

Modelling The Creative Process:
A Grounded Theory Analysis
Of Creativity
In
The Domain Of Art Making

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Abstract

It is argued that a comprehensive account of creativity can only be provided if creativity is viewed as the product of the interaction of multiple contributing variables, including the creative individual's cognitive, emotional, motivational, and behavioural processes, and how these intra-personal variables complement the social and cultural context in which the creative person works. Because multi-variable perspectives explore creativity as the outcome of the interaction of multiple variables, and in particular the interaction between the individual and the environment, there is a particular emphasis on exploring creative activity as it takes place in its normal production context and on self-initiated work. These directives of the multi-variable perspective are adopted in a grounded theory study of visual artists' creative process while making self-initiated art works in the domain of visual art making. In study one sixteen professional visual artists were interviewed over the course of making an art work, which provided a descriptive data base of artists' working processes during the making of self-initiated art work from inception to completion. A grounded theory method was used to analyse the data and develop a dynamically interactive model that describes the developmental process of making visual art works in a real world context. This model is comprised of four developmental phases of activity associated with the production of art works from idea inception to completion and exhibition. A second study was conducted in order to determine the validity of the model produced from study one. The successful coding of data from study two into the model produced from study one suggests that the model has sufficient scope to accommodate the working processes of a range of artists, including those who did not contribute to the formation of the model. The model is evaluated in terms of its particular strengths and key features. There is a discussion of how the model advances existing models of creativity, of its implications for other domains of creativity, and of the relationship between everyday and eminent varieties of creativity.

Introduction

Historically, creativity was thought to be located in the exceptional genius of uniquely endowed individuals who were considered to possess extraordinary thought processes (Weisberg, 1986). These creative talents tended to be accounted for by reference to extraordinary thought processes such as insight, inspiration, and leaps of imagination (Gretton, 1986; Jung, 1952). In this somewhat romantic view, creative ability and creative thought are distinguished from what are considered more ordinary forms of thought and ability. In so far as creative abilities were considered to be the product of certain (and perhaps unusual) intellectual or personality characteristics inherent in the creative individual, then genius was the explanation for creative ability. However, reference to genius as a causal explanation terminates the investigation into creative ability and serves to veil the concept with unnecessary mysticism.

Contemporary Western accounts have identified creativity in those acts, thoughts, processes, and products that are considered novel and adaptive (Barsalou & Prinz, 1997; Richards, 1990; Simonton, 1997). Empirical research aims to identify the relationship between particular cognitive processes and behaviours, and creative outcomes or products. This may involve the investigation of, for example, problem finding and solving procedures (Dominowski & Dallob, 1995; Dudek & Cote, 1994; Getzels & Csikszentmihalyi, 1976; Kay, 1994; Mumford, Reiter-Palmon & Redmond, 1994; Patrick, 1937; 1938; Runco & Chand, 1994; Subotnik & Steiner, 1994), the processes of conceptual combination and conceptual expansion (Barsalou & Prinz, 1997; Caccrari, Levorato & Cicogna, 1997; Chi, 1997; Markman, Yamauchi & Makin, 1997; Murphy, 1997; Shoben & Gagne, 1997), or the action of metaphor and analogy (Glucksberg, Manfredi & McGlone, 1997; Indurkha, 1992; Johnson, 1987; Lakoff, 1987; Lakoff & Johnson, 1980). Case studies, self reports and psychometric measures aim to identify personality characteristics associated with creative production (Conrad, 1990; Mansfield & Busse, 1981; Torrance, 1988; Gardner, 1993; 1997; Simonton, 1994). Naturalistic and qualitative studies explore the working processes of

creatively active professionals working in real world environments (Kirschenbaum & Reis, 1997; Jones, Runco, Dorman, & Freeman, 1997; Nemiro, 1997; Perth & Arlin, 1997) .

Some contemporary accounts view creativity as the product of the interaction of multiple contributing variables, including the creative individual's cognitive, emotional, motivational, and behavioural processes (Csikszentmihalyi, 1988a, 1990; Harrington, 1990). This multi-variable perspective also explores how these intra-personal factors complement the structure and resources of the domain in which the creative individual works. Rather than focusing solely on the creative individual, multi-variable perspectives also consider the social and cultural context in which the creative person works and how these two variables interact to produce a creative outcome. Recognition that multiple variables contribute to creative outcome raises the possibility that creativity arises from multiple and divergent processes. In response, research has been directed at the interaction between components of creativity, particularly the individual - environment interaction. This multi-variable view is exemplified in Harrington's (1990) ecological perspective and Csikszentmihalyi's (1988a, 1990) systems account.

Multi-variable perspectives encourage descriptive analyses of creative individuals and the environment in which they work in order to identify the creativeogenic properties of that interacting relationship. Because multi-variable perspectives explore creativity as the outcome of the interaction of multiple variables, particularly the interaction between the individual and the environment, there is a particular emphasis on exploring creative activity as it takes place in its normal context of production.

The focus of the present research

The focus of this thesis is on real world instances of creativity, and in particular, the domain of art making. Studies of real world creativity provide us with information that laboratory studies cannot. Laboratory studies tend to be

restricted to the analysis of single variables, particularly cognitive phenomena, while ignoring how these intra-personal variables are complemented (or not) by the domain in which the creative person works. In contrast, real life creative activity is influenced by factors such as commitment, motivation, and effort, as well as the underlying cognitive mechanisms that are explored in laboratory studies. Laboratory studies conducted in experimental settings often use contrived stimuli. If laboratory studies of creative cognitive processes utilise contrived stimuli and non-professional subjects working in experimental contexts then important components that otherwise contribute to creativity are missing, such as commitment, motivation, affect, and effort. Unless laboratory studies are informed by corresponding real life instances of creative endeavour then the experimental findings are of limited applicability to creativity as it takes place in real world settings.

Alternatively, data may be gathered from retrospective reports, letters, or autobiographies of creative individuals. Retrospective reports may provide information regarding the working processes of professionally active creative individuals, particularly those who have contributed significantly to the development of their particular domain. However, the validity of the creative person's descriptions of their cognitive and behavioural processes is limited to their ability to accurately access the internal processes that direct those reports (Perkins, 1981). It has been argued that individuals do not truly introspect when reporting on their cognitive processes, but instead report upon their implicit theories about the cause and effect relations of the phenomenon (Glass & Arnkoff, 1997; Nisbett & Wilson, 1977; Rennie, Phillips & Quartaro, 1988). Individuals may remember certain components of the cognitive procedures associated with a creative task and use those to infer the general procedures they may have used. If this is the case then retrospective verbal reports may not bear much resemblance to the actual cognitive procedures used during the creative task.

This thesis addresses and responds to the validity issues arising from both

retrospectively obtained data and laboratory studies observing single variables. The research focuses upon and explores the working processes of professionally creative artists while they were in the process of making self initiated art work in their normal production context. The resulting theory and model of creativity is based on a grounded theory analysis (Strauss & Corbin, 1990) of data provided during successive interviews with artists over the course of making particular self initiated art works.

Outline of the thesis

The following chapters are grouped into four parts. Part one reviews contemporary approaches to researching creativity. Chapter one covers issues in defining creativity and addresses the possibility of distinguishing between different types of creativity. Chapter two comprises a review of general theories of creativity and approaches to researching creativity. This chapter concludes with an account of the multi-variable approach and how it represents an advance on other research approaches because it recognises the interaction of multiple variables, particularly the social and cultural context in which the creative person is working. Chapter three is a review of creativity in the domain of art making, the domain explored in this thesis.

Part two describes the method of the current research. This part is divided into three main sections. The first section provides a rationale for the current research, an overview of the Grounded Theory method (Strauss and Corbin, 1990), and the revised research method used here. The second section describes the procedure and analysis of study one, while the third section describes the procedure and analysis of study two - the validity study.

Part three presents the results of the grounded theory analysis conducted in study two. The results take the form of a description of the unfolding developmental process of making art works. This description is accompanied by a diagram of the art making process, and artists' statements provide examples of model categories.

Finally, the results of the validity study are presented.

Part four comprises a discussion of the model of art making produced in this thesis. Key features and strengths of the model are outlined, followed by a discussion of the relationships between the model developed here and existing models of artistic creativity. Finally the implications of the model for the concept and study of creativity are discussed.

Part One

Contemporary Approaches

to

Researching

Creativity

Chapter One

Defining Creativity

Popular conception tends to surround the concept of creativity with myth and mystification (Rothenberg, 1979). This elusive nature of creativity is perpetuated by the tendency in Western culture to romanticise the origins of creative achievement and praise creative individuals as exceptional (Gretton, 1986; Jung, 1952). Creative ability is often located in the possession of certain individuals and distinguished from other human abilities and types of experience. This myth defines certain individuals as creative geniuses who are capable of extraordinary thought processes such as insight, inspiration, and leaps of imagination. This view distinguishes creative processes and ability from what are considered ordinary cognitive processes and ability, thereby restricting appraisals of creativity to a few uniquely endowed individuals (Weisberg, 1986). Indeed, many early thinkers saw creativity as analogous to God's own creative power (Engell, 1981).

Because we cannot easily say how creative ideas arise, creativity is often ascribed to unconscious processes. For example, the experience of sudden insight preceded by non-reportable cognitive processes contributes to the elusive nature of creativity, and therefore also its mystification. (Schooler and Melcher, 1995).

The investigation of creativity has been obstructed not only by the elusive nature of creative genesis, but also because our considerations of what is creative have come to be so broad. "Virtually any thought activity can in principle involve components that could be described as creative" (Schooler & Melcher, 1995), p. 98). Discovering the cure to a fatal disease is generally regarded as an instance of creativity. However, this example differs from Picasso's creative contribution to the field of fine art, and both differ from what are considered everyday examples of creativity such as making craft, conducting resourceful home decorations, or developing landscaped gardens.

The ubiquitous nature of appraisals of creativity raises important issues regarding attempts to define creativity. In this regard one important research issue is whether different types of creativity are underpinned by different cognitive and behavioural processes. If different types of creativity do arise from different cognitive mechanisms then this limits our ability to generalise from, for example, studies exploring everyday creativity in laboratory settings to eminent varieties of creativity in real world contexts. This issue is important because much current research focuses on everyday types of creativity (Simonton, 1998).

While the distinction between varieties of creativity is not the main focus of this thesis, it influences definitions of creativity, and definitions of creativity contribute to the way that we study creativity. A brief overview of this distinction will be outlined here before continuing with attempts to define creativity and outlining the focus of this study.

Types of creativity: everyday creativity and eminent creativity

Types of creativity include for example, genius or eminence, and everyday or mundane creativity. Achieving eminence requires the external recognition of creative achievement. Eminent creative accomplishments are generally regarded as those creative acts or products that have received social recognition in the form of prizes and awards from society or professions (Richards, 1990). Eminent creative acts solve some significant problem or otherwise contribute to the development of a particular knowledge domain. In contrast examples of everyday creativity can be found in those activities that do not require social recognition in order to be considered creative (Richards, 1990), for example, pursuing crafts and performing innovative household repairs. These kinds of creative pursuit do not require peer recognition, but rather are original or meaningful to oneself.

There is also the distinction between personal and historical creativity (Boden, 1992, 1994). To be considered an instance of historical creativity, a creative

response, product or solution must be historically innovative, adaptive, and valuable within a working context or domain of expertise. Instances of personal creativity constitute creative acts which fulfil these criteria in terms of the individual's history, but do not meet them at the macro population level because the creative act has already been achieved, or it is not valued within the broader context of the cultural domain.

A central issue in the attempt to define and study creativity regards whether the processes of mundane and exceptional creativity are the same. Schank and Cleary (1995) consider that creativity is an inherent part of human cognition, which contrasts markedly with the traditional Western view. Shank and Cleary believe that the tendency to exalt creative performance generates a belief that only a special few can be creative to the social cost of wider society. Schank and Cleary do acknowledge that there are different types and levels of creativity. However, as cognitive scientists their major concern is with the reconstitution of existing knowledge structures underlying everyday creative acts and applying them to new or unexpected situations and problems.

Ward, Smith, and Vaid (1997) consider that in all domains creativity results from the same set of basic mental operations, whether it be art, science or everyday life. In this regard general principles are considered to underlay creative cognitive processes across all domains of expertise (Finke, Ward, & Smith, 1992). Thus, someone who is creative in one domain can potentially have creative output in another domain, because it is the underlying cognitive structures and strategies that these people use that are the source of creativity. Smith, Ward, and Finke, (1995) further claim that these cognitive structures and processes underlie both creative and non-creative cognitive processes such that creative thinking is a part of everyday thought. Similarly Ward et al. (1997) state that the only difference between mundane creativity and genius is quantitative; both rely on the use of the same cognitive structures in creative generation.

In this view creativity always results from the same basic mental operations.

However, it need not follow the same pattern every time, but can arise from multiple and different cognitive processes (Smith, et al 1995). Some discoveries result from flashes of insight such as Kekule's development of the structure of benzene, other creative endeavours are the result of incremental development through the use of multiple cognitive processes (Dunbar, 1997).

Barsalou and Prinz (1997) differentiate between exceptional creativity and mundane creativity. While exceptional creativity can be found in the acts of inventors, scientists, and artists that influence our culture, mundane creativity is thought to be possessed by everyone. Mundane creativity can be identified in the everyday cognition and behaviours of individuals, where those acts and behaviours are new to the individual. Barsalou and Prinz argue that mundane and exceptional creativity are generated by the same cognitive mechanisms (rather than distinct mechanisms), the difference lying in the greater use of the same mechanisms in exceptional creativity. In contrast, Simonton (1997) considers that the difference between mundane everyday creativity and exceptional creative acts is qualitative rather than quantitative, such that higher levels of creative achievement are associated with new or additional cognitive processes, or cognitive processes operate in novel ways to issue in new outcomes.

Determining the differences and similarities between (at least) these two types of creativity is important if we are to develop an effective research programme and further our understanding of this phenomenon. At present it is uncertain whether the underlying mental processes of everyday and exceptional creativity are fundamentally different. If they do differ then this limits our ability to generalise from research based on everyday creativity to more eminent varieties of creativity. Until the relationship between everyday and exceptional creativity is ascertained it is important that we do not conflate one with the other.

The following section discusses issues associated with defining creativity. How creativity is defined critically influences particular research approaches, and given the ubiquitous nature of creativity, it is vital that we clarify the nature of creativity we are exploring.

Issues in defining creativity

At a general level the direction of any investigation into creativity is dependant upon where the determinants of creativity are thought to reside. In this regard creativity is generally identified in certain qualities found in persons, products, and processes (Tardiff & Sternberg, 1988). Creative processes are those characteristic cognitive and behavioural activities performed by people considered to be creative, for example, problem finding and solving strategies. Creative persons are thought to possess certain personality traits that make them distinctly creative. Finally creative instance can be located in the objective features of the creative product, that is, whether it fulfils conditions of being adaptive, valuable, and statistically infrequent.

There are distinct problems associated with attempting to define creativity solely by reference to any one of these components of creativity. Locating creativity within persons alone is insufficient because creativity must also be manifest in products if we are to discuss this phenomenon meaningfully. The creative product is the output of a particular process, undertaken by individuals. Creative output includes products, performances, behaviours, and ideas. To be considered a manifestation of creativity it is generally considered necessary that a product fulfils the following requirements. It must be statistically infrequent or novel, and also be adaptive such that it solves a problem or accomplishes some recognisable goal (Harrington, 1990; Mansfield and Busse, 1981). In order for an act or product to be considered creative the value of potentially creative acts and products must be recognised, acknowledged, and valued by the accompanying social system. However it is not at all clear how these attributions of creativity are made, that is, how individuals, groups or societies come to consensual agreement about what constitutes a creative product. In order to approach a comprehensive understanding of creativity Harrington (1990) recommends the examination of processes by which the value of potentially creative acts is either overlooked, discovered, created, or added to by the social system within which the creative

product issues.

The investigation of creative process is multi-levelled. Some researchers are concerned with the particular cognitive and behavioural activities performed by individuals; other researchers focus upon what is known as insight (Sternberg, 1995), while other researchers attempt to investigate the working processes of people producing creative works within particular fields of endeavour (Kirschenbaum & Reis, 1997; Jones, Runco, Dorman, & Freeman, 1997; Nemiro, 1997; Perth & Arlin, 1997).

Most researchers acknowledge that creativity is the result of the interaction of these components. This multi-variable perspective recognises the limitations of a unitary analysis of creativity in favour of a descriptive analysis of creative individuals and the environment in which they and their behaviour is embedded (Csikszentmihalyi, 1988a, 1990; Harrington, 1990). This approach attempts to identify the creativeogenic properties of these interacting components. For example, within the sociological and philosophical literature there is a recognition that the organisational structure of the art world critically influences the nature of the art that is accepted and perpetuated within the field of fine art (Becker, 1982; Gablick, 1984; Novitz, 1992). Similarly, Harrington's (1990) ecological perspective and Csikszentmihalyi's (1988a, 1990) systems theory propose that creativity is the result of the dynamic interaction of three shaping forces: intra-personal factors, the ¹domain, and the field of creative endeavour.

The remainder of this first part of the thesis offers a review of current research approaches to creativity. It concludes with an account of the multi-variable approach and how that approach can aid our understanding of artistic creativity. This review is organised into two parts. The first part is a review of creativity research in non-specific domains. The second part is a review of creativity

¹ A domain is a particular area of knowledge or activity. Domains have symbol or notational systems that can be mastered and advanced through creative acts. The field is comprised of individuals who work in the domain. Individuals who make up the field direct the evolution of the domain by selecting new domain content and distributing this information to new individuals acting in the field (Li, 1997).

research in the domain of art making - the focus of the current research. Within the first review chapter, the material is presented in terms of the components of creativity: creative processes; creative individuals; and a multi-variable, interactive approach that explores how these components interact, particularly with social and cultural contexts.

Chapter Two

The Creativity Literature: A General Review

The Creative Process

Creative process is studied from multiple perspectives. Some investigations focus upon the cognitive and behavioural activities of creative individuals. This may involve exploring problem solving strategies (Dominowski & Dallob, 1995; Dudek & Cote, 1994; Getzels & Csikszentmihalyi, 1976; Kay, 1994; Mumford, Reiter-Palmon & Redmond, 1994; Patrick, 1937; 1938; Runco & Chand, 1994; Subotnik & Steiner, 1994); processes of conceptual combination, expansion, and model construction (Barsalou & Prinz, 1997; Cacchiaro, Levorato & Cicogna, 1997; Chi, 1997; Markman, Yamauchi & Makin, 1997; Murphy, 1997; Shoben & Gagne, 1997); and the use of metaphor and analogy (Glucksberg, Manfredi & McGlone, 1997; Indurkha, 1992; Johnson, 1987; Lakoff, 1987; Lakoff & Johnson, 1980). Other research approaches explore the creative processes of individuals working within particular real life domains (Kirschenbaum & Reis, 1997; Jones, Runco, Dorman, & Freeman, 1997; Nemiro, 1997; Perth & Arlin, 1997). Research may be conducted under experimental laboratory conditions (Dudek & Cote, 1994; Getzels & Csikszentmihalyi, 1976; Patrick, 1937), or explored via qualitative methods in real world settings (Dunbar, 1977).

The following sections review research that explores creative processes of: metaphor; analogy, polysemy, conceptual combination, and conceptual expansion. The majority of this research takes a cognitive approach to creativity. That is, creativity is identified in the cognitive processes of creative individuals. Because much research explores problem solving and problem finding processes in the domain of art making, these variables are reviewed in the following chapter focused on creativity and art making.

Cognition and Creativity

The term cognitive theories is used here to describe a broad range of theories that explore the cognitive processes and structures underlying normative creative activity. Working within the cognitive approach, researchers may explore the way individuals combine and expand concepts to result in novel entities; the use of polysemy and figurative expressions such as metaphor, analogy, and mental models; or how individuals use a combination of these processes to creative ends.

