motivated to take further creative actions.

Furthermore, as various authors have indicated, the number of factors influencing business growth is diverse and it will thus be almost impossible to establish a causal relationship between creativity and business growth due to the large number of intervening variables.

4.8.2 Innovation

Innovation is a complicated mixture of various factors that encompass the management of a business, the stand in the innovation intention, the endeavours to innovation in the management, and the innovation inputs are the aspects that objectively indicate the innovativeness held by the entrepreneurs (Jun & Deschoolmeester 2003:2).

Empirical studies of innovations and their diffusion have provided mounting evidence that mainstream neo-classical theories of firm behaviour, competition, international trade and consumer behaviour are seriously deficient in their assumptions and conclusions. However the 'neo-Schumpeterian' tradition in economics has only begun the task of substituting a more satisfactory theoretical foundation that would take both technical innovation and institutional factors fully into account (Dosi 1988:1149).

Johnson (2001:139) contributed to the understanding of innovation by explaining various forms of innovation:

- A change in the product or service range
- A change in the application of a product or service away from its original purpose

- A change in the market to which a product or service is applied, away from the originally identified market
- A change in the way a product or service is developed and delivered away from the original operational and logistical design, and
- The development of an organisation's core business model away from its current or previous business model.

4.9 Chapter Conclusion

In analysing the definitions of the constructs “entrepreneurship” (Chapter 2) and “creativity” the aim was to find the delimitation of the entrepreneurship domain's core skills necessary to establish and manage growth oriented businesses. However, the main finding only established “opportunity exploitation” as core to the entrepreneurship domain.

Innovation is the specific function of entrepreneurship, whether in an existing business, a public service institution, or a new venture (Drucker 1998:144). Innovation is the means by which the entrepreneur creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth. At the heart of entrepreneurial activity is innovation: the effort to create purposeful focused change in an enterprise's economic or social potential.

Nystrom in Ivanyi and Hofer (1999:1001) is of the opinion that no one way definitiveness can take effect in the relationship between innovation and creativity. This means that creativity cannot directly generate innovation, nor does innovation automatically establish creativity, but the unity and degree of mutuality incorporates the possibilities for further development and a higher level of quality.

The literature study thus indicates that the unique application of creativity in the entrepreneurship domain lies in the exploitation of opportunities to innovate. In terms of the development of entrepreneurs in creativity and innovation, the question now arises: how can business owners be trained to exploit the sources of opportunity to innovate?