In general, cognitive approaches focus on normative creativity, “the generative potential that is inherent in the operating characteristics of most normal human brains.” (Ward et al., 1997, p. 4). From the cognitive approach creative discovery is the result of organised cognitive exploration rather than a product of unconscious mental processes.

From the cognitive approach creativity is considered to be the outcome of underlying cognitive processes of conceptual combination and expansion, mental model construction, metaphor, and analogy (Ward et al., 1997). These cognitive processes result in novel and adaptive knowledge in particular domains. In brief, conceptual combination is the process of merging two or more concepts to produce a novel concept. Conceptual expansion involves extending single existing concepts to apply to new situations, for example using human morphology to design alien creatures. Mental models and analogies illustrate similarities between two concepts or situations. Metaphor is a figurative expression which involves understanding one concept in terms of another. Research relevant to the study of creative cognitive processes are reviewed in following sections.

Metaphor and Analogy

The term metaphor is used with a wide variety of meanings. Generally metaphor is taken to involve a transference of some kind from one object or situation to another (Indurkha, 1992). A metaphorical association or transfer is made when

two unlike things are compared (Glucksberg, Manfredi, & McGlone, 1997). Indurkha (1992, p. 18) describes a linguistic metaphor as “a description of an object or event, real or imagined, using concepts that cannot be applied to the object or event in a conventional way. The object or event being described is called the target (or topic), and the concepts that cannot be applied conventionally are called the source” (or vehicle). A metaphor gets its meaning through the interpretation of the source unconventionally in the target, due to some underlying similarity between the source and the target. Take for example the metaphor, “she brayed her discontent”. The event being described (the topic / target) is the woman’s verbal expression, and the unconventionally applied concept (the source / vehicle) is the sound of a donkey’s braying. In this manner, the woman’s expression of discontent is understood as a loud and harsh noise.

Through the transfer of information from one concept to another, metaphors encourage the emergence of properties that were not obviously a part of either topic or vehicle before the metaphor was coined (Finke, Ward & Smith 1995). In the above metaphor, the braying woman may take on other donkey-like properties such as stubbornness, and perhaps also an imagined toothy donkey-like appearance, serving to demean her expression of discontentment. In return, the imagined sound of a donkey braying may take on properties of dissatisfaction.

Metaphors need not be limited to single words or phrases, sometimes a literary work in its entirety can be metaphorical in so much as it offers new insight or knowledge. For example, Hausman (1989, p. 13) suggests that “A Shakespearean tragedy is a symbol of human strength and weakness.” In such a case it is the reader’s task to identify a target and develop their own interpretation in order to consider the work in a metaphorical manner (Indurkha, 1992).

Metaphor is not just a figure of speech, but also an inherently creative process such that new properties can emerge from the metaphorical combination of two or more concepts. (Birnbaum, 1990; Finke, Ward & Smith, 1995; Johnson, 1987; Lakoff, 1986, 1987; Wheeler, 1987, 1990). There are multiple explanations

offered to account for the creation of new meaning in the operation of metaphor. Black (1962) outlines three different ways for accounting for metaphor: the substitution view, the comparison view, and the interaction view.

In the substitution view, metaphors communicate indirectly such that when a metaphor is produced some intruding term is used in the metaphor, which substitutes for the intended literal term or concept. The listener or reader of the metaphor must invert this substitution in order to comprehend the metaphor, thereby replacing the intruding (metaphoric) term with a literal term or concept that makes sense in terms of the rest of the sentence (Verbrugge, 1980). Thus, comprehending the metaphor, *feathers are leaves on birds*, requires substituting the term or concept “leaves” with the concept of multiple overlapping structures on an organism. Thus, in this view metaphoric terms must be substituted because otherwise they make the metaphoric sentence literally unintelligible.

The comparison view of metaphor is a special case of the substitution view (Black, 1962) but instead focuses on the entire sentence rather than individual words within that sentence. While a metaphorical statement may falsely assert a relationship between the two concepts on a literal level, underlying the metaphoric comparison there is some similarity between the domains of the two concepts. In order to understand a metaphor, a listener must replace the metaphor with a simile. Thus, in the metaphor, *feathers are leaves on birds*, feathers and leaves are similar in that they have some similar properties - multiple overlapping structures on an organism. In the comparison view metaphors illustrate underlying similarities between two domains.

The comparison view is considered to be a problematic account of the action of metaphor for a number of reasons (Black, 1963; Verbrugge, 1980). One of these problems arises because the comparison view fails to account for novel interpretations of the target of the metaphor. In the comparison view a metaphorical interpretation arises from a comparison of the similarities that are considered to exist between the two domains of the metaphor. The comparison

view cannot account for metaphorical interpretations where an individual comprehends the target in a novel fashion, that is, where similarities between the two domains did not pre-exist. “No list of pre-existing similarities can substitute as an equivalent for the transforming effect the vehicle of such a metaphor exerts on the topic’s identity.” (Verbrugge, 1980, p. 100)

The comparison view is also problematic because it is assumed that the topic and the vehicle can be interchanged without a corresponding change in the meaning of the metaphor. According to Verbrugge (1977, 1980) this is not the case. Metaphorical comprehension is generally asymmetrical, such that topic and vehicle have different semantic functions and cannot be reversed without a corresponding change in the meaning of the metaphor. This notion is supported by studies indicating that subjects recalling metaphorical sentences rarely reverse the topic and vehicle (Verbrugge & McCarrell, 1977). Studies also show that rated similarities between a topic and a vehicle differ depending on which domain is topic and which is vehicle (Harwood & Verbrugge, 1977, cited by Verbrugge, 1980).

The interaction view differs from the comparison and substitution view because it recognises the system of associated implications attached to both the topic and the vehicle of a metaphor (Verbrugge, 1980). In the interaction view a concept is considered to have a system of “commonplace cultural beliefs, and personal attitudes, and unusual connotations established by prior discourse.” (Verbrugge, 1980, p. 101). When a metaphor is made certain features of the topic of the metaphor are emphasised and re-organised through the application of statements that would normally apply to the vehicle. In this regard, the topic is seen *as* the vehicle, and comprehension of the metaphor involves associating certain properties with the topic that it would not normally have (Verbrugge, 1980). Similarly, Tourangeau and Sternberg’s (1982) domains-interaction model views metaphor as the result of the interaction of the knowledge domain of the topic and vehicle, such that certain features from the vehicle domain are mapped into the topic domain. This differs from the comparison view where the domains of the

topic and vehicle are considered to retain their conventional identities in an independent manner (Verbrugge, 1980).

The significance of the interaction view for accounts of creativity reside in the way in which metaphor is considered to involve a restructuring of the domains of both the topic and the vehicle, not just the individual topic and vehicle concepts. If the domains of the topic and vehicle have been restructured such that they are conceptually closer, understanding one metaphor between those domains can encourage additional metaphors, thereby allowing entire domains to be understood in a different light (Finke, Ward & Smith, 1992).

Indurkha (1992) builds upon an interaction perspective of metaphor in his comprehensive account of creative metaphors. Indurkha recognises that metaphors play a role in creative problem solving and distinguishes between similarity based and similarity creating metaphors in his account of metaphor and cognition.

Similarity creating metaphors are those metaphors that establish similarities between the source and the target concepts when there were no similarities prior to the creation, or comprehension of the metaphor. The demonstration of similarity creating metaphors is difficult because after a metaphor is presented it is difficult to imagine this similarity did not exist prior to constructing the metaphor rendering the metaphor an apparent case of similarity recognising metaphor (Indurkha, 1992). However, it is the creation of similarity in the mind of the individual comprehending the metaphor that distinguishes a similarity creating metaphor from a similarity based metaphor. (Indurkha, 1992).

It is important to distinguish between similarity creating and similarity based metaphors because these two different types of metaphor extend knowledge in different ways. In the case of similarity based metaphors, the cognitive agent recognises pre-existing similarities between the source and the target. Due to existing similarities some parts of the source are mapped onto and re-organise

parts of the target concept. One's knowledge of the target domain can be extended through transferring hypotheses from the source to the target.

Metaphors not only recognise pre-existing similarities between two concepts or domains, they also create similarities (Glucksberg, Manfredi & McGlone, 1997; Kittay 1997). Similarity creating metaphors differ from similarity based metaphors in so much as in similarity creating metaphors there were no similarities between the source and target concepts prior to the metaphor being coined. Thus, in this case creative ideas arise from the creation of similarities between the two concepts. Indurkha (1992) considers this type of metaphor to be evidence of truly creative genius. Reproduced here is an example from Indurkha (1992) and Kittay (1997) that illustrates the action of similarity creating metaphor. This particular example is taken from Schon (1979).

In this example researchers were attempting to improve the performance of a synthetic bristle paintbrush. The problem with the synthetic bristled brush was that it applied paint to the surface in a discontinuous and gloppy manner. This failure resulted directly from the researchers model of painting, which involved conceiving painting with a brush as a process of smearing paint on a surface. This smearing model couldn't account for the ineffective performance of the synthetic paintbrush. In attempts to improve the synthetic brush, the researchers utilised some features of the 'painting as smearing' model. They noticed that the brushes of the natural bristles were split at the ends, and utilising their model, split the ends of the synthetic bristle, to no avail.

The solution came about as an example of similarity creating metaphor, when it was suggested that a paint brush works as a pump rather than a smearing device, such that the paint was forced between the bristles through the pumping action of the bristles. With the new model it was noted that the bristles of the synthetic brush bent at sharp angles (which was consistent with the smearing model), whereas the natural bristles formed a smooth curve. With a new model of painting as pumping, the synthetic bristles were constructed to form a smooth curve,

thereby acting as a pump, and the painted surface was significantly improved. It should be noted that the angle of the bristles is not important in the smearing model of painting, this difference between natural and synthetic bristles only became relevant with the painting as pumping metaphor. This is an example of how no similarities existed prior to the painting as pumping metaphor, only afterwards, and as a result a totally new ontology developed regarding the painting process. Effectively a new perspective of painting was developed that did not previously exist (Indurkha, 1992; Kittay, 1997).

In the interaction model, metaphor is understood as more than just a comparison between two concepts or domains of knowledge. Instead metaphors are considered to be property attributions of categories that extend existing categories or create new ones (Glucksberg et al., 1997). More than just changing the individual topic and vehicle, metaphors change the structure of the domains of the topic and the vehicle of the metaphor. According to this view metaphor is not just a figure of speech but a significant creative device.

Kittay (1997) suggests that creativity is more than just the ability to coin or comprehend metaphor. Rather, the real hall mark of creative genius should be identified in the ability to select which fields to bring together in metaphor. The creative individual must distinguish between fruitful and irrelevant metaphoric projections between domains and identify which direction such projections must be made in order to make creative advances. In the following section on analogy, Dunbar (1997) suggests that creative individuals in the field of molecular biology showed a higher frequency of analogy generation and worked collaboratively with fellow scientists to elaborate analogies in a manner that was creative and successful.

Analogy

Metaphor and analogy differ in that metaphor involves conceiving or interpreting something as something else, where there may be no justification for supposing

similarities other than the one created by the metaphor. Metaphors involve asymmetric statements such that the source is used to understand the target in a different way. An analogy points to similarities between two concepts or domains.

Indurkha (1992) identifies two different senses of the term analogy. Simple analogy involves noticing or creating similarities between two objects or situations. In the same way as metaphor, the familiar source concept is applied to the less familiar target concept and results in an unconventional interpretation of the target. In contrast, predictive analogy involves the presumption that existing similarities between two concepts justifies the belief that there may be other similarities. This is also known as analogical reasoning and analogical inference. In this way existing and familiar models provide various heuristics for problem solving in other domains. (Indurkha, 1992).

There are various mechanisms by which analogy (and metaphor) extend knowledge creatively. Analogy (and metaphor) can highlight and downplay various parts of the target realm. (Indurkha, 1992, Kittay 1997, Lakoff and Johnson, 1980). The nature of the analogy focuses attention on some parts of the target realm and hides other parts. Lakoff and Johnson (1980) express this well in the metaphor “arguments are war” (or the corresponding analogy, arguments can be battled just as a war, or the simile, arguments are like wars). Conceiving a heated argument as war can lead to a failure to consider the productive aspects of debate in an effort to attack an opponents position and win the battle.

Predictive analogy can provide previously unnoticed insights into the target domain. It should be noted however that predictive analogy can also hamper understanding and creative cognition when one infers additional similarities between the source and target domain on the basis of an analogy when no such inference is justifiable (Indurkha, 1992). In this regard, maintaining unjustified predictive analogies can provide an obstacle to alternative information that might otherwise provide a solution to the problem. Indurkha suggests that creative insights can also come about through a process of utilising a source domain that is

very dissimilar to the target domain, or “*making the familiar strange*” (Indurkha, 1992, p. 333).

Dunbar (1995, 1997) explores the use of analogy and other reasoning processes in the real world context of major scientific laboratories. Dunbar suggests that many psychological experiments exploring human problem solving processes are flawed because the stimuli used are arbitrary and the problem solving involved does not depend on background knowledge.

Dunbar’s research design involved participating in the day to day activities of scientists working in major scientific laboratories. This enabled him to monitor the development of scientific breakthroughs directly rather than exploring scientists reasoning processes through post hoc interviews and questionnaires. Through monitoring real world activities in scientific laboratories Dunbar also avoided studying contrived problem solving situations outside of real world contexts.

Dunbar (1997) discovered that weekly laboratory meetings between all members of the laboratory was central to the generation of new ideas and concepts, developing new experiments and solving problems. In response, Dunbar constructed a research design that enabled him to determine the effects of laboratory meetings on scientists’ reasoning processes. This design involved interviewing researchers about the nature of their particular research projects prior to, and after, laboratory meetings. The effects of laboratory meetings on scientists’ reasoning could be determined by comparing data from pre and post meeting interviews. The laboratory meetings themselves served as the primary source of data and were videotaped to gather a complete record of scientists interactions.

This design enabled Dunbar to uncover the cognitive mechanisms underlying the development of new knowledge in areas of molecular biology. Through the close examination of real world scientific thinking and reasoning Dunbar discovered that scientists rely on a variety of cognitive mechanisms to produce and develop

theories, rather than relying on one single cognitive process. In particular, conceptual change was found to occur as a result of analogical reasoning, group discussion, and discovering inconsistent or surprising experimental findings.

Contrary to the current belief that the role of analogy in scientific developments involves very distant analogies, (Boden, 1993; Koestler, 1964), Dunbar discovered that the contemporary scientists he studied actually used close analogies (and often from other research conducted in their laboratory) to formulate new hypotheses, design experiments, and re-construct problematic experiments. Distant analogies were used to explain results to an audience rather than generate hypotheses.

Weekly meetings provided a context for distributed reasoning processes. Distributed reasoning involves groups of individuals reasoning about experimental methods, hypotheses or the interpretation of results. Group discussion often involved members challenging or advancing each other's analogies, hypotheses, and causal accounts such that problems were solved and conceptual frameworks were more effectively re-conceptualised.

Dunbar's research indicates that reasoning in groups allows individuals to perform more creatively than if they were not reasoning in a group context (Dunbar, 1997). This contrasts with research that indicates that groups perform no better than individuals when asked to generate novel concepts (Dunbar, 1995). Dunbar contributes these contrasting results to the differences between his real world studies and experimental psychological research working on arbitrary or contrived problems with non-expert subjects. Dunbar (1997) suggests that the shared knowledge and goals of the scientists in his research contributed positively to creative reasoning processes.

Thus scientific knowledge progresses through a process of incremental steps involving close and distant analogy, induction, deduction, causal reasoning and distributed reasoning (involving groups of individuals working on a problem

rather than an individual), small cognitive steps which are often forgotten after the fact by scientists (but recorded by Dunbar, 1997). Dunbar suggests that his real world examination allowed him to record and uncover the multiple incremental steps that lead to scientific discovery, that re-construction's through post hoc interviews and questionnaires cannot provide. Dunbar suggests that this is because these incremental steps are forgotten or lost by those advancing knowledge that only those most salient cognitive mechanisms (such as distant analogy) are purported to produce discoveries and insight, thus the act of creation and discovery becomes mythologised. The question remains as to how the significant breakthroughs of the likes of Johannes Kepler and Crick and Watson differ from incremental building of the field of molecular biology, or more mundane, everyday varieties of creativity.

Gentner, Brem, Ferguson, Wolff, Markman and Forbus, (1997) suggest that close and distant analogies are used at different stages of the development of a particular scientific field. Gentner et al. explored the use of analogy in the work of Johannes Kepler who contributed to the development of the science of astrophysics. Given the undeveloped nature of this science in Kepler's time, distant analogies were his only recourse in the development of the field because few close similarities existed. In comparison, contemporary molecular biologists work in a field that is significantly more developed and possesses a framework comprised of multiple close analogues. "Close analogies are useful for filling in a framework, whereas distant analogies are used for developing new frameworks" (Gentner et al., 1997, p. 448).

Conceptual Combination and Expansion

It is commonly thought that producing a useful and novel emergent concept by merging two concepts is a creative process (Ward, et al., 1997). For example, Rothenberg (1979) considers that conceptual combination, and in particular janusian thinking, is intrinsic to creative thought. Janusian thinking involves "actively conceiving two or more opposite or antithetical ideas, images, or

concepts simultaneously” (Rothenberg, 1979, p. 55). Conceptual combination involves combining or juxtaposing two nouns, or a noun and an adjective (Thagard, 1997). Mundane everyday examples of conceptual combination include: tea cup, squash racket, hardrive, software, gulf war, desert storm, space shuttle, and skinner box. Creative conceptual combinations that represent significant scientific advance include selective breeding, genetic engineering, and natural selection (Wisniewski, 1997). Creating a new concept by combining two existing concepts is a common way of expanding our knowledge (Wisniewski, 1997), and in this regard is considered a significant creative device.

Wisniewski (1997) observes that conceptual combinations serve three purposes. The first is to describe new categories in order to distinguish them from the categories from which they derive. For example, in contrast to roller skates and ice skates, the term ‘roller blades’ is used to describe a set of skates that have four wheels in line beneath the middle of the foot, like the blade of an ice skate. The term ‘roller’ is taken from roller skates because roller blades similarly have wheels. The concepts of ‘blade’ and ‘rolling wheels’ is borrowed from existing categories in order to describe a new category, roller blades. Conceptual combinations may be used in order to communicate information more efficiently. For example a common room designates a room for people to meet, sit, relax, study, or eat in. Finally conceptual combinations may act as anaphora in so far as they are used to avoid repetition in discourse. Consider the example of experimental rats progressing further in a maze than control rats. These rats may thereupon be referred to as “maze bright rats”.

Conceptual combinations are used in order to refer to and describe changes in the environment (Wisniewski, 1997), and generally these changes come about as a modification of more familiar terms as in the roller blades example above. Wisniewski (1997) suggests that there are three ways in which people combine concepts. The first involves linking the *relations* between the two concepts. For example, a dishwasher is generally understood to be a kind of washing machine that washes dishes. The second type of combination involves *property*

interpretations, whereby some properties of one concept are ascribed to the other. For example, a balloon mouse might be considered to be a mouse that is fat and round like a balloon, or a balloon that is shaped like a mouse. The third, less frequent type of combination involves a *hybridization* of the original concepts. For example a rat-mouse might be a cross between a rat and a mouse. In these examples, new understanding emerges from the conceptual combination. This new knowledge may be creative on both an everyday and eminently creative level.

Conceptual expansion refers to the ability to expand existing concepts to new situations (Ward et al., 1997). Categories serve the purpose of defining objects and entities that are considered to belong together. In this way categories act as a conceptual structure (Chi, 1997). When category labels are applied to new category instances, they allow us to make deductive and inductive inferences regarding the properties of those new category members (Chi, 1997).

Chi (1997) describes creativity as the ability to consider a situation or object from a different frame of reference, or to be able to consider a member of one ontological category in the context of a different ontological category. According to this account, creativity is the ability to re-present a concept from an entirely different ontological perspective, such that the concept or object is now understood in terms of the attributes of the new ontological perspective. Chi uses the concept of ontological shift to account for the “aha” phenomenon. When a concept is represented from a different ontological perspective it takes on the attributes of the new ontological category. The ‘aha’ phenomenon arises because the concept takes on the attributes of the new ontological category.

Murphy (1997) explores linguistic creativity, and the way novel language use derives partly from the creative use of the lexicon. Murphy argues that while the words we know are relatively fixed, the way that we can use these words varies.

Murphy concentrates on the phenomenon of polysemy. Polysemous words are those that have related multiple meanings. Murphy uses the adjective “fresh” to

illustrate polysemy. For example, a fresh idea is one that is new or not known before, whereas fresh vegetables are those that have been recently harvested, or not frozen, or at least not rotten. Both these uses are slightly different from the use of the adjective fresh as in a fresh shirt. A fresh shirt is a clean shirt, and fresh air is air that is not hot or stale. Someone described as “fresh” is considered inexperienced. While each of these uses of the word fresh are related, they are not identical. Thus, “polysemy involves extending a word’s use beyond its core of usual use” (Murphy, 1997, p. 242). Extending the use of a word to a new use is an instance of creativity.

There are however, some limitations on the polysemous extension of words that Murphy demonstrates in a series of experiments using novel extensions of words. Extensions that are remote from the usual core meaning of a word are less intelligible. If words have remote polysemous meaning, in order to be understood they must be preceded by incremental extensions from the original meaning. In this way new meanings build upon older meanings. Simonton (1997) likens this process to the generation of original art works. Where estimations of creative success can be represented as a “curvilinear, inverted U function of its originality” (Simonton, 1997, p. 311). That is, works reflecting the lower and higher ends of an originality continuum are considered as being less successful.

Summary and critique

Metaphor and analogy are cognitive processes that are thought to underlay some forms of creativity. Metaphor and analogy are not just forms of figurative language, rather they represent a significant creative device in so much as they provide a way of re-understanding concepts in terms of another perspective. The accounts of metaphor and analogy represented here outline just how metaphor and analogy might contribute to creative cognition. Metaphor and analogy contribute to creative outcome through: the recognition of pre-existing similarities between two domains of knowledge, creating similarities between domains (Glucksberg, Manfredi & McGlone, 1997; Indurkhaya, 1992; Kittay, 1997),

supposing additional similarities on the basis of existing similarities between domains (Black, 1962; Birnbaum, 1990; Finke, Ward & Smith, 1995; Indurkhaya, 1992; Johnson, 1987; Lakoff, 1986, 1987; Verbrugge, 1980; Wheeler, 1987, 1990), and utilising similarities as problem solving heuristics (Dunbar, 1997; Genter, Brem, Ferguson, Wolff, Markman & Forbus, 1997; Indurkhya, 1992).

While the action of metaphor and analogy provide fascinating insight into potential creative cognitive processes, creativity also depends on the individual's ability to distinguish between fruitful and irrelevant metaphorical projections and analogical representations. Studies that explore the processes by which individuals create useful and relatively useless metaphoric projections and analogical transfers are likely to provide real insight into this part of creativity. Research exploring the real life utilisation of metaphorical and analogical processes (for example, Dunbar, 1997) may yield useful information regarding real life creative activity. Research that explores how the processes of metaphor and analogy interact with other factors that contribute to creative outcome (for example, the research directives within or the developmental level of particular domains) would further extend our understanding of creativity.

The value of cognitive approaches to creativity lie in their concern with the underlying mental processes that give rise to creative thought and responses. These mental processes of conceptual combination and expansion, model construction, metaphor, and analogy combine with other features including the social and historical context in which the creative person is working. However, in so much as the cognitive approach ignores these other component factors then cognitive accounts of creativity will be somewhat less than comprehensive. As will be demonstrated in the section on multi-variable theories (p. 36) creativity cannot be isolated from its domain of issue because the structure of particular domains differentially encourages certain types of creative outcome.

Cognitive approaches generally explore the mental processes underlying normative everyday creativity. Understanding the mental processes underlying

everyday creativity may provide useful information regarding processes underlying exceptional creativity - particularly where those processes differ. In this regard, exploring creative activities at either end of this continuum may be fruitful, so long as it is made clear what type of creativity is being explored.

The major concern with the cognitive approach lies with its tendency to focus on laboratory instances of creativity. Exploring creative cognitive processes via contrived problem solving situations in laboratories, without that investigation being informed by studies of corresponding real life instances of creative endeavour, is flawed because the stimuli used are often arbitrary and the problem solving processes used do not rely on background knowledge (Dunbar, 1997).

Real life instances of creative achievement are partly the result of commitment, motivation and effort, as well as the cognitive processes outlined in this section. Commitment ensures that the creative individual spends time thinking about their work, thereby increasing the possibility of noticing potentially relevant stimuli. Commitment therefore gives the creative individual time to gather experience and knowledge in a particular domain (Weisberg, 1988). Affect also influences creative production (Runco, 1994), particularly as it directs problem finding (Wakefield, 1994), while Kay (1994) expresses creativity in terms of purpose rather than process. If experimental investigations of creativity are not directed by explorations of real life creativity that are influenced by these other component factors then the applicability of resulting theories to creativity is limited.

The creative person

Attributes of the creative person

A person centred approach to creativity focuses on the creative individual's distinguishing characteristics. In this regard it is thought that creative people possess a cluster of personality traits that contribute to their creative ability.

Early psychological studies located creativity in the individual and explored the relationship between measures of real-life creativity and personality characteristics. (Barron, 1955; Mansfield and Busse, 1981; Taylor, 1988; Torrance, 1988). For example, Torrance (1988) explored the relationship between real life creative achievement and psychometric test behaviour to identify characteristics of the creative person. Torrance concluded that while the creative person may possess extraordinary talent, cognitive ability and personality, "the essence of the creative person is being in love with what one is doing" (Torrance, 1988, p. 36). This tendency to become intensely involved with ones work enables creative personality characteristics to come to the fore. For example, independence of thought and judgement, perseverance, courage, willingness to engage in risk taking, and curiosity, all which encourage the creative person to persevere in the face of pressure.

In their review chapter Tardif and Sternberg (1988) describe the nature of creative people in terms of three general categories: an individuals cognitive characteristics; personality and motivational qualities; and special events they have experienced. Tardif and Sternberg identify certain cognitive traits typical of creative people regardless of their domain of creative activity. These include: high intelligence, originality, verbal fluency, and imagination. Specific cognitive abilities identified as creative include: the ability to think logically and metaphorically, internal visualisation, flexible and skilled decision making, the ability to make independent judgements, the ability to cope with novelty, find order in chaos, and escape entrenched perceptual sets.

Personality characteristics commonly ascribed to creative people include: the willingness to take intellectual risks and confront hostility, a tendency to be curious, open to new experiences, possessing discipline and commitment to one's work, having a task focused orientation, possessing high intrinsic motivation, and the tendency to set rules rather than follow others (Tardif & Sternberg, 1988).

While there exists a constellation of cognitive and personality attributes associated with creative individuals, Tardif and Sternberg identify one pervasive feature of creative individuals - the aesthetic ability to identify and apply themselves to "good" problems in a field while ignoring other problems (Tardif and Sternberg, 1988, p. 435). Good problems are those that are likely to be fruitful, in that they are relevant to the development of the domain in which the creative person is working, and are supported and endorsed by members of the field of that domain. Tardif & Sternberg suggest that this ability to identify "good" problems may be accounted for by reference to certain cognitive, personality, or motivational characteristics, or some separate factor not yet identified.

Creative individuals may possess some but not all of these cognitive and personality characteristics. In this regard there seems to be a constellation of characteristics that are associated with creative individuals, but may not necessarily be possessed by all creative individuals. This diversity suggests research methods that explore the development of characteristics during the creative person's career, or the stability of characteristics over time.

In a longitudinal study of eminent architects Dudek and Hall (1991) found that distinct personality characteristics were stable over time and associated with various levels of creative achievement. Dudek and Hall's factor analytic study provided profiles of architects falling into three levels of eminence and creativity. The most eminent group included architects of world renown, and were characterised according to the California Psychological Inventory and the Adjective Check List as: autonomous, assertive, independent and self-willed, self

sufficient, possessing strong impulses that are not curtailed, demanding of attention, forceful, enjoying competition, headstrong, and unable to postpone gratification. Eminent architects of this type understand problems easily, are enterprising, display originality in thought and perception, possess aesthetic sensitivity, are indifferent to convention, and find little need for close personal ties. An eminent architect is more likely to be a leader than a follower.

In contrast less creative architects tend to control their impulses at the cost of spontaneity, are work centred and reliable, loyal, conservative, and supportive. The less creative architects' analytic approach is to establish rational goals which are followed through without deviation. This person likes people, is giving, and more likely to be a follower than a leader. Correlation between personality scales at time one (1958-1960) and time two (1983-1984) demonstrated the stability of these personality characteristics in both levels of creative achievement.

Dudek & Hall suggest that underlying the eminent architect's high level of creative productivity may be passion and commitment to achieve. All three groups of architects in Dudek & Hall's study reported satisfaction with their creative lives regardless of level of eminence achieved. This suggests that a creative individual's goals may relate to their creative achievement.

In his research into extraordinariness, Gardner (1993, 1997) attempts to build a model of creativity that is based upon the analysis and description of case studies in order to classify types of creativity. Gardner outlines four major forms of extraordinariness based on a model of human skills. This model delineates skills in terms of an individual's relationship to the self, to other people, and to domains of accomplishment. Gardner argues that these categories capture the relationship between persons, regardless of milieu. From this model there are four possible relationships of which ordinary and extraordinary people are capable; the Master, the Maker, the Introspector, and the Influencer.

A Master is a person who develops complete mastery of a particular domain of

endeavour, and any innovation that the individual contributes occurs within the established practice of that domain. Mozart is a prime example of a Master. Mozart completely mastered the musical composition of his time. In comparison, while the Master may have mastered a particular domain, the Maker creates a new domain. Gardner uses Freud as an example of a Master who created the domain of psychoanalysis. Gardner cites Virginia Woolf as an example of an Introspector. The Introspector's primary concern is the exploration of one's inner life, while the Influencer influences other individuals via their social, political, or military leadership, by personal example or through the written word, for example, Mahatma Ghandi.

Gardner's use of individual cases studies represents an advance upon other approaches, particularly the psychometric approach, because case studies are based on individuals who are demonstrably creative. In contrast, psychometric tests of creativity often give no indication of a test scorer's real life vocations creative contribution. Furthermore, there is little solid evidence that demonstrably creative people possess the divergent thinking skills that make up typical creativity tests (Gardner, 1997). Gardner challenges the notion of a single variety of creativity. Rather, he considers that creativity is exhibited by individuals within a particular domain, rather than a general trait exhibited across domains (Gardner, 1994). This consideration brings a new perspective to the creativity equation - that of the interaction between multiple variables and a systems approach to creativity. This approach is covered in the following section.

Summary and critique

While there may be distinctive personality and cognitive characteristics that combine in various ways to creative outcome, creativity cannot be properly and completely understood in isolation from the social context of its production. (John-Steiner, 1992; Simonton, 1988). The problem with psychometric testing of creativity stems from the measurement of real-life creativity. In order to measure real life creativity we must have a concept of what it is - a consensual agreement

about what constitutes a creative product. There is a concern here not just with the identification of creative products, but how attributions of creativity are made and how consensual agreements are reached. (Conrad, 1990; Gardner, 1994; Mansfield and Busse, 1981). The contribution of these multiple variables to creative outcome are considered in multi-variable approaches to creativity.

Multi-variable theories of creativity

Sociological and philosophical perspectives recognise the interactive nature of artistic production - that the organisational structure of the art world, and the functioning of the roles that comprise the art world critically influence the nature of art that is accepted and perpetuated within that institution. (For example Becker, 1982; Novitz, 1992; Schaffer, 1994). Within the psychological literature there is growing recognition that creativity does not exist as a single process that can be explored via the activities and traits of those people considered to be creative. As a consequence a broader systemic perspective of creativity has come about, one that no longer exclusively focuses on the individual but includes also the social and cultural context in which the creative person is working (Csikszentmihalyi, 1990). Harrington (1990) considers creative accomplishment to be the result of the collective activities of individuals working collaboratively. Recognition of the involvement of multiple variables in the creativity equation has resulted in a greater emphasis on the interaction between the various components of creativity, particularly the role of the individual - environment interaction. (For example, Becker, 1982; Bourdieu, 1971; Csikszentmihalyi, 1988a, 1990; Gardner, 1982, 1993, 1994, 1997; Gruber & Davis, 1988; Harrington, 1990; Husaker, 1992; Isaksen, Murdock, Firestien, & Treffinger, 1993; John-Steiner, 1992; Martindale, 1994; Rees & Borzello, 1986; Rothenberg, 1979; Simonton, 1988, 1994; Sternberg, 1988).

Recognition of the importance of considering the multiple variables that contribute to creative production is exemplified in Harrington's (1990) ecological approach and Csikszentmihalyi's (1988a) systems approach. These approaches will be covered here.

The ecological perspective

Harrington's (1990) ecological perspective is based on a functional analogy to biological systems. According to this view the study of creativity ought to be

concerned with the functional relationships within creative ecosystems - the interdependent relationships that support, encourage, or impede and discourage creative processes, and the creative individuals who operate within that creative ecosystem. Within biological ecosystems life processes place certain demands on that ecosystem. This concept is called biochemical demand. Harrington proposes that creative processes similarly place psycho-social demands on creative individuals and ecosystems in the form of skills, knowledge, physical resources, time, imagination, communication channels, and access to appropriate audiences. The ecosystem in turn places demands on creative individuals and creative processes. Thus, the demands of creative individuals and creative processes within particular ecosystems operate in mutually influencing ways, such that personal characteristics and resources influence and are influenced by ecosystem resources and properties.

Harrington identifies four factors that should be acknowledged and investigated in creativity research. This includes the personal resources of the individual engaged in creative activity within a particular ecosystem, such as cognitive skills, personality and motivational attributes. A second important factor is how those personal resources are complimented within a particular ecosystem. Researchers must also consider what resources within a particular creative ecosystem are relevant to creativity, and the functional relationships between those resources and the creatively active individual. Finally researchers should examine the functional relationships between creative individuals within a particular ecosystem in order to effectively understand the nature of creative production and acknowledgement.

The systems perspective

In a similar recognition of the mutually interactive nature of components of creativity Csikszentmihalyi's (1988a, 1990, 1994) systems perspective proposes that creativity is the result of the dynamic interaction of three shaping forces; intra-personal factors, the domain, and the field of creative endeavour. From this

perspective creativity can not be meaningfully explored if the activities of creatively active individuals are analysed in isolation from the social and historical context within which they occur.

Intra-personal factors are the cognitive skills, personality, and motivational characteristics of the person. Personal resources may enhance the likelihood of creative production depending on how they complement the resources of the wider ecosystem - the domain and the field.

The domain is a particular area of knowledge or activity. Any domain has research directives, exists at a particular level of development, and has a symbol or notational system. Li (1997, p. 109) defines domains as “bodies of disciplined knowledge that have been structured culturally, and which can be acquired, mastered, practised and then advanced through the act of creating”. Individual creative production depends upon access to the information within a particular domain, and the degree to which a domain encourages or discourages creative production.

The field consists of individuals who determine the structure of the domain. The function of the field is to preserve the domain and direct its evolution by selecting new domain content and transmitting this information to future generations of individuals. Members of the field determine the value of individual performances and thus determine the likelihood of acceptance and support of creative performance (Csikszentmihalyi, 1990). The field of the art world includes artists, gallery directors, curators, critics, gallery dealers, buyers of art works, art historians, art theorists, and philosophers of art. The particular nature of a field influences creativity. For example, individuals working in a field that has rigid selection criteria or is constrained by a social system that discourages innovation and novelty will face difficulties being recognised or even acknowledged as being creative (Csikszentmihalyi, 1990).

It is likely that creative success will depend upon a conducive fit between the

structures of the domain and the abilities of a potentially creative individual (Harrington, 1990). Research within a particular domain may require certain levels of professional interaction and collaboration, such that certain personal characteristics (for example, the need for autonomy and ability to work with others), may be advantageous in some but not other environments. From the systems perspective creativity cannot be isolated to any single determinant. Rather creativity is the result of the interaction among and within these three components of creative production; individuals, the field, and the domain.

The differences between domains of endeavour is demonstrated through the comparison of the domains of fine art and science. Dudek & Cote (1994) express creativity not as problem finding but as problem expression. As such, the scientists general goal is “to work with matter in order to understand the real world and to present solutions to known and discovered problems” (Dudek & Cote, 1994, p. 143). In contrast the artist tends to deal with existential problems that are profound and universal, but not original or even necessarily resolvable. In this regard the process of creative endeavour and the way creativity is manifested is likely to be different in different domains, making it difficult to generalise creative processes between domains.

Summary

The systems perspective was applied to the context of creativity in recognition of the limitations of pursuing investigations into creativity at singular levels of analysis. This multi-variable perspective favours a descriptive analysis of creative individuals and the environment in which they operate in order to identify the properties of that interactive relationship that contribute to creative outcome. The processes underlying and contributing to creative behaviours and responses are multiple and complex. It seems likely that there is not one single path to creativity. Rather, the nature of creativity as it is manifest in particular domains depends upon the cognitive skills, personality, and motivational characteristics of a potentially creative individual, and how these skills are complemented, or not, by

the domain in which the individual is working. The structure of particular domains, their research directives, level of development, and notational system influence the nature of creative response likely to be manifest. Finally the individuals who make up the field of particular domains directs the evolution of that domain and therefore what is considered to be creative responses and products.

Outlining the variables that contribute to creativity enable us to attempt a systems definition of creativity. In this regard creativity refers to processes or outcomes of processes that involve a response, idea, or behaviour that is statistically infrequent and adaptive through solving a problem or accomplishing some recognisable goal. The response, idea, or behaviour must be selected, valued, and preserved by the particular domain in which the creative person operates, in order to be considered creative and of lasting influence. Creativity depends on the conducive fit between an individual's cognitive skills, abilities, and motivations and the characteristics of the domain in which the individual works in order for that individual to produce and implement the creative response or product. Creativity further depends on the sustenance and elaboration of the original creative insight, which involves processes of originality, adaptiveness, and realisation (Harrington, 1990).

General summary and critique

The ubiquitous nature of creativity makes it difficult to define and study. This difficulty is compounded by our broad considerations of what is creative. If our considerations of creativity are so broad then we need to acknowledge the possibility that creativity comes in multiple forms, underpinned by different cognitive and behavioural processes. If we differentiate between types of creativity then it can be acknowledged that creativity is an inherent part of everyday human cognition and not just manifest in eminent acts of creativity. The tendency to concentrate on eminent acts of creativity masks less dramatic, but no less authentic forms of creativity.

Not only may there be multiple types of creativity, there may be multiple paths to creative outcome. Creativity is the product of multiple interacting variables; the creative individual's cognitive, emotional, motivational, and behavioural processes. The multi-variable perspective considers how these intra-personal variables interact with the social and cultural context in which the creative person works. In this regard, intra-personal factors contribute to creative outcome depending on the conducive fit between the individual's personal attributes and the structure of the domain in which the individual works.

If we take a multi-variable approach to creativity and creativity research, then creativity cannot be isolated from its domain of issue, because the structure of individual domains influences creative output and endeavour within that domain. Particular domains, as a body of disciplined knowledge (Li, 1997), have particular research directives, exist at a particular level of development, with their own notation system. The structure of any domain may differ from any other domain. In so much as creative directives and outcomes are influenced by the domain in which they are immersed, then creativity ought to be studied within those domains. In contrast, laboratory studies of creativity that are based on contrived stimuli (rather than self initiated work), tend to ignore components that are thought to be important to creative production, such as motivation, effort and

affect.

The multi-variable perspective has certain ramifications for current research approaches to creativity. Firstly it suggests that research exploring singular components of creativity cannot produce a comprehensive account of the process of creative production and what is considered to be creative. Rather, research effort should be directed at the interaction between components of creativity. The multi-variable perspective encourages the study of creatively active individuals working within real world environments, and ideally producing self initiated work, in order to identify the creativeogenic properties of that interactive relationship. A step in this research direction would involve the descriptive analysis of creatively active individuals working on self initiated work, in their real world environment.

This chapter comprised a general review of creativity research. From the multi-variable perspective, the domain in which creativity is manifest influences the nature of creative production within that domain. In that regard, the current research explores creativity within a particular domain - the domain of Western visual art making. The following chapter continues this review of creativity research, but it is focused within the domain of art making.

Chapter Three

Creativity and Art Making: a focused look at creativity in the domain of art making

Introduction

If one accepts a multi-variable account of creativity then it makes sense to explore creativity within a particular domain of issue. The current research focused on creativity in the domain of visual art making and the following represents a review of research within that domain.

This chapter begins with an account of creativity in the domain of art making from the multi-variable perspective and then moves on to discuss issues associated with studying creativity in real life settings with examples of research of that type. Problem finding and problem solving processes have long been investigated in the domain of art making and a review of this material precedes an account of problem solving processes and how they relate to expertise. Then there is a discussion of the relationship between artistic success and creativity, and artistic success and personality. Finally creativity is explored as it is manifest in experience, and how experience influences the direction of creative production in art making.

Creativity and the multi-variable perspective

There is an assumption that the process of creativity is the same across all knowledge domains regardless of the varying organisational structure between particular domains. An evaluation of creativity from a multi-variable perspective demonstrates that this is not the case (Csikszentmihalyi, 1988, 1990, Harrington, 1990). Rather, novelty and creative variation within particular domains is either

encouraged or discouraged depending on the structure of the domain and the conducive fit between the domain structure and the abilities of particular creative individuals. An important consequence of adopting the multi-variable perspective is the need to recognise that what is considered creative is inextricably linked to the domain from which it issues and the social context within which that domain is embedded. This means that rather than being an objective construct, creativity is culturally, domain and genre dependent. In this regard, definitions of creativity should be linked to its particular domain of issue.

Li's (1997) study demonstrates how the structure of a domain critically influences creative production in her comparison of modern Western and traditional Chinese ink brush painting. Li distinguishes between two types of domain structure; horizontal domains, and vertical domains, and outlines how differences between these domain types shape creative production in particular ways.

Horizontal domains develop in such a way that the aims, methods, symbol systems, and standards of the domain are more susceptible to novelty on the part of individuals working in that domain. Li used modern Western painting as an example of a horizontal domain because artists working within this domain are relatively unconstrained in their use of materials and the expressive qualities of the work they produce. In contrast, a vertical domain is one that is highly constrained in terms of the methods and symbol systems used and the rules and standards of production. Traditional Chinese ink brush painting is an example of a vertical domain because many of the components of this painting style are highly constrained. Only certain materials may be used (bamboo paper and brush); there are certain stringent rules for painting techniques (for example, no revision or sketching is allowed, and only single strokes may be used); and only certain themes may be depicted. The distinction between horizontal and vertical domains is not absolute. Some domains may have components that are horizontal and other components that are vertical.

Different types of creativity are fostered depending on whether particular domains

are horizontal or vertical in nature. Li suggests that horizontal domains such as modern Western painting allow creativity to occur in multiple dimensions, such that creative production can be significantly different from established practice. This often results in the revolutionisation of the domain. In contrast highly structured vertical domains such as traditional Chinese ink brush painting allows creativity to occur in certain limited dimensions but not others.

In this regard, novelty takes place within certain boundaries. Rules that define core elements of a vertical domain cannot be broken, because to break them threatens the essential structure of the domain. Breaking peripheral rules may be acceptable, so long as the core structure of the domain is not threatened. Breaking rules and introducing new elements to a domain is difficult, and depends upon an individual's mastery of the domain and the degree of respect he or she has obtained from members of the field. In contrast, an individual working within a horizontal domain such as modern Western painting has more freedom to cross boundaries and break rules (Li, 1997).

It is important to note that there is not necessarily more or less creativity in domains of particular organisational structure, rather the structure of these two domain types are sufficiently different to warrant separate examination (Li, 1997).

Studying creativity in real life settings

There is a history of research exploring creativity in the domain of art making. Creativity has been explored empirically via the domain of art making since Patrick's (1935, 1937) studies of poets and artists, and Getzels and Csikszentmihalyi's (1976) analysis of the creative process via real life creative activity. Patrick's and Getzels and Csikszentmihalyi's research represents a significant point in creativity research because for the first time theory and research was based on the analysis of real life creative production rather than on retrospective self reports after creative production or biographies and letters of dead masters.

Retrospective verbal reports can be potentially problematic as a source of data. While verbal reports might represent subject's descriptions about the cognitive processes they use while performing certain tasks, the validity of those reports is dependent upon the way subjects arrive at the descriptions of their cognitive processes. Subjects' verbal reports may not accurately access the internal processes that direct those reports. Nisbett and Wilson (1977) argue that when individuals attempt to report upon their cognitive processes, they do not truly introspect, but instead report upon their knowable implicit theories about the cause and effect relations of the phenomenon of investigation. In their descriptions of their cognitive processes when performing some task, subjects may actually be aware of the cognitive procedures they use and recall and report those directly, or they may remember parts of the procedure and use this information to infer the general procedures they may have used. If this is the case then resulting reports may not bear much resemblance to the actual cognitive procedures that were used.

Ericsson and Simon (1980) argue that the validity of verbal reports may be reduced if an experimenter is attempting to access information about a process that the research participant would not normally attend to or verbalise. In addition selective recall may occur unless information is gathered immediately after performing the task. Finally, Ericsson and Simon propose a negative relation between the degree of practice involved in performing a task and ones awareness of intermediate stages of a process, which means that highly learned processes can operate automatically without leaving those processes in memory. This suggests that we should be cautious when considering data based on retrospective reports of artistic creative processes.

Problem solving processes

Problem solving is a process that has received considerable attention in the exploration of the creative process. Problem solving is an important variable in the

creativity equation because scientific theories and discoveries are generally framed as a solution to a problem (Weisberg, 1988). More recent accounts of problem solving processes include processes of problem finding and problem representation (For example, Jausovec, 1994; Mumford, Reiter-Palmon & Redmond, 1994). Indeed, problem finding is considered more and more an important forerunner of problem solving (Dudek & Cote, 1994; Getzels & Csikszentmihalyi, 1976; Jay & Perkins, 1997). As such, problem finding, problem construction, and problem definition all contribute to the process of creative endeavour.

Sapp (1995, 1997) presents a model of idea inception and image development in art making as a problem finding / solving process from the initial stages of idea exploration to the clarification of the final image. Sapp's model identifies five major stages of experience in artists' problem solving process: associative exploration, problem parameter exploration, multiple focus exploration, primary focus exploration, and refinement.

During the first stage identified in this model, associative exploration, the artist explores their conceptual, emotional, or perceptual experience in order to identify potential images for development. The source experiences may be relatively vague or concrete. This stage is characterised by the free flow of ideas in a context where judgement is suspended. This exploration may be unstructured such that any possibility is considered regardless of its practical value. The artist may be presented with a specific commission or problem to work on, but largely the artist begins the process of making a work of art with no clear idea of how to begin the work of art. "The artist must rely upon the vague, random and spontaneous associations of experience to initiate the process of idea conception" (Sapp, 1995, p. 178).

Transition to the next stage, problem exploration, depends on the artist identifying the most significant parts of their experience or the accumulated data they are working with. During problem exploration, the artist works at establishing a

specific problem and its structure. The artist works out the broad parameters of the identified problem from the information gathered in the associative exploration stage. Parameters include elements such as the subject matter of the work, the medium used, the size of the work, the composition, and emotional content. Exploring the art problem and establishing its parameters serves to clarify the relationship between the elements that were explored in the associative exploration stage. Some elements are integral to the parameters of the art problem, and some are not and are shelved.

During stage three, multiple focus exploration, the artist considers multiple alternatives in response to the problem defined in the previous stage by working through various images. Divergent exploration may still occur at this stage as the images are not yet concrete. New ideas and associations between ideas may emerge within the defined parameters of the art problem.

Transition to stage four requires that one primary image or image cluster is identified as being the best image to explore in the final art work. Stage four is primary focus exploration. During this stage many alternatives for the identified art idea are compared and the advantages and disadvantages of each solution are explored. The parameters of the art problem become more defined, and some elements of the image are clarified, such as subject matter or the medium to be used, while other elements such as composition are yet to be worked out. Experimentation with the selected medium may occur during this stage, although this depends on the nature of the medium. For example, painters tend to problem solve directly on the original canvas, whereas sculptors may work out the details and problems of the sculpture in a maquette. The result of primary focus exploration is that one specific art image or idea is identified which represents the potential solution to the identified art problem and embodies the essence of the final art work.

Transition to the final stage, refinement, involves the artist comprehending the previous work effort - the association between ideas, and possibly a visualisation

of the final art work. During the refinement stage the parameters of the art problem are defined and aligned with the solution. Minor adjustments to the elements of the artwork may be made and the image or art work is refined. In this stage the artist is working on the final product, the result of which is the completed art work. The final art work is not simply the product selected from multiple possibilities, but the result of a creative problem solving process that involved the discovery of the art work problem as well as the solution. Future art work efforts may involve the artist returning to an image possibility identified in the multiple focus exploration stage but not taken up in the current art work.

Sapp's (1995) model is not based on the direct and empirical observation of creatively active individuals, but rather advances previous models (Isaksen, Dorval & Teffinger, cited by Sapp, 1995; Sapp 1992; Wallas, 1926). Sapp's model of the process of art making is interesting because it delineates the process of art making as a step by step account of artists' behaviour in terms of their experience of art making. In this regard it serves as a useful comparative study for the research conducted in the current study. However this model is not directly derived from the observation of real life artists working on self initiated work. Rather it is an attempt to apply an existing model to the creative process as experienced by visual artists.

Patrick's (1937) study of real life creative people was an attempt to validate Wallas's (1926) four stage model of creative production; preparation, incubation, illumination, and verification. According to Wallas's model creative progress is said to move systematically from one stage to the next. In the first stage, preparation, the problem is formulated or the theme conceived through conscious and systematic analysis of the problem. If the problem cannot be solved then the process enters the incubation stage. During the incubation phase the individual does not consciously or voluntarily think about the problem. In addition unconscious mental activity may take place that becomes manifest during the illumination stage. Unconscious work of this type will only be fruitful should it be preceded and followed by a period of conscious mental activity. Incubation may

last minutes or years. The outcome of an incubation period is the experience of illumination, or the “flash of insight”, that represents a solution to the initial problem. The verification stage follows the illumination experience. During verification the individual consciously works on the problem, determining the validity of the solution, and then its elaboration and verification.

Patrick (1937) directly observed artist and non-artist controls’ drawing activities under experimental conditions in order to compare their working processes. The drawing stimulus was a poem, a selection from Milton’s *L’ Allegro*, which contained rich visual imagery. Both artists and controls were asked to draw a picture of the poem while all the time talking aloud about their drawing and thought processes during the drawing task. The experimenter noted everything that was said and drawn during the drawing period.

Patrick found that both artists’ and non-artists’ working processes revealed the four stages of thought, preparation, incubation, illumination and verification outlined by Wallas (1926). However, there was no significant difference between the artists or controls with regards to changes or revisions made to the drawing in each of the four stages, with 80% and 76% of changes occurring in the preparation stage respectively. The only significant difference between the groups was the judged quality of the art work produced. While the four stages of thought: preparation, incubation, illumination, and verification could be identified in the work of both artists and non-artist controls, Patrick’s study fails to provide any evidence that effort in any stage of thought differentiated the artists from the non-artists. Dudek and Cote (1994) interprets Patrick’s (1937) results in the light of problem finding and problem solving procedures. Dudek and Cote (1994) conclude that problem finding itself is not unique to creative thinking but rather a normal part of task involvement. In this regard, problem finding and problem solving procedures occurred in both artists and non-artists’ working processes, but did not differentiate between them in terms of creativity.

Patrick’s (1937, 1938) research on artists and scientists is significant because for

the first time research focused directly upon the creative processes of professionally active individuals while they were engaged in creative activity. However, the failure to find any difference between artists and controls with regards to effort spent in the four stages of thought, may be attributed to the contrived nature of the task. Working on self-initiated art work rather than experimentally determined stimuli may yield different results by ensuring the artists personal involvement with the task. This personal involvement may engage the artist with the task in ways that cannot be achieved through working with contrived stimuli that are not self-initiated. Finally, Wallas's four stage model may not actually discriminate between creative and normal thought processes.

Like Patrick (1937), Getzels and Csikszentmihalyi (1976) observed fine art students drawing activities under experimental conditions. Art students were given a selection of still life objects and asked to arrange them to their own satisfaction and then render a drawing of that still life. Drawing activities were recorded and photographed during the drawing process, and followed by interviews regarding the artists' experiences during the task. Observation of the art making process from idea inception to the finished drawing led the authors to propose that problem formulation which proceeded problem solving, largely determined whether a drawing would be judged creative or not.

Getzels and Csikszentmihalyi (1976) distinguish between discovered and presented problem situations in the context of creative art making. A presented problem is one that has a predetermined formulation and customary method of solution, for example, solving algebraic equations. In contrast a discovered problem situation has no known method of solution or established problem formulation. In a discovered problem situation the problem itself is yet to be identified.

Getzels and Csikszentmihalyi (1976) found that fine art students worked from both a presented and a discovered problem situation. However those students working from a discovered problem situation produced work that was evaluated

as more creative by expert judges. Time spent working on the drawing after the problem was identified and formulated failed to increase the evaluated worth of the drawing. The discovered problem situation was identified when artists spent more time choosing and manipulating the still-life objects depicted in the final drawing, that is, setting up the artistic problem. Questioning artists during the drawing process indicated that artists working from a discovered problem perspective were actively concerned with the discovery of a problem in the situation itself and did not believe there was any correct method of solution. In contrast, artists working from a presented problem perspective produced less creative objects through less risky problem formulation and the selection of safer still life objects.

Getzels and Csikszentmihalyi (1976) concluded that work judged to be more creative was associated with a delay in the formulation of the artistic problem. In contrast artists who produced work that was rated as less creative were able to verbally define the artistic problem soon after drawing commenced. This delay in problem formulation was most related to long term artistic success in a longitudinal analysis. Getzels and Csikszentmihalyi considered that delay in problem formulation, which they labelled “delay in closure”, was the result of an extended problem formulation process during which time the artist maintained a high level of interaction with the still life objects and the developing drawing. Delay in closure ensured that the artistic problem was discovered in the situation itself rather than the result of introducing a superficial problem with a clichéd solution. However, given that this sample was based on fine art students rather than professional artists, it is not possible to determine whether delay in closure is a part of artistic creativity regardless of expertise. The relationship between creativity and expertise is discussed in the following section.

Dudek and Cote (1994), built upon the work of Getzels and Csikszentmihalyi (1976) in their exploration of problem finding in artistic creativity. In order to control for differences in drawing skills and the effects of confounding craftsmanship with aesthetic quality the artists were required to work in collage

instead of drawing. The artists' task was to create a collage from photographs of real objects placed in the room. The artists had to select and arrange the real life objects and then construct a collage of those objects from the photographs. Contrary to Getzels and Csikszentmihalyi's (1976) results (where problem finding was related to quality and originality of the final product), Dudek and Cote found that labour and energy expended in the *solution* phase was related to judged quality and originality. Dudek and Cote note that this difference may be due to the differences between the mediums of drawing and collage. In Dudek and Cotes' experiment, making a collage from photographs of the objects represented an additional and different part of the task. Manipulating the photographs was not the same as manipulating the objects of those photographs, thus problem finding may have continued into the problem solution phase (Dudek & Cote, 1994).

Getzels & Csikszentmihalyi's (1976) and Dudek and Cote's (1994) research suggests that problem finding is an important part of the creative process. However, the role of problem finding is not clear cut, particularly in creative activity as it relates to expertise. Studies exploring the relationship between relative expertise, problem finding, and creativity are reported below.

Problem finding, problem solving and expertise

Kay (1991) explored the relationship between discovery oriented behaviour and levels of expertise in the domain of artistic creativity. The three levels of creativity included: professional artists, semi-professional artists, and non-artists. Contrary to hypothesised expectations professional artists did not take longer, pause more, or design more transformations in a problem solving task, than semi-professional artists and non-artists. This finding fails to support Getzels and Csikszentmihalyi's (1976) conclusions that discovery oriented behaviours are associated with work judged to be more creative. Kay suggests that the discovery oriented behaviours that Getzels and Csikszentmihalyi argued were necessary for creative production may only be necessary for students involved in learning how to produce ideas for their art, and may not be representative of the activities of professional artists.

Through their art making experience professional artists may not need to conduct extensive exploration because they know what will work and what will fail.

Kay (1991) discusses another phenomenon that seems to direct professional artists' behaviour in the problem solving task. Based on observation and verbal protocols Kay identified a personal aesthetic bias that influenced professional artists' creative thought processes. The professional artists' personal aesthetic serves as an aesthetic framework that organises their perceptual information gathering and thought processes. Kay argues that, for the professional artist, this aesthetic framework may have transformed the problem finding task into a problem solving task. Each artist has personal conventions that emerge in their art work over the course of their career, and Kay argues that these conventions were applied to the problem finding task, effectively converting it into a problem solving task. In contrast semi-professional artists and art students have not had sufficient time to develop a set of aesthetic conventions, hence this effect is not evident in their approach to the problem finding task. Kay concludes that professional artists behaviour and ideas were guided by a personal aesthetic, whereas semi-professional artists and art students use discovery oriented behaviours to organise the same information.

Research conducted on real life instances of creative artistic behaviour provide a measure of validity to studies of artistic creativity, however Kay's (1991) study in problem finding behaviour in professional, semi-professional and non-artists highlights the importance of recognising expertise as a factor in research and analyses of creative behaviour.

Mumford, Reiter-Palmon, & Redmond (1994) propose that experience in a particular domain influences the problem solving process in an organisational manner. In their analysis of problem construction Mumford et al. conclude that activities of problem construction are important for creativity in domains that are ill-defined. Ill-defined domains are those that have unknown and poorly articulated goals, parameters, information and solution strategies. Mumford et al.,

developed a model that outlines the operations undertaken in the problem construction process. Their model proposes that the problem construction process is triggered by environmental events. Environmental cues direct an individuals attention to those environmental events that are surprising or incongruent, salient, or personally meaningful. In addition, stimuli that can be more readily encoded into existing knowledge structures are more likely to be perceived. Stimuli from the environmental events determine the activation of problem representation. Mumford et al. suggest that the problem representations activated will be those associated with the environmental cues in the past. Therefore expertise will influence the number and diversity of activated representations through association networks. Problem representations must then be selected through problem screening strategies which results in a series of problem representational elements that are drawn from the individuals existing problem representations, and provide a core organisational framework as a plan for problem solving.

Weisberg (1995) explores the impact of experience and prior knowledge in the domain of creative problem solving in a comparison of reproductive and productive thinking. Reproductive thinking involves the direct application of existing knowledge to a problem, such that the problem solver approaches the problem from the perspective of previously encountered similar problems. Productive thinking however, depends on prior knowledge in only a general way, instead the problem solver abandons past approaches to the problem and relies on the restructuring of a situation in order to solve the problem.

Through comparing case studies involving reproductive and productive thinking, Weisberg (1995) demonstrates that reproductive thought has been responsible for significant creative accomplishments including Picasso's Guernica and Watson and Crick's formulation of the structure of DNA. Picasso's painting Guernica has many structural and character similarities to a previous work called Minotauremachie. Weisberg proposes that Guernica grew out of this previous work and his then current style rather than being the result of a breakthrough in his work. Similarly, Watson and Crick's correct formulation of the structure of

DNA grew out of previous work and knowledge rather than being the outcome of a rejection of that knowledge. Weisberg concludes that creative thinking involves moving beyond past experience and knowledge, but as a utilisation of that knowledge rather than a rejection of it.

Artistic success as a measure of creativity

Artistic success does not provide a clear and direct measure of creativity in the domain of visual art making. From the multi-variable perspective this should not be unexpected. Artistic success is indicated in the degree to which a particular artist enjoys financial support in the form of employment, commissions, grants, and awards, as well as their exhibition profile. In so much as members of the field determine the value of creative performance and therefore the likelihood of acceptance and support of that performance, then creativity cannot be measured simply in terms of the properties of the creative product.

In a longitudinal study Stohs (1991) explored the relationship between early artistic ability and long term artistic success. Stohs' results indicated that artists who had a sporadic career history with multiple unrelated job shifts and who subsequently experienced low incomes, were rated considerably superior to their peers in terms of originality and artistic potential in fine art on previously obtained measures of school performance. In contrast, artists with stable career histories and who were financially well off were identified as being more conventional and normative as young adults at school. Stohs interpreted these results in terms of the structure of a field that rewards individuals who stay in the same occupation rather than those who shift from one unrelated job to another. This is reflected in the respective incomes of the artists.

There was however no difference in job and life satisfaction between the groups of artists, which indicates that despite earning a low income, artists identified as being artistically superior in their youth are nevertheless content with their lives. Stohs (1991) interprets this surprising result in terms of intrinsic motivation, and

in conjunction with the result that cyclothymia was the only personality measure that differentiated the groups of artists. Cyclothymia measures social warmth. Artists who sustained sporadic work careers had significantly lower scores on cyclothymia, indicating that artists with sporadic careers were less involved with other people, while artists with more predictable work histories were more outgoing. Stohs concluded from these results that artists who maintained sporadic careers were less concerned about social norms and expectations regarding careers and thus were more willing to shift jobs. In addition, these artists could turn within and gain satisfaction from a creative inner life that their superior artistic abilities imbued them with.

Personality and artistic success

In a study exploring the relationship between personality characteristics and long term success, Dudek and Hall (1991) found that personality characteristics were not only stable over time, but also partially influenced achievement in architects categorised into three groups on the basis of relative eminence. Twenty five years later, architects who were eminent in their field scored highly on the following scales of the Adjective Check List: autonomy, aggression, exhibition, change, and creative personality. In contrast, the group of average architects scored on the following scales of the ACL: order, self-control, endurance, deference, nurturing parent, and nurturance. Twenty five years on the eminent architects reported feeling that they were still leaders in their field with much to offer. Dudek and Hall considered that drive, passion and commitment might be the crucial factors that contributed to the continued success of these ageing architects. Dudek, Berneche, Berube & Royer (1991) argue that certain personality factors contribute to the development and maintenance of commitment in fine artists, particularly feeling autonomous, identifying with the profession of fine art at an early age, inspiration and being able to experiment. However, artistic success (or perceived artistic success on the part of the students) may itself contribute to feelings of commitment to the profession. Where similarly, a lack of commitment may come about through relative lack of artistic ability.

Eysenck (1994) suggests there is a link between creativity and psychoticism. A high scorer on the Psychoticism scale is generally described as solitary, not fitting in or caring for people. This person may lack feeling and empathy, be insensitive and aggressive, has a liking for unusual things, and disregards danger (Gotz & Gotz, 1979a). The nature of the relationship between creativity and Psychoticism has been explored in professional artistic populations. For example, Gotz and Gotz (1979a) found that both male and female professional artists had significantly higher Psychoticism scores on the Eysenck Personality Questionnaire than both male and female controls.

In their study of sixty prominent German artists Gotz and Gotz (1979b) found that successful artists scored much higher than less successful artists on the Psychoticism scale of the Eysenck Personality Questionnaire. Gotz and Gotz suggest that successful artists who score highly on Psychoticism may be successful because they are assertive, egocentric, and self-contained, and are therefore more equipped to cope in the competitive art world. In comparison, highly successful artists with low Psychoticism scores tend to achieve success late in life. Gotz and Gotz (1976b) differentiate between successful artists with high and low psychoticism scores with regards to their working style. Low Psychoticism scorers tend to establish their own artistic style over the course of their careers. In contrast, Gotz and Gotz describe high Psychoticism scorers as manufacturing the ideas of others and attribute their success in part to these artists' assertive nature.

Gotz and Gotz (1979b) correlated the successful artists' ratings of success (by independent art experts) with their level of original contribution to the development of contemporary art. Analysis revealed that high scores on success (identified by exhibition history) did not correlate with contribution to the field of art. Successful artists who scored low on contribution to the field and who had high Psychoticism scores were thought to have achieved their success in part via their assertive, egocentric and self-contained nature. Gotz and Gotz conclude that

while high Psychoticism may help less gifted artists succeed, it is not a guarantee to success unless the artist has a certain level of artistic talent.

Experiencing creativity

An often forgotten component of creative activity is the experience of that activity. The experience of creative activity influences the creative work and in turn is a product of that creative activity. In addition creativity researchers are interested in how the experience of creative activity differs from and is similar to other types of human experience.

Conrad (1990) emphasises the importance of ecological validity in definitions of creativity that utilise concepts of cognitive abilities and personality characteristics. By this Conrad means that measures of creativity must elicit creative performances equivalent to creative individuals in real life contexts. Conrad also identifies difficulties with definitions of creativity that depend on evaluations of creative products. In these accounts it is not at all clear how attributions of creativity are made, and any definition of creativity must be clarified in terms of what actually constitutes socially recognised achievement. For example, should attributions of creativity be made by a creative individual's peers, by contemporary society, or future generations? Conrad argues that instead of exploring the causes of creativity we should, "ask how creativity makes sense as a human experience". (Conrad, 1990, p. 107).

Conrad undertook a phenomenological analysis of creativity, utilising the work of Husserl, via her experience of creative fictional writing. According to Husserl phenomenological analysis involves "seeing the logic of meaning of an experience that is directly given in awareness" (Conrad, 190, p. 110). Thus a phenomenological analysis depends upon the researchers ability to observe artists' descriptions of their creative experience and see what is there through constant comparison between researchers and clarification and expansion upon insights. Phenomenological analysis depends upon artists' descriptions of their creative

process rather than their theoretical assertions about it, as the latter is a hypothetico-deductive construct rather than evidence of experiential acts. According to Conrad's phenomenological analysis each type of human experience has an internal logic, and given this logic the art work exists even before it is articulated. All human experience has an internal logic that is invariant across time and culture, and the writers story makes these universal truths of experience available to us.

“The story exists, in the sense that it makes demands upon the writer to write it; it exists as something particular, in that the writer sees that certain events or actions are not “it,” but it does not exist in the writer's mind as some idea or invention, a completely conceived product needing only to be written down. The writer feels towards it, knowing quite clearly what isn't it, yet still unable to see what is. This is indeed a matter of seeing. The initial glimpse generates extraordinary excitement, the feeling that the whole is there, just ready to reveal itself”. (Conrad, 1990, pp. 111-112).

The reader also takes part in the creative exchange while reading the story. Just as the logic of the developing story comes to the writer (due to the invariance of the logic of experience), so does the logic of the story reveal itself to the reader. The reader is able to identify where the story falls short of, or deviates from, the logic of the particular experience embedded within the story. This identifies the art work in the meaning sought by both the reader and the writer, rather than the story itself.

While intuitively attractive, Conrad's phenomenological account is problematic in so much as it relies on the action of unconscious psychological processes. Here much of the work of creativity - the generation of alternatives and selection of solutions - is performed by the unconscious, and to resort to unconscious mechanisms terminates the investigation. The question remains, how can insight occur and be meaningfully explained without the enquiry terminating at the

presentation of unconscious thought processes.

Cawelti, Rappaport and Wood (1992) utilised a decision making method, Interpretative Structural Modelling and Nominal Group Technique to produce models of the creative process based on the experience of five professional artists. This resulted in the production of models of the experience of the creative process over time. This process begins with experiences of centring: feeling centred with oneself, the potential work, and the world. From there the artist moves into a state of expansion which involves researching and the evolution of the art subject. Creating the art work involves work on the art work itself, for example, building it and experimentation. This is accompanied by feelings of losing oneself in the work. The next stage in the process is revitalising - being inventive and risking failure. Having made the work the artist experiences feelings of being distanced or separated from the work. Finally the artist is able to evaluate the work having been removed from it. From there the artist restarts, on that work, or on other new art works.

Cawelti, Rappaport and Wood (1992) emphasis that this process does not exist as a progression through distinct stages. Rather, the artist experiences a sense of simultaneity and multiplicity of process. This model that demonstrates simultaneity represents an advance from Wallas's simple four stage model. However, because the model is based on retrospective recollections of artists art making activities then it is unable to provide sufficient detail regarding the actual activities and experiences of the artists while they were working on the art work. As outlined previously, the validity of retrospective reports is questionable because those verbal reports may not be accurate introspective descriptions of their working process, but reflections of artists theories regarding the process of art making.

Experience and themes in artists' work

While these studies explore the artists' experience of art making. Other studies

explore how artists' experiences influence the art making process itself. Influential experiences in artists' lives seem to have an impact on themes artists explore in their work.

Jones, Runco, Dorman, and Freeland, (1997) explored the inter-relations between artists experiences and resulting themes in artists' work, and how that influenced the process of creativity. Jones et al.'s work represents an advance in the area of creativity research because it is based on data gathered directly from contemporary artists' own interpretation of their experience in relation to their art work. In contrast, previous research exploring the influence of experience on artists work relied on retrospective reports taken from artists journals, art work, and historical records. (Jones et al., 1997).

Jones et al.'s (1997) data supported the hypotheses that the artists would be aware of the relationship between the themes and images represented in their work and influential factors in their lives; and that influential life experiences would actually be communicated within the artists' work such that objective viewers can reliably identify them. While the subject population in this study was small (6 artists) it is significant that artists can relate particular life experiences with themes depicted in their work and that independent observers can also determine the existence of these themes in the work of the artists. This study demonstrates that there is a source to the creative work of artists and that that source can be independently discerned in the work. If influential life experiences impact on the themes represented in artists' work then for artistic production, life experience is a factor in the creativity equation.

Jones et al. (1997) were able to identify common themes across the artists work. A common theme was dualism experienced on the part of the artist. Dualism occurred in the form of leading a double life or living falsehoods. This kind of dualism may involve bi-racial experiences and exploring those opposing experiences in one's work, disguising one's homosexuality, or quite literally leading a double life. The artist's extended family played a significant role in the

artist's work and life. The artists described their family lives as open, progressive and with few rules. Five of the six artists reported having a strong spiritual sense of themselves and their environment, which was most profoundly felt and integrated through their art work.

In a qualitative study of the effects of ageing on artistic activity, Lindauer, Orwoll, and Kelley (1997) found that many of the ageing artists reported a change in the source of creative inspiration in their old age. Many artists reported a growing self acceptance, self confidence, reduced concern for external criticism or evaluation, increased self understanding, and increased skill and knowledge came with advancing age.

Mace (1997) also explored the source of artistic ideas in artists' work through exploratory interviews with fourteen contemporary visual artists. Results suggest that individual art works are a part of a larger and ongoing art making theme rather existing as isolated entities in an artists' overall career. Often each art work produced by a particular artist contributed to the development of a particular theme that evolved over the course of the artists' career. This tendency to work in themes resulted in prolific idea generation via sub-themes. Sources for the themes in artists' work were identified. They include: childhood experiences, general life experience, one's children and domestic situation, inspiration from teaching, reading, art exhibitions, and the media (Mace, 1997). However, artists did not necessarily make conscious decisions to explore certain concepts in their work, rather the process of conceptual development was reported as being reflexive, where themes evolved over time through a series of transformations.

The artists in Jones, Runco, Dorman, and Freeland's (1997) study reported a sense of dualism in their work. The artists in Mace's (1997) study also reported the tendency to work in such a way that divergent concepts were brought together in particular art works. The artists in Mace's (1997) study reported enjoying experimentation while making art works. Mace argues that the artists' tendency to construct his or her own personally felt art problem situation permits

a level of involvement that contributes to the positive emotional experience associated with art making.

Summary and critique

Research into creativity is often conducted in the domain of art making. Indeed art making is often considered to be an inherently creative process. Yet it is possible to produce art that is not considered creative. This problem may be avoided by selecting artists on the basis of their reputations within their art making community. Patrick's (1935, 1937) studies of poets and artists represent the first empirical investigations of creativity in the domain of art making that are based on the working processes of practising artists. This represents an advance upon research that is based on retrospective reports. It is acknowledged here that artists' reputations need not necessarily reflect the artists' creative ability, but perhaps also (or instead) their relative popularity. However, because the multi-variable perspective recognises social acknowledgement as contributing to evaluations of creativity, then selecting artists on the basis of their reputation can be justified.

In as much as creative responses and discoveries are expressed as creative solutions to problems, then research aims to reveal to the processes of problem solving and also problem finding. While creativity is generally regarded as a solution to a problem, contemporary research recognises that a more comprehensive understanding of problem solving can be obtained if it is broken down into its component features (for example, Runco, 1994). In this regard the cognitive (and behavioural) processes of problem construction, problem definition, and particularly problem finding have been considered relatively more important forerunners to problem solving because these processes serve to discover and formulate the problem in such a way that a creative response is more likely to ensue.

Patrick's (1935, 1937) and Getzels and Csikszentmihalyi's (1976) modification of Patrick's (1937) method is generally regarded as ground breaking work in creativity research because they distinguished between problem finding and problem solving processes, and between discovered and presented problem finding processes. Getzels and Csikszentmihalyi's conclusion that working from a discovered problem situation (rather than a presented problem situation) was related to higher evaluations of creativity prompted further research into the nature of discovery oriented behaviour (Dudek & Cote, 1994; Kay, 1991; Runco & Chand, 1994).

Dudek & Cotes's (1994) and Getzels & Csikszentmihalyi's (1976) research suggests that problem finding activities may continue into the problem solution phase. Rather than being a contradiction in terms, this suggests that problem clarification may not be complete until there has been some attempt at a solution (Getzels & Csikszentmihalyi, 1976). Perhaps problem solving attempts provide feedback that clarify the nature of the problem. In this regard problem finding and problem solving processes may be better conceived as alternating processes rather than occurring in succession.

Processes of problem finding and solving may be more or less important in the production of a creative response depending on the level of development of the domain the individual is working in (Mumford et al., 1994). Thus, processes of problem construction may be relatively more important in domains that are ill-developed and ill-defined. Nevertheless, the potentially creative individual must possess sufficient knowledge, goals and motivation to organise the material in a manner conducive to creative response before processes of problem solving and finding even become relevant to the potentially creative situation. Once again, studies of real world creativity can direct empirical research to the interaction of variables contributing to creativity.

Kay's (1991) investigation into the relationship between discovery oriented behaviour and level of expertise suggests that discovery oriented behaviours are

used by art students and semi-professional artists to organise perceptual information, but professional artists' working processes are guided by a personal aesthetic developed over the course of their career.

The work of Jones et al. (1997) and Mace (1997) suggests that practising artists' work is directed by personally felt themes. If this is the case then further research should be conducted that explores the way in which those themes influence artists' working processes and evaluations of creativity.

Finally, the multi-variable perspective that is taken here, suggests that the process of creativity can differ from domain to domain. This can be seen in Li's (1997) analysis of modern Western and traditional Chinese ink brush painting. However, it is not only the impact of social systems that influences creative production, but also intra-personal variables such as experience, motivation, commitment, and the development of personally felt themes over the course of one's work. A comprehensive account of creativity needs to be sensitive to the influences of these variables as much as the cognitive processes that contribute to creativity. Inclusion of these multiple variables in theoretical accounts of creativity requires the analysis of creativity in real life settings.

Part Two

Method

Chapter Four

Method Section

Overview

This chapter describes both the method and the method of analysis for the current research. The method of analysis has been included here because the data were gathered and analysed following the Grounded Theory method (Strauss & Corbin, 1990), which requires that data are analysed concurrently with data gathering. This chapter begins with a rationale for the current research, followed by an overview of the Grounded Theory method as outlined by Strauss and Corbin (1990). Because the current research builds upon the procedures outlined by Strauss and Corbin, there is a detailed description of the particular methods used to gather and analyse data in this research. The method and analysis of study one are presented first, followed by the method and analysis of study two. The final model and ensuing narrative are described in the following chapter.

Rationale for the present research

The research outlined in the literature review was largely conducted in experimental settings, or data were gathered from retrospective reports of artists' real life art making practices. The problem with using data gathered from retrospective reports lies in the unknown validity of those verbal reports, in particular whether those verbal reports are based on actual introspective reflections, or artists' implicit theories regarding their working processes.

While empirical studies based in laboratory settings address some of the problems of retrospectively obtained data, they suffer in so much as the data are often based on contrived material rather than self initiated work (Moore & Murdock, 1991). While Patrick (1937), Dudek and Cote (1994), and Getzels and Csikszentmihalyi

(1976) explore creativity as it might exist in real life settings, their respective research methods do not accurately reflect problem finding as it occurs in real world contexts. In these studies the experimenters still determine the task and the objects that the artists use to set their problems. In real world environments the artists set the parameters of their own problem context in ways that are quite different from the research reviewed above. In this regard, while Patrick's, Dudek and Cote's, and Getzels and Csikszentmihalyi's research may represent an advance in so far as the problem task resembles potential real world problems, that research may not accurately reflect problem finding as it takes place in natural settings because in those studies problem finding is not initiated by the individual themselves. In recognition of this problem Runco (1994) recommends that research be conducted in naturalistic settings.

Kay (1991) suggests that professional artists' work is directed from a personal aesthetic that develops over the course of their career. The work of Jones et al. (1997) and Mace (1997) suggests that artists' work is directed by themes that arise out of influential life experiences and existential concerns. If artists' everyday work is directed by personal themes and a developing personal aesthetic then the validity of conducting studies that require artists to work from randomly selected or contrived art sources is questionable. Such studies do not reflect realistic problem solving / finding activities because the problem context has been structured by the experimenter rather than the subject or artist. In real life situations artists formulate their own problems in a context that is ill-structured. In this regard it is likely that real life creative activity, exemplified in the ongoing work of practising artists making self initiated work, involves the interaction of variables hitherto unrealised in contemporary research.

The present research explores the working processes of professional artists during the making of self initiated art work. This study is significant because it is based on real life instances of creativity rather than retrospective accounts or laboratory studies relatively uninformed by real life studies (Jay & Perkins, 1997). Through recursive interviewing procedures this study also explores how creativity takes

place and evolves *over time* rather than being actualised in a single point.

The research method: An overview

The field of creativity is typified by multiple theoretical and methodological approaches, each providing alternative insights into the nature of creativity. However, despite the plethora of research in the area of creativity there is little systematic experimental research investigating the details of the creative process based on the observation and experience of creative production of those involved in a particular field of creative endeavour. (see Bruch 1988; Conrad 1990; Dunbar, 1997; Engel 1993; Getzels & Csikszentmihalyi 1976; Marsh & Volmer 1991; & Shaw 1989). In the current research it was thought that a systematic examination of the process of art making over the course of making specific art works may yield new and valuable information regarding the process of creativity, while also addressing the problems associated with retrospective and empirical studies conducted in laboratory settings.

In order to achieve this a qualitative paradigm was employed that would allow for the identification of variables involved with creative engagement in contemporary visual art making through repeated and reflexive interviewing procedures. It was considered that the use of a qualitative method on a small sample would provide rich detail about creative production that could not otherwise be obtained through using a single instrument on a larger population. Furthermore, a qualitative method was considered appropriate because it enables the researcher to capture the nature and meaning of creative experience from the perspective of the research participants themselves.

Harrington (1990) recommends that a primitive ecology of creativity might begin with the construction of simple checklists of the variables of a particular creative environment or ecosystem. In response to this, this author considered that an informed theory of creativity would result from descriptive data based upon extensive analysis of a particular creativeogenic environment. This research into

the working processes of creative visual artists during the making of art works represents a preliminary step in establishing that descriptive data base.

Grounded Theory provides a method for the exploration and analysis of qualitatively derived data. This research utilised the procedures of the Grounded Theory method and built upon them to provide a rigorous and empirical analysis of the qualitatively derived data. Thus there is a need to establish both the degree of adherence to, and deviation from, the typical grounded theory approach in order to clearly establish the methodological position of this research for purposes of clarity and replication. The following section describes Strauss and Corbin's (1990) ²Grounded Theory method. This author's adaptation of that Grounded Theory method is described in the subsequent section titled Study Two.

Grounded theory

The goal of grounded theory is to build comprehensive theory based upon the interpretation of data gathered from small numbers of cases. This is conceptualised as a process of constantly going back and forth between the data and the developing theory such that the emergent theory itself directly guides data gathering through a process of coding and theoretical sampling procedures. Thus, the developing theory is 'grounded' in the data - the interview, field observations, archival and textual material gathered.

Data collection and theoretical development is directed by the method of constant comparison (Henwood & Pidgeon, 1992). This is a process of systematically coding data according to natural patterns and units of meaning occurring in the data. The method of constant comparison also includes theoretical sampling, whereby data gathering is theoretically directed by questions arising from the

² It is important to note that there is a distinction between Strauss and Corbin's (1990) and Glaser's (1992) Grounded Theory methods. Strauss and Corbin's (1990) version of Grounded Theory is described and followed here. To appreciate the distinction between Strauss's & Corbin's, and Glaser's work, the interested reader is directed to Glaser (1992), Glaser and Strauss (1967), Strauss and Corbin (1990) and Strauss and Corbin (1997).

existing data and the developing theory. This process enables the researcher to interpret and theorise about complex data through the development of theoretical ideas that are more abstract than the initial descriptions of the data. This means that the Grounded theory is “discovered, developed and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon.” (Strauss & Corbin 1990, p. 23).

The particular strengths of the grounded theory method lie in its ability to uncover human experience regarding phenomena which are barely understood. Grounded theory also provides an opportunity to develop a novel approach to phenomena that are already known and enables the examination of intricate details of phenomena which are otherwise difficult to convey with quantitative methods. The construct of artistic creativity fits all of these objectives. While artistic creativity has been investigated experimentally, grounded theory provides an opportunity for inductive and open theory formulation in an atmosphere of exploration. This results in theory generation which is deemed to more accurately reflect the reality of the phenomena under investigation. Grounded theory captures the unfolding nature of the processes, experiences and meanings of the phenomena under investigation. Grounded theory provides a relief from deductive testing of isolated hypotheses and research that is contaminated by subjects responding to their own hypothesis about the phenomenon under investigation (Rennie, Phillips & Quartaro, 1988). Each phase in the process of conducting a grounded theory analysis is outlined below.

Data collection

The development of a grounded theory begins without any strong theory regarding the construct being investigated. Rather, theory is generated as data are collected, and the developing theory directs further data collection. Initial data collection is directed by the selection of research participants who are likely to demonstrate the phenomenon under investigation (Rennie, Phillips & Quartaro, 1988). Analysis of initial data sources directs further data collection depending

upon the emergent aspects of the phenomenon under investigation. This process is called theoretical sampling (Glaser & Strauss, 1967), or theory-based data selection (Rennie, Phillips & Quartaro, 1988).

The method of constant comparison describes the process of systematically categorising data through processes of data collection and categorisation according to patterns emerging in the data, and the sampling of additional data on the basis of those emerging patterns and derivative questions. The researcher is urged to look for similarities and differences between concepts in order to ensure the data are fully explored (Henwood & Pidgeon, 1992).

Coding

A grounded theory develops out of the systematic analysis of data via the development of emerging concepts and categories. The researcher systematically works through transcription material, generating labels that describe the concepts apparent in the data. This requires the division of the data into analytic units. These units could be lines of data, sentences, paragraphs, or single units of meaning (Rennie, Phillips, & Quartaro, 1988). In the initial stages, labels are descriptive rather than abstract interpretations of the data. This avoids premature theorising until patterns emerge in the data through the process of categorisation (Rennie, Phillips, & Quartaro, 1988). Strauss and Corbin (1990) describe three different types of coding that are undertaken in the development of a grounded theory.

Open coding is the unrestrictive production of descriptive labels through the close examination of original transcription material. The researcher breaks the data into individual analytic units and goes through the process of examining, comparing, conceptualising, and categorising data (Strauss & Corbin, 1990). During the early stages of open coding each meaning unit is assigned to as many categories as it pertains. If no category exists that describes a meaning unit then a new category is formulated to encompass that meaning unit (Rennie, Phillips, & Quartaro, 1988).

Through the development of descriptive concepts, instances of data are pulled together which reveal particular phenomena. As data continues to be gathered categories become saturated such that new data fails to issue in the production of additional categories. Categories are then developed in terms of their characteristics through the use of questioning procedures. (Strauss & Corbin, 1990).

Axial coding involves the intense analysis of the properties of single categories and the process of linking categories together through outlining relationships between different categories, sub-categories, and the phenomenon of investigation. Categories are then verified through checking against the actual data, and continually developed through comparison and the search for properties of categories. Axial coding tends to take place after initial open coding procedures. With continued analysis some categories are identified as being the properties of higher level categories. As more data are collected categories begin to saturate, which means that new protocols do not provide additional categories, properties of categories, or relationships between categories (Rennie, Phillips, & Quartaro, 1988). When categories reach saturation the aim of the analysis shifts to determining the relationship among categories.

Selective coding is the process of identifying the core category and relating it to sub-categories. Core categories are identified as those categories that link with many other categories. A hierarchical structure of the categories emerges as some categories become sub-categories of more major categories and the relationship between categories is determined. The core category is that category “most densely related to other categories and their properties” Rennie, Phillips, & Quartaro, 1988, p. 144).

Memoing

Throughout the analysis the researcher writes memos about the data, categories, the relationships between categories, and the emerging theory. Writing memos is important because memos provide the conceptual structure and material for the

grounded theory. In this manner, data collection, coding, and writing memos are interacting procedures that the researcher engages in throughout the grounded theory analysis.

The current research is based on Strauss and Corbin's (1990) grounded theory method. However, certain modifications were made as data collection and analysis proceeded. This revised method is described in the following section.

The Research Method

This research was comprised of two independent studies. The first study served to formulate a model of the art making process, utilising and advancing upon the procedures of Grounded Theory outlined in the previous section. The second study on a separate group of research participants served to cross validate the original model; more specifically the second study provided a measure of the content validity of the original model. The procedure for each of these studies will be outlined separately in the following section.

Study One

Research Participants

Sixteen professional visual artists were selected during the course of study one. Artists were selected to provide a pool of people representing both sexes, of diverse age and experience, and who worked in a variety of art media. Artists were selected as they were recommended to the researcher by art educators, artists, and gallery directors. Ten women participated in study one with an age range of 23 to 50. Six males participated with an age range of 35 to 56. Of the sixteen participants there were three installation artists, four painters, two photographers, three printmakers, and four sculptors. Each artist was required to

be producing work for exhibition or commission. In addition to producing work for exhibition and commercial consumption five of the artists were employed in tertiary art education. Fifteen of the artists had exhibited work in local and national art galleries, and some had exhibited in Europe and America. The most inexperienced artist had just completed her Fine Arts degree and had exhibited her work in local galleries. The most experienced artist had been making art for 36 years and exhibited locally, nationally, and internationally. This artist is a senior New Zealand artist whose work is included in major New Zealand collections.

Procedure

Constructing the interview guide.

The semi-structured interview guide (see Appendix A) was constructed with the aim of exploring the process of making art works and gathering descriptive data regarding this process. Rather than being a strict interview protocol, the interview guide was semi-structured in order to provide direction in the interview setting, but flexible enough to accommodate unanticipated discussion. In addition the interview guide helped to ensure that all artists were asked the same questions and that all pertinent questions were asked of each artist. The interview guide was largely used to conduct the first interview with each artist. Subsequent interviews were based upon questions derived from previous interviews and questioning the artist about the development of the art work since the last interview.

To construct the interview guide the researcher used her existing knowledge about making art works to construct a series of questions that accessed the artists' activities during the process of making a work of art from its inception to its completion and finally its exhibition.

As interviewing proceeded, it became obvious that some questions were irrelevant, redundant, or too difficult to answer. These questions were omitted in

subsequent interviews. Data gathered and analysed from initial interviews directed subsequent data collection. This process is described as the method of constant comparison whereby emergent patterns in the data direct further sampling procedures (Henwood & Pidgeon, 1992). As initial data sources were categorised and analysed new questions arose. These questions were included in subsequent interviews. As more data were gathered and analysed, new questions continued to arise as directed by the emerging theory. These questions were also included in subsequent interviews.

In this regard the interview guide as it appears in Appendix A was largely used to conduct the first interview with each artist. Thereafter, the interviews were directed by questions arising from the process of data analysis and attempts to follow the development of the art work. To this end artists were encouraged to report upon and describe their activities during the development of the art work in order to avoid reports of their general theories about the process of making art works.

Conducting the interviews

Each artist was interviewed on three separate occasions during the course of making one art work or series of art works. These interviews were evenly spaced over the course of making the art work, such that the artists were interviewed when the work was first initiated (conceptually if not physically), when the work was being finished, and at some midpoint in the process of making the work. The interviews were spaced in this manner in order to capture information regarding the development of each art work. If the artist abandoned the art work then the number of interviews was reduced to one or two depending upon whether they abandoned the art work in the initial making stage, or after substantial effort had been put into the development of the art work.

The time spent making the work varied for each artist. Some artists took three months to make the art work from inception to resolution, other artists took up to

eight months to complete the art work. Interviews with the sixteen artists were staggered over a sixteen month period. Staggering the interviews in this manner meant that questions arising from the analysis of artists transcripts at the beginning of this sixteen month period could be directed at artists who were only just starting their art work.

The interviews were conducted in the artist's home or studio, and usually in the presence of the art work so that the artist could use the art work to illustrate their verbal responses. Each interview was audio taped at the artist's approval and were generally one to two hours in duration.

Each interview was transcribed by the researcher within at least four days of the interview.

Other sources of data

Data were collected from multiple sources in order to provide additional information about the artists' art making process. These multiple data sources provided further tests of the content validity of the developing model of the art making process.

Diary

The artists were asked to keep an account of the development of the art work in a small diary on a daily basis over the period of making the work. The artists were asked to record the day to day development of the work, any problems that arose, how problems were dealt with, and how they were feeling about the work. Some artists preferred to photocopy, and make available, relevant pages about the making of the work from their ongoing workbook instead of making recordings in a separate diary. Workbooks contain outlines of ideas regarding the work in progress and future work, records of conceptual / technical / physical problems with the work and information that the artist has gathered about the concept of the work.

Photographs

In addition each artist took a series of photographs of the work in progress from its physical beginning, through its development and completion.

Analysis of study one

Step one:

Analysis of the data occurred concurrently with data gathering as is recommended by the grounded theory approach (Strauss & Corbin, 1990). The data were organised and stored using the computer package NUD.IST (Non-numerical Unstructured Data Indexing Searching), which is designed to organise unstructured data in qualitative analyses. NUD.IST's features accommodate the development of categories, the organisation of those categories via a hierarchical tree network, and the subsequent indexing of data according to that category organisation.

The first step in the analysis involved reading and re-reading each transcript so that the researcher became familiar with the transcript material and was able to identify preliminary themes in the data. These initial descriptive categories were recorded in the margins of the interview transcripts. Formal category recording into NUD.IST was performed after the transcripts were divided into separate meaning units. This process is outlined in step two below. Any questions that arose from reading these transcripts were added to the interview guide, while redundant questions were removed.

Step two:

The next step in the analysis involved identifying and dividing each interview transcript into separate meaning units. The term meaning unit is used by Rennie, Phillips & Quartaro (1988) to describe a piece of the artist's response that can stand alone and convey an individual concept. At this stage in the analysis each

transcript was broken down into small individual meaning units rather than broader paragraphs, so that no information was missed or lost in the context of other meaning. Below is an example of an original transcript, followed by that same transcript divided into meaning units.

(Interviewer's question) *"Is there any particular way that you might organise you studio or your working environment, you know, before you work or as you're working?"*

um... well I set up the house so that it's got kind of functional areas in terms of process, but also so that it's got empty areas, I have what is the lounge room though it's called the drawing room, and that's quite a convertible room, so that I can use it for whatever I'm wanting to work on, so it can be for um the table and doing writing, but it could also be cleared out and used for making big work. *[right]* or anything, so that's a convertible space. The workshop's very well set up so that I don't have to do very much to organise anything really, except, you know, simple things like getting pieces of I tend to work on one thing and then change to another, and change to another. So I tend to pull things out and look at them, realise I have to work on them, and then put them away.

The transcript divided into meaning units.

1. *"Is there any particular way that you might organise you studio or your working environment, you know, before you work or as your working?"* I set up the house so that it's got functional areas in terms of process
2. but I also set up the house so that it's got empty areas
3. I have what is the lounge room though it's called the drawing room
4. the lounge / drawing room is quite a convertible room
5. I can use the lounge / drawing room for whatever I'm wanting to work on, so it can be for sitting at the table and doing writing
6. but the lounge could also be cleared out and used for making big work or anything
7. so the lounge / drawing room is a convertible space
8. The workshop's very well set up
9. I don't have to do very much to organise anything in the workshop
10. I tend to work on one thing and then change to another thing, and change to another thing
11. So I tend to pull things out and look at them, realise I have to work on them, and then put them away

Some of the meaning units were paraphrased to remove “ums” and “ahs”, and others were paraphrased to more clearly express the meaning of the artist’s statement. Once each transcript has been divided into meaning units it is imported into NUD.IST. Within the NUD.IST programme each meaning unit is allocated a number which means that the original context of each meaning unit could be easily identified after meaning units are indexed according to different categories (see step three).

Step three:

Having divided the interview protocols into meaning units the researcher could more easily identify particular descriptive categories which captured the meaning embedded in similar meaning units. At this early stage in the analysis category generation was descriptive rather than evaluative of that data. Rennie, Phillips & Quartaro (1988) recommend doing this to avoid “straying from the substance of the data” (p. 143).

A list of initial descriptive categories was developed. (See Appendix B for a list of the initial categories used to index meaning units). These categories were arranged within the NUD.IST programme to describe their relationship to each other, as the indexing system of NUD.IST organises categories in a hierarchical tree structure.

Each meaning unit for every interview protocol was then assigned to the category to which it pertained. Assigning meaning units to categories required examining and conceptualising each meaning unit. To this end extensive notes were made about each meaning unit during the categorisation process. This required the identification of the major idea brought out in each meaning unit, and a comparison of that meaning unit to other meaning units within the category to which it was assigned. Strauss and Corbin (1990) recommend that analysis proceeds via questioning the data, that is, asking the questions what, where, who, when, how, how much, and why, when examining each meaning unit. In this regard, rather than just summarising the meaning unit, these notes were an

analytic attempt to examine the properties of the meaning unit and thereby the category with which the meaning unit is associated. The example below illustrates the ways in which the data were analysed.

Within the NUD.IST program individual meaning units are indexed under particular categories, which makes it possible to obtain printouts of all meaning units indexed to particular categories regardless of their previous context. In this manner it is possible to pull together meaning units that pertain to specific categories, and yet still relate those meaning units to their original interview protocols via a numbering procedure. The following example is comprised of the original meaning units (in italics) indexed under the category "Idea Conception", and appended notes about those meaning units.

"Last year while I was making small etchings I thought about trying to work with diagrams on a larger scale"

The "idea" for the work we are following began some time ago - about a year, and grew partly as a response to previous work she was working on.

She wanted to work with large scale diagrams.

What are the properties of a diagram?

What are the properties of a large scale diagram?

"I wanted to work on a larger scale purely out of curiosity"

The idea grew out of a curiosity. Outlined in next meaning unit.

Consider other ways in which ideas might arise.

"The idea started when I wanted to see what happens when you've got something on a small size, which is a diagram and which conveys a type of information, when that is put on a larger scale it becomes like a monolith"

The idea more specifically related to a curiosity with exploring the physical parameters of the work and the affects of combining/synthesising two different types of visual information.

In this way physical parameters - size - affects the visual impact of the work and influences the nature of the visual information.

(Relate to other meaning unit from same artist) Small work contains more precise information - this type of information the artist considers more intellectual.

Larger work - monolith - contains more emotive information. Artist believes puts the viewer in an emotional rather than intellectual frame of mind.

Combining otherwise disparate technical types of work she predicted would result in a visual affect that the other techniques wouldn't have on their own.

Small size - diagrammatic - placed over a larger field, on a larger scale would become a monolith.

Monolith. (Dict.) Large block of stone or anything that resembles one in appearance (statue, obelisk, column). Intractability.

An object that is gigantic, imposing, solid, substantial, unitary.

"I thought that the work would then take on a symbolic value that is wouldn't have on a smaller scale"

Size of work, and combination of different types of image (diagram on field) gives different types of symbolic value. Large diagram becomes monolithic.

Symbolic - serves as a symbol for something, representing something else, a material object representing something abstract. Is this symbolism understood by everyone?, the viewer?, or just the artist? - Is this type of symbolism a convention amongst artists or idiosyncratic?

Value. The work has value - does she mean symbolic interpretation? Magnitude (maths), Art - gradation in tone from light to dark; relation of one of these elements to another or the whole picture. Quality. Usefulness, as in merit.

Attempts were made to ensure that categories were mutually exclusive, however, because the resulting model describes art making as an ongoing process, divisions between categories are not always clearly defined. In addition some categories were sub-categories of more over-arching categories. If a meaning unit could not be indexed into the existing categories then a new category was developed to represent that meaning unit. This required the researcher to go back through protocols that had already been indexed and re-index meaning units according to the new category structure.

As analysis proceeds it becomes apparent that some categories are sub-categories of other more encompassing categories. Within NUD.IST categories and the meaning units assigned to those categories can be re-arranged to reflect the developing category structure. See Appendix C for a list of the final category

structure that was used to index meaning units. Appendix D gives descriptions of each of these categories. Appendix E contains examples of some of these categories with a portion of the meaning units indexed within those categories.

Data collection and analysis continued until categories reached saturation. Saturation occurs when the analysis of new interview protocols revealed no new categories, properties of categories, or relationships between categories because the additional meaning units provide no new information. Rennie, Phillips, & Quartaro (1988) suggest that saturation usually occurs after the analysis of 5 – 10 protocols. Sixteen subjects provided information for this research, a total of 43 interview protocols during the course of making sixteen art works.

Step four:

Towards the final stages of data gathering and coding, categories were redefined with the aim of achieving a more abstract and higher level account of the data. Once the category structure remained stable with the input of new meaning units, effort went into the development and description of categories and the meaning units were no longer dealt with. Attempts were made to make each category mutually exclusive so that meaning units could only be indexed in one category. Categories that were not mutually exclusive were collapsed into other categories or new categories were generated to account for that material. This meant that categories did not overlap except in their relationship to each other. See Appendix F for the list of categories that were used to develop the final model of the art making process.

Narratives about each category, the category structure and the relationship between the categories were written. Each category was described in terms of its properties and dimensions, and their commonalities and differences. Categories were systematically related to sub-categories through statements outlining the nature of the relationship, causal and intervening conditions, consequences, and the context of the category (Strauss & Corbin, 1990). The following is an example of the development of a group of categories about the concept (or idea) of the art work, and the process of developing this art concept.

Overarching process: Art Work Development

14.5.97

1. The Conceptual Component (beginning the art work) Illustrating the process or movement from being relatively unclear, to relative clarity.

What is this phenomenon? The unmade art work, the potential art work. It is an idea, concept or feeling for an art work. It may be vague and move towards relative clarity, or start out with relative clarity. It is a conceptual component not just because it does not yet have a physical existence, but because there is a conceptual component to the art work.

Described by artists as seeing a potential art work

Process of idea conception

Where does it come from?

The origins / source of the ideas

- ongoing 'research project' - previous work
- part of a series of related works.
- experientially based
- feeling based
- interests
- "ideas suggest themselves" - tacitly accepting an idea

Idea conception activities *seeing a way to make an art work through engagement in the physical, social, mental world.

Dimensions: Cognitive - Behavioural
Implicit - Explicit
Passive - Active

Cognitive and Behavioural activities

(can be active / passive, explicit / implicit)

Activities performed as a part of a wider art making process, i.e. broader ongoing art research project, or with regards to the specific work or series of works currently being produced. For example; reading, engaging in / reflecting upon everyday experiences, awareness of visual phenomena - seeing a way to make an art work.

Implicit activities

Implicitly accepting to continue with an ongoing theme in one's work. Ideas arriving out

of the practice of making art works. Non-action, unconscious work, shelving the idea, prolonging idea conception, incubation.

Explicit activities

Explicitly deciding / making a commitment to working with that idea.

Being given a brief, offered to show a work about a particular curated theme and working within that given theme / commissioned work.

Idea development

Exploration of the idea; *finding* a way to make an art work; determining the *viability* of an idea.

Dependant on *power* of idea, *clarity* of idea, *potential* of idea.

If emotional phenomena / ideas (as well as visual phenomena) are able to be combined with symbols, then they will have a great chance of becoming art works. I propose at this point that what is significant about this statement is that the idea is able to be transformed, reflected, and expressed symbolically in the physical / representational elements of the final art work. The important question is, how is this done? The transformation of the art concept (abstract) into a physical body (the art work) is an important part of this process, or at least, the beginning of the art making process.

The development of categories can also be seen in the comparison between the category structure illustrated in Appendix A and Appendix E. In Appendix E, the category structure reflects the developmental process of the art work concept from an abstract idea to a physical manifestation of that idea. The final model outlined in chapter Five describes the nature of this transformation. In contrast the first category list illustrated in Appendix B, merely clusters meaning units in a descriptive manner. There is no attempt at this early stage to relate categories systematically. The process of moving from the descriptive category structure illustrated in Appendix B, to the more conceptually oriented category structure illustrated in Appendix F, is based upon the systematic analysis of meaning units and the writing of narratives as outlined above. It is by this analytic process that the importance of the transformation of an abstract art concept to physical art work became apparent.

This narrative structure and associated categories were further developed such

that all categories were systematically related and reflect the process of making an art work. Final narratives were used to develop a longitudinal model of the art making process. The narrative and model are described in the following chapter.

Once category re-organisation had been completed, categories and the relationship between categories were verified against the actual data to determine content validity. This required taking random samples of original meaning units and attempting to place them within the final category structure.

Memoing

During analysis memos are made to record ideas about the data, categories, the developing theory, and criteria for further data collection. NUD.IST accommodates memoing as a part of its structure such that memos can be associated with particular documents and categories. Memos encourage the researcher to think beyond single meaning units to themes and patterns in the data, thus raising the conceptual level of the ongoing analysis. Memos also enable the researcher to trace the development of categories and theories. (Rennie, Phillips & Quartaro, 1988).

Discussing the categories and developing model was an important part of the development and verification process. The researcher and the researcher's supervisor met on multiple occasions to further the development of categories and the final model. These discussion sessions were used to clarify and solve indexing problems, and issues regarding category development.

Study two

Rationale

Study two served as a validity check of the model produced from study one. An independent coder indexed the meaning units of interview transcripts taken from study two into the model produced from study one. This provided two measures of validity. 1. Content validity was determined by the degree to which protocols not used in the development of the model could be accommodated by that model. 2. A measure of the accuracy of the sequencing of the model was obtained by comparing the indexing of individual meaning units between the independent coder and the indexing of those meaning units by the primary researcher.

Study two was conducted in the same manner as study one and utilised the same interview guide to gather data. Artists in study two were not required to take photographs of their work or keep diaries.

Research Participants

Nine professional visual artists were selected for study two. Artists were selected to provide a group of people representing both sexes, diverse age, and who worked in a variety of media. Artists were selected as they were recommended to the researcher by their peers – other artists, art educators, and gallery directors. Three women participated with an age range from 35 to 50. Six men participated with an age range from 30 to 75. Of the nine artists one worked with electronic media, one made installations, four were painters, and three were sculptors. The most inexperienced artist in this study had exhibited locally and nationally, and had performed fifteen solo exhibitions. The most experienced artist had been making art work for fifty years, and had exhibited locally, nationally, and internationally. This artist was a senior New Zealand artist with a national and international reputation whose work was included in major national collections. These artists

were also required to be producing work for exhibition or commission. Four of these artists were working in, or had worked in secondary and tertiary art education. All of the artists had exhibited work in local and national art galleries, and some had exhibited in Europe.

Procedure

Interview guide

The semi-structured interview guide used in study one was also used in study two so that comparisons could be made between the data for these two studies.

Conducting the interviews

The interviews in study two were conducted in the same manner as for study one. Each artist was interviewed during the course of making a particular art work or series of art works. Artists were interviewed on three occasions during the course of making the art work unless they abandoned or postponed the art work. In this study only one artist abandoned or postponed the art work. Interviews were evenly spaced over the course of making the art work. Artists were interviewed when the work was first initiated, when the work was being finished, and at some midpoint between idea inception and art work resolution.

Artists were interviewed at their homes or studio, and usually in the presence of the art work. As for study one, each interview was audio taped with the artist's approval and were generally one to two hours in duration. Each interview was transcribed by the researcher within at least four days of the interview.

Identifying and Editing the meaning units

As for study one, each interview transcript was divided into separate meaning units. A meaning unit was identified when a piece of the artist's response could

stand alone and convey an individual concept. In study two meaning units were divided on a broad rather than a micro level. In this manner the core meaning of an artist's response was obtained. Examples of editing meaning units at this broad level are provided in the following section.

The interview transcripts required editing before the independent coder could index individual meanings units into each phase of the model. Editing was necessary in order to make the interview transcripts as clear as possible for the coder who was not familiar with the process of art making or the generation of the model. The primary researcher divided each transcript into individual meaning units, and summarised each meaning unit so that the artist's original meaning was as clear as possible. Each meaning unit was identified by a number which reflected the original sequencing of the meaning units as they appeared in the original transcripts.

Reliability of editing

A measure of the reliability of the primary researcher's meaning unit division and editing was necessary before coding could begin. To achieve this a second research assistant edited one third of each original transcript from study two, selected randomly using a random number generator. This research assistant was unfamiliar with the model of the art making process produced from the first study. However, in order to place the randomly selected third of each original interview transcript into a context, each transcript was identified by the type of artist who produced the work, whether that transcript was from the first, second or third interview with the artist, and a brief outline of the type of work the artist was working on. For example,

Painter #3

This painter is currently making large abstract paintings on loose canvases that have been sewn together. In this way, the paintings are three dimensional with folds and flaps and bits attached. The artist's medium is acrylic paint.

This research assistant was required to divide the sections of original interview transcript into individual meaning units and then edit those meaning units to clearly reflect the intended meaning contained within that piece of transcript. The second research assistant participated in training sessions with the primary researcher regarding the process of dividing interview transcripts into meaning units, and editing those meaning units. Data contrived by the primary researcher served as training material.

The second researcher's edited transcripts were then compared to the primary researcher's editing of the same original protocols by an independent third person who was familiar with conducting a grounded theory analysis. This third person was also unfamiliar with the model of art making produced from study one. This third person was required to judge whether or not original samples of interview transcript were divided into the same meaning units by both the primary researcher and the second research assistant. The third person also judged the degree to which the meaning of those edited meaning units were the same for both editors and reflected the meaning conveyed in the original transcripts.

The following example illustrates the process of determining the reliability of editing. If original transcript samples were divided by the two editors in different ways, then meaning units that were not matched by the other editor (this could be either editor) were identified as one disagreement. If the meaning of an edited meaning unit (by either editor) was judged to not correspond with the meaning in the original transcript, then this was also identified as one disagreement. Agreement levels were obtained for each interview transcript as a percentage of the total possible agreements for that edited transcript.

The Original Interview Protocol (interviewer's questions are italicised)

Electronic Media Artist: Interview One

What do you mean "could work", how do you know what could work?

It's difficult.

If you are saying that something could work then do you have an idea of what could work, or a way of selecting what could work?

It's complex there. I sort of say that you just know, but it's because of all the training and all the things that we've done actually helps us decide what we choose or what feels right. Yeah, because most of the time you think ok, that will work well, it's an idea and everything is just right about it, just the way it looks aesthetically, the concept behind it, and then just working from there, and if the concept is not quite right, like say I really need to work on it, the images that I put up, you know, all those sort of details, if I don't put the work in there it's not going to be as conceptually strong.

Primary Researcher's division into meaning units and editing.

A) It's difficult to say how I know when something will work well in an art work. All the art school training and work we've done as artists helps us decide what feels right with a particular art work.

B) you evaluate the idea of the work in the way that the work will look aesthetically, the concept of the work. If the concept of the work is not quite right I will work on it and develop it.

The Second Research Assistant's division into meaning units and editing.

A) although it's difficult to know when an idea could work, part of making this judgement is based on experience.

B) Sometimes one aspect of the work, such as the concept, will need attention.

On average there was 94.5% agreement between editors with a range of 86.6% to 100% agreement. This level of agreement was considered adequate for continuing with the process of coding randomly selected meaning units from artists' interview transcripts taken from study two, into the model produced from study one.

Coding the meaning units

In order to code the meaning units the first independent coder was familiarised with the model, the narrative accompanying the model (see Chapter Five) and given a description of each category comprising the model. The coder underwent training and a practice coding session using interview transcripts taken from study one.

The meaning units within each edited transcript were re-ordered by the primary researcher in order to reflect the progressive development of each art work. This was necessary because during the course of each interview the artists did not always discuss the development of the art work on a progressive basis. In addition re-ordering the meaning units in terms of the four main phases was necessary because some of the meaning units were sufficiently vague such that they could be a part of any phase in the model unless a context was provided.

The independent coder was required to determine whether each meaning unit from each edited interview transcript could be accommodated by the categories comprising the model. In conjunction with that task, the coder was required to index each meaning unit into that phase of the model to which it pertained. Because the categories within the model are not always clearly mutually exclusive, it was not possible to have the independent coder index statements into individual categories within the model. In addition, the similarities between categories in phase two and three made it difficult to code material that was not obviously about idea development (phase two) or making the art work (phase three). Any meaning unit that could not be coded in the model by the independent coder was noted.

The primary researcher also coded the edited meaning units for each interview transcript into the phase of the model to which they pertained. A comparison of the primary researcher's coding and the coding of the independent coder provided a measure of the content validity of the original model produced from study one.

There were eight options for coding meaning units: Ongoing and developing art making knowledge (preview to phase one); Phase 1. Art Work Conception; Phase 2. Idea Development; Phase 3. Making the Art Work and Continued Idea Development; Phase 4. Finishing the Art Work; Ongoing and developing art making (subsequent to phase four). In addition there were two catch-all categories, a catch-all category for statements that the independent coder considered could not be accounted for by the model but were irrelevant to the process of making the art work, and a catch-all category for statements that could not be accounted for by the model but were considered relevant to the art making process. These phases reflect the main phases of the model of the art making process illustrated in chapter five, page 97.

Part Three

Results Study One & Study Two

Chapter Five

Study One Results

Art Making: A Description of the Unfolding Developmental Process of Making Art Works

Making art is a dynamically interactive process not easily lent to a linear description. Art making is best considered a cyclically advancing process with multiple feed-back and feed-forward loops between an array of activities, the outcome of which is the production of art works. This process has been delineated here into four major phases of activity that describe the making of an individual art work. The interaction between and within each of these phases is described in a longitudinal framework and supplemented with examples from the artists transcripts. (See Appendix G for a description of the transcription notation used in this chapter.)

This model (see over page) is delineated in terms of four major phases of activity involved in the production of art works. Within each of these phases the art work undergoes an array of activities in a complex interacting production process. The four major phases of the model are introduced here with an elaboration of those phases and their sub-components in following sections.

This model describes the development of multiple art works. Different art works move through different sub-phases depending on the nature of that art work. The model is dynamically interactive with multiple feedback loops such that an individual art work can return to an earlier developmental phase. In addition, new art work ideas arise from any stage of the process. In this manner, the artist's ongoing and developing art making knowledge exists as a background context which informs and is informed by the process of making art works.

The following section is an overview of the four phases of the model. This is followed by a detailed description of the model, its components and the interactions between the sub-components.

Overview of the Four Major Phases of Art Making

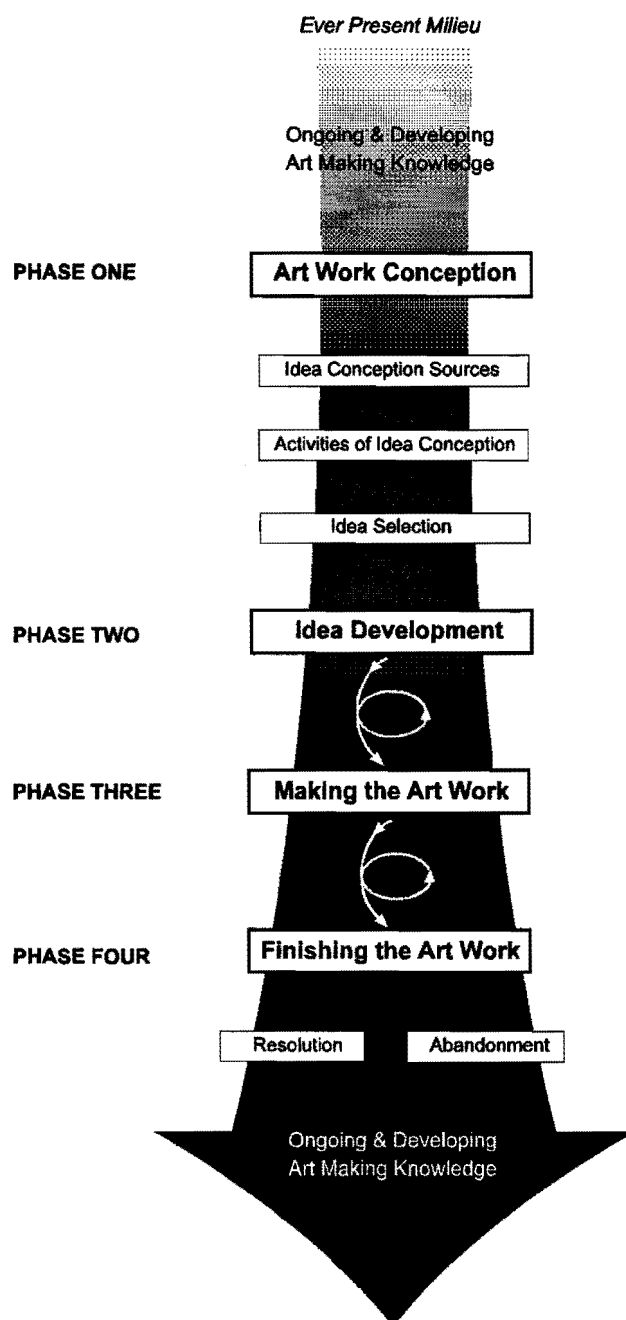


Figure 1. Diagram of the four main phases involved in making an art work. The arrow represents 'ongoing and developing art making knowledge', an ever present factor interacting with each phase.

Ongoing and Developing Art Making Knowledge

The arrow depicted in Figure 1 represents the artist's ongoing and developing art making knowledge. Over time the artist develops an extensive knowledge base about art making that is constantly developed and utilised throughout the artist's art making life. This knowledge base connects current works in progress with past and future art works. The artist's art making knowledge is developed throughout all stages of the art making process outlined in this model. In this regard, the arrow of ongoing and developing art making knowledge depicted in Figure 1 interacts with each phase in the art making process outlined in this chapter³.

Phase One: Art Work Conception

Art work conception is a process of identifying an implicit or explicit idea for a potential art work. The genesis of an art work is embedded in the artist's ongoing and developing art making knowledge. In this regard whether art work ideas are implicitly or explicitly derived, they nevertheless have some form of conceptual basis. The art work may arise as an abstract concept or idea for an art work, or as an implicitly based and indistinct notion of a potential art work. Ideas for art works arise as a fluid and dynamic art making process. As such art works inform other artworks in a complex interactive generative process.

Phase Two: Idea Development

Idea development is the complex process of extending and restructuring a particular art work idea through a range of decision making, problem solving, experimental and information gathering activities. Depending on the nature of a particular art work idea that idea may require more or less development and thus move through this phase relatively quickly or slowly.

³ Figures 2, 3, 4, and 5 depicted in the remainder of this chapter outline each phase of the art making process in detail. These phases are united to represent the complete model in figure 6. While the arrow of ongoing and developing art making knowledge depicted in figure 1 interacts with each phase, it is not included in figures 2, 3, 4, and 5 only because it clutters those diagrams. Ongoing and developing art making knowledge is depicted in figure 6.

Phase Three: Making the Art Work

This phase involves the physical construction and continued conceptual development of the art work. The artist now works within a three dimensional medium as well as a conceptual or abstract medium. As such the art work takes on physical constraints. During this stage the process of physically making the art work influences the development of the conceptual component. Similarly the concept of the work influences the making process and the art work's final manifestation. During this phase the content and form of the work inform each other in an advancing developmental process.

Phase Four: Finishing the Art Work

Making an art work involves implicit and explicit processes of evaluation. As a result of these evaluation processes the art work is either resolved and considered viable to some extent, considered non-viable in its current form and thus moves to an earlier stage in the ongoing developmental process, shelved for later work, or abandoned as non-viable. Whether or not the work is considered viable, the process of making that work serves to develop the artist's ongoing and developing art making knowledge. The artist gains technical skills and knowledge regarding their thematic and aesthetic art making interests. In this manner the developmental process of making art works is dynamically interactive and generative.

The Model

The following is a detailed outline of the art making process. The process is described in terms of the four main phases involved in the making of an art work. Each of these phases consists of interacting sub-components, and is influenced by mediating factors. The art work moves through each phase sequentially. In addition feedback and feed-forward loops re-connect the phases such that the

process is dynamically interactive.

This description of the art making process is accompanied by a diagram depicting the phases in the development of an art work. The four main phases of this diagram are presented individually as each phase is described. Finally the model is reconstituted to represent the dynamic structure of the art making process. The following description is interspersed with excerpts from artists' transcripts that illustrate typical examples of categories or relationships between categories. Each artist is identified only by the medium or media in which they work, in order to provide the reader a context for understanding the artists' statements.

Underlying each phase in the art making process is the background context of ongoing and developing art making knowledge. This factor is described below.

The Artists' Ongoing and Developing Art Making Knowledge

The process of making art works is ongoing and developing. The art work does not arise from a conceptual void, but nor is it largely determined in advance. Rather, the genesis of an art work arises from a complex context of art making, thinking and ongoing experience.

Over time the artist builds an extensive knowledge base about their particular art making enterprise. This knowledge base includes explicit and implicit understanding of techniques, skills, art genre, art theory, aesthetics, art making interests, emotion, values, personal theories, personal interests and experience, previous work, and historical and contemporary art knowledge. This knowledge base is constantly developed and referred to throughout the artist's art making life. It connects current works, works that are a mere conceptual glimpse, and works that have been finished. Part of this background of art making knowledge is the development of art making interests or themes. As such, the artist's art making knowledge is developed throughout all stages of the art making process outlined in this model. For example,

Painter:

“You tend to build up a body of work which then becomes the basis for extending and improving your work”

In addition the artists keep work books, gather information and conduct research. These mediating factors will first be outlined generally and then more explicitly where they fit into each stage of the art making process.

Art work themes and working in series

A consequence of contemporary art making practice is the tendency to produce individual art works connected to a wider theme. The theme may be conceptually or formally organised, that is relating to appearance. Art making themes represent the artist’s exploration of a particular style or concept. The artist may work within one particular theme during their working life or explore multiple themes over the course of their career, revisiting certain themes over that period. A particular idea or aesthetic may be developed into multiple series of related art works, each series of work being an extension of an overriding theme and developing out of the series before it in some manner. In this way the theme develops as the work is made rather than being considered in advance. A theme may be broad and recurring over the course of the artist’s career, with more specific sub-themes representing series of art works that are exhibited together. An individual art work might be a specific (but not predetermined) rendition of a particular facet of that theme. For example,

Sculptor:

“and I don’t mean series in that things look the same but I take a kind of an idea and work on it over a period of time, and maybe there are ten or twelve pieces in a sequence and sometimes they relate back to things I did ten years ago.”

Having identifiable themes in one's work serves to suggest new art works, or ways to proceed from the current art work. In this way the beginning artist is faced with a difficulty in so much as their accompanying knowledge base has yet to be established. For example,

Photographer:

“if I could work out that [what the theme was] then I could make the decision more easily about what I was going to do next because it would []⁴ be like the next step”

If the current work is a part of an ongoing theme then there is already considerable background development of that art work idea. If a particular theme has derived from a previous theme, while it may be a different area of work, to some extent the new work is still informed by previous work by virtue of its connection to it. If the artist makes a complete break from existing art work themes then a whole background of information, meaning and associations must be built up before work can commence.

Keeping a Work Book

Many artists keep a work book into which entries are made at any stage of the making of an individual art work. As such, keeping a work book impacts at multiple points in the art making process. A general description of this activity will be outlined here, with more specific accounts given at that stage of the process in which they occur.

Artists' work books serve as a context to store and develop ideas and images about the developing work, a potential work, or sources for potential work. In this regard a work book serves as a resource for thoughts and ideas and also a monitoring device if the artist reviews material in the work book. Further to this

⁴ See Appendix G for a description of the transcription notation used in these examples of artists' statements.

reviewing function, keeping a work book allows the artist to link work and ideas back to previous work through their similarities. In this way the work book charts the development of work even if it has not achieved physical form. For example,

Painter:

“I often find that this information in the work book is really good when I get to the end of a series and I’m not sure what I’m going to do next, or when I’m trying to produce a series of works for an exhibition and I feel like I just can’t come up with the goods - I refer back to this work book. To me they’re like my bibles”

Alternatively, the material in the work book may chart the physical development of an art work in the form of text, drawing and photographs. Instead of, or in addition to keeping a work book the artist may draw on loose sheets of paper, which perform the same exploratory and recording functions as the work book.

Information Gathering and Researching

Throughout the process of art making the artist implicitly and explicitly gathers information that contributes to the development of the art work. This information may be recorded in the artist’s work book. Researching includes non-directed information gathering activities and those activities that address the identification of specific gaps in the artist’s art making knowledge. Information may be gathered about the conceptual properties of the work, the work’s formal qualities, and techniques regarding materials and the medium. For example,

Painter:

“I collect information such as photographs or drawings so that when I go to do the painting I can refer to that information to get the composition right”

Information gathering activities come in a variety of forms and serve different

functions in the art making context. Each of these functions and information gathering activities will be described in that part of the art making process to which they pertain.

Phase One: Art Work Conception

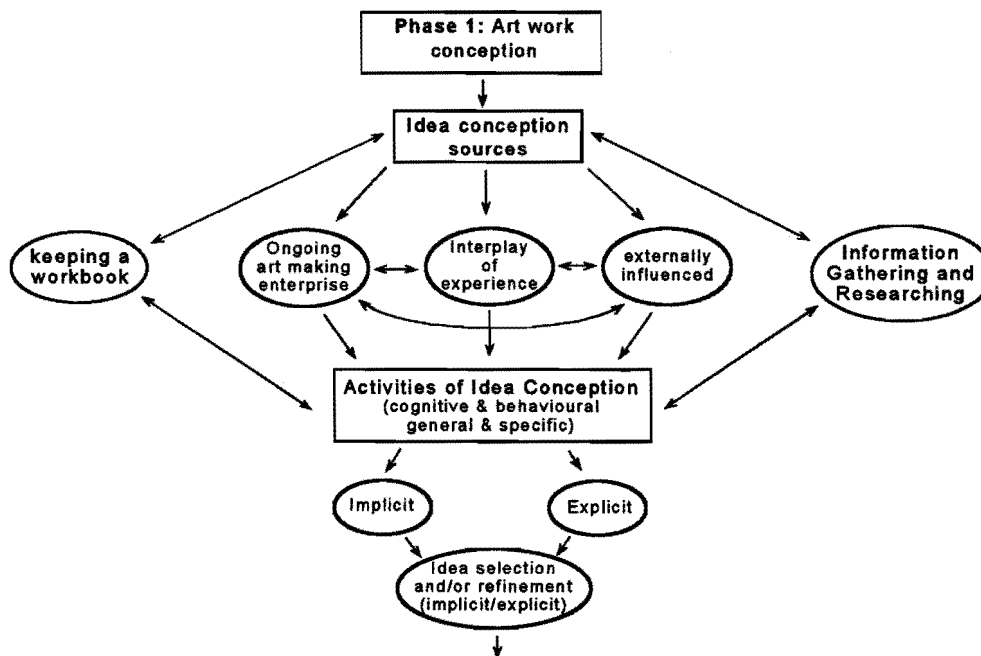


Figure 2. Diagram of Phase One, Art Work Conception

Starting an art work is not a clear cut enterprise. Identifying when and where an art work, or an idea⁵ for an art work begins and another one ends is often indeterminable. Art works and ideas for art works arise as an ongoing and dynamic art making process rather than a linear production process.

An art work may arise as an abstract concept or idea for an art work, or as an implicitly based and indistinct notion of a potential art work. Alternatively the work may explore a certain aesthetic. At its genesis an art work concept is the unmade and often (conceptually and physically) undeveloped art work. It may initiate as a vague concept and then move towards relative clarity through a

⁵ The terms art work “idea” and art work “concept” are used interchangeably.

developmental process, or initiate with relative clarity, possibly in the form of an image. The artist may identify a feeling or emotion as a source for an art work. In addition the artist may report having a feeling for an art work. This kind of description falls under the implicitly based art work conception. The art work concept has no physical presence at this phase in the process and will undergo a developmental process before and during its physical manifestation. When the art work concept does become a physical entity both content and form develop together. For example,

Painter / Printmaker:

“the idea is generally bigger than the art work, [it] might encompass several art works, but in order to get it [the idea] to where you’ve decided your thinking about an idea that’s going to be an art work, rather than an idea that’s simply an idea, just a thought, it actually has to start taking some visual form”

Idea Conception: Sources

Idea conception is a process of identifying an idea or feeling that could be a potential art work. There are three major sources from which an idea for an art work could come: the artist’s ongoing art making enterprise, the interplay of life experience, and external influences - commissions and briefs for curated shows.

The Artist’s Ongoing Art Making Enterprise

Art work ideas arise primarily from the artist’s ongoing art making enterprise. This art making enterprise is the ongoing context of art making interests, aesthetics, theories, and activities, including immediate and previous work. Artists tend to produce works which are related thematically. Thus, individual works represent the exploration of particular themes, or sub-themes. This means that an individual work has a broad history of meaning, association and researching, and thus, a context of understanding and discovery which suggests and informs

additional works. This is the ongoing art making enterprise.

Installation artist:

“so I just look it up and write down meanings and from that it just triggers off things”

Painter:

“but if I go out and resource the material usually something becomes apparent and that's what I use”

Experientially Determined Art Work Ideas

Art work ideas may also arise from the interplay of life experience. An artist may have a particular experience and determine a way of making an art work. This idea in itself may be developed under the umbrella of an ongoing art making theme, or it might occur as a new and unrelated concept. If the new work is distinctive in this manner then that idea requires a large amount of development, unless that image or idea is simple enough to produce immediately. In this way a work that arises as a distinctive concept differs from a work that is a part of an ongoing art making thematic enterprise which has accumulated a history of information and exploration over the course of producing associated art works.

Multi-media:

“I was listening to the tapes and formulating that with the dream”

External Influences

Finally an art work could be constrained externally by commissions or briefs for curated shows. While the work is still a part of an ongoing theme explored by the artist or influenced by personal experience there are certain external constraints placed upon the work because it has been commissioned. For example, a sculptural work may be commissioned to address a particular site, and a brief for a

curated exhibition may determine the parameters of the work produced for that exhibition. For example.

Sculptor:

“one really important problem was that I was told by the head of the Arts Committee that they didn’t want me to do anything too adventurous, they didn’t want me to do a one off work and I got really upset about being told that”

Sculptor:

“I also have to consider how to keep people safe from the work, and protecting the work from vandalism, and those considerations impact on the design of the work”

Activities of Idea Conception

Artists engage in various explicit and implicit forms of art work idea conception. In addition to being explicitly or implicitly derived, idea conception activities are delineated here in terms of their cognitive and behavioural basis.

Explicit Activities of Idea Conception

Explicit cognitive activities of idea conception are those activities the artist is conscious of and may perform deliberately. The artist may consciously think about and expand upon an idea or theory in a deliberate attempt to generate suitable art work ideas. The art work concept may derive from an ongoing art making research project. Reflection upon everyday experience may result in identifying a potential art work, especially if it connects with an ongoing art making project concept. If such a link forms something novel and the artist can determine a viable way of producing an art work then that concept may be developed into an art work.

Painter / Printmaker:

“so I'll be reading books, and I'll be thinking about the way people relate, or I'll be looking out at the world and seeing some angles, or I'll be thinking through a theory about the effect of time on things, just using normal thoughts, all mixed up, and then usually there's a link between one type of thing and another thing”

Painter:

“so I always go back to myself really, which is again a strength and a weakness, and say what do I want to paint, what's important to me, so that's what I try and do”

Implicit Activities of Idea Conception

Implicit cognitive activities are those that have become an inherent part of an artist's thinking such that they are relatively unconscious. In this manner art work ideas arise without any apparent source. Rather than actively exploring a potential art work idea, the idea seems to come to the artist. This kind of experience is embedded in a history of related experience, thought and meaning. For example,

Sculptor:

“but often the ideas just suggest themselves”

Painter / Printmaker:

“the time that I leave without doing anything is probably the most important part”

Painter:

“That's what I don't know, that's like we've got more neurones in our brain than the milky way and I believe that certain things get solved when you rest”

Behavioural activities of idea conception are those physical activities that generate art work ideas. Implicit behaviourally derived ideas arrive out of the practice of making art works. That is, through making work, new art work ideas arise.

Ideas may be general or specific. A specific idea is about a particular art work. A general idea involves conceiving a general theme or area from which to produce an artwork. Such an idea requires development and exploration before ideas for specific art works are developed. This process is described below in phase two, idea development.

Idea selection

Painter / Printmaker

“the ones [art works] that work best are the ones where I actually have, not necessarily a reasonable picture in my mind of what they look like, but a strong feeling in my mind of what they feel like”

At some point during this conception process an idea is selected to develop into an art work. Whether this selection process is implicit (and therefore not consciously performed by the artist), or explicit, the artist must make a decision to continue with one or other of the selection of ideas which have arisen. Generally artists tend to select those ideas which are experientially based and personally close to them, or those which relate to and further one's body of work. In addition, the artist must consider that idea sufficiently viable or interesting to develop into an art work. Rather than selecting an idea for a specific art work, the artist may select a general theme or area to work in. There may be multiple ways to render or explore that idea which the artist works through in the next phase, Idea Development. If the art work idea is intuitively based and therefore not conscious to the artist, then the identification of this idea may not occur until the idea development stage. The following are examples of idea selection.

Installation artist:

“it’s funny, well certain things I guess you’re needing at the time, I needed to be private and I know that I needed rooms to work in, and I know I don’t get that opportunity”

Printmaker:

“ideas that keep irritating me, but then the ideas are the same ideas that have been rattling around for ages”

Sculptor:

“a quality that can contribute something new to the body of work you make”

Phase Two: Idea Development

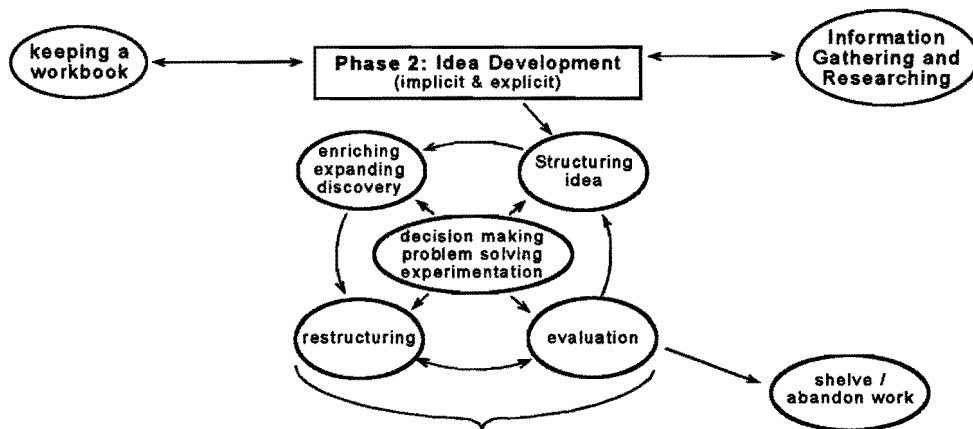


Figure 3. Diagram of Phase Two, Idea Development

The following is a demarcated outline of the process of art work idea development. This process is relatively compacted or drawn out for individual art works, where different art works spend more or less time at any particular stage. In addition, this development may be implicitly or explicitly conducted. Idea development involves a process of *structuring* an unstructured concept; *expanding* upon that, bringing back together the new relevant information and

knowledge, and *restructuring and evaluating* the art work concept. A single art work idea may travel through this cycle multiple times before moving through into the next stage, art work development.

Each phase of the process of idea development involves decision making, problem solving and experimental activities. These activities are described below in general terms, and then more explicitly where they fit into each phase of idea development.

Decision Making

Each step in the making of the art work involves the artist making either intuitive or explicit decisions regarding the work. The decision could have a big impact on the work, or a barely discernible one, but ultimately contributes to the direction and progress of the developing work. Each decision to some extent involves evaluation: choosing what to include, exclude, where to put it, what to do next, whether and how an idea or the use of a particular material contributes to the artist's developing conception or image of the final work. For example,

Painter:

“I have to decide between various ways I can depict the image I think I will make the block letter form first, and if it works out well, looks good or fits in with the rest of the work in the exhibition then I will use it. If it doesn't work then I will make another work using the koru forms”

Problem solving

As outlined above, developing an art work is a process of making multiple implicit and explicit decisions. In addition the artist has to identify potential problems or difficulties and solve problems as they arise. Problem solving is an inherent part of

the process of art making. Problems come in multiple forms and do not necessarily make a work non-viable. Problems may not be perceived by the artist as problems at all, but rather challenges, or a natural part of the process of using materials and ideas in a non normative manner.

Problems may arise from the use of materials or be associated with the concept of the work, or as these two operate together. In the idea development stage of the art making process much of the problem solving occurs in the form of refining and abandoning ideas. In addition the artist anticipates potential problems regarding the use of materials and identifies ways of solving these. For example,

Sculptor:

“making kinetic work requires a lot of technical information, and I need to solve the technical problem of preventing the battery running flat”

Experimentation

Experimentation is a process by which a particular art work idea is extended through making associations between otherwise disparate ideas. These associations could be made imaginatively, or through drawing or preliminary work. During this phase experimentation is considered an attitude that involves extending and re-uniting ideas with no particular end yet in mind. For example,

Sculptor:

“when I start with an idea, and it comes along, I play with it a lot in my mind, I do a few drawings, but I really develop it and enrich it through a process of associations”.

Structuring an Unstructured Idea

Structuring an unstructured idea is a process of tentatively clarifying the art work concept. It involves finding a way or ways to structure the art work concept and ultimately render that concept in the final art work. An art work concept may start out relatively unstructured. In this way the concept may be described as a glimpse of an art work, feeling, or idea that might be suitable for making into an art work. The artist may not even be able to describe its exact nature at this stage in the process. If the art work idea is vague, then it lacks structure. Identifying what the glimpse and vague idea is involves a tentative clarification process. The artist identifies possible areas for exploration and development with regards to the feeling or idea. This exploration is of both a conceptual and a formal nature. For example, making preliminary drawings and sketches about the emerging art work serves to give that work tentative structure. Alternatively or in addition, the artist may articulate the proposed art work idea verbally or in a textual format which gives the vague idea tentative form and structure.

Sculptor:

“you’re thinking about this idea and as you go with the thought things shift a little bit, and you go oh I hadn’t seen it that way, so you explore that avenue, it’s better if I do it that way, or it’s better if I think about it like that, and so even though you have a kind of end view it’s not a complete picture ever”

Installation artist:

“yes I do have an idea but I don’t fix it at this stage, I have a kind of idea in mind, and I work towards that”

Alternatively, the artist might begin with an image of what she or he perceives the final work will look like. This image is developed as it moves through the process of idea development. For example,

Painter:

“the more that I’ve painted, I’ve conceived of an idea and I’ve followed it through and I’ve painted it, it’s not like really tightly conceived, the look of the work, but sort of vaguely”

If the art work idea is a part of an ongoing series of work, then it may initiate with relative clarity. The art work idea is likely to be more apparent if it has grown out of existing work, and therefore is relatively more structured and enriched through processes of mental development and information gathering. If the idea has grown out of existing work then it, or related ideas, have already been through this process of idea development and thus is relatively more advanced.

During this stage the art work is tentatively structured or identified in order for it to be enriched and expanded. After this instantiation of the art work concept has been explored and expanded it is restructured again. This process continues until the artist formulates an art work concept they consider viable enough to render physically.

Painter / Printmaker

“even if I try and fix it down to something you might call the original idea too much the work gets really limited, so I want there to be decisions along the way when I am making a work”

Enriching, Expanding, Discovering

If the art work initiates as a vague concept, then the process of giving that vague concept structure involves enriching and extending that concept through idea association, metaphor and analogy. Even if the art work concept is not vague, but relatively clear, the artist still engages in a process of idea development and extension through exploring the intricacies of that particular concept, building up a richness of form and content. This encourages the active and imaginative

exploration and development of the art work concept and serves to build a reservoir of understanding and knowledge. Through exploring and expanding the network of meaning that concept becomes personal and experiential, if it did not already derive from a personal experience. The information gathered comes in the form of text, images, or experience, for example,

Sculptor:

“I looked for stories of his exploits, right the way back to what he was like at school, his nicknames at school”

Gathering information of a conceptual nature about a particular art work theme increases the artist’s knowledge base about those concepts, increasing the number and complexity of associations, and the possibility of extending that concept by making novel metaphors.

Sculptor:

“*[So how do you go about achieving that then?]* I think by knowing a bit about his life, his history, what he’s done, how important the whole thing was, and it will be in there [in the statue]”

“I’m pretty sure that I want to embody a larger story around the guy than this, and that’s why I think all this background information is possibly more important than what he looked like”

Concept exploration may involve rendering drawings of, and gathering information about, the proposed idea. Alternatively, the artist may not deliberately explore the conceptual and formal properties of a proposed art work concept, rather ways of making or developing that concept or feeling suggest themselves to the artist. This kind of activity (or non-activity) is unconsciously derived and implicitly based. There is a non-deliberate, unconscious development of the idea. Artists report putting the concept to the back of their mind, dealing with it when they have the skills and knowledge to explore it successfully. The artist will then

go on to work on another art making project. For example,

Painter / Printmaker:

“I’m not sure how I’d put this actually, but that you are developing an image in your head, if you’re working there’s quite a high chance that it will pop out by itself.”

The art work idea may be enriched and expanded through physical and conceptual drawing. The artist renders various physical diagrams, drawings or sketches of the developing artwork concept. This involves exploring and rendering the abstract art concept in a physical, two dimensional format. The act of drawing is significant because it provides a medium that allows the work to develop conceptually as well as physically. In this regards there is a distinction between an abstract art work concept and the physical manifestation of the work (where concept and form develop together) because a physical drawing takes on the constraints of a two dimensional format. Indeed, drawing affords a different type of understanding of the art work concept, encouraging the development of the concept into a three dimensional physical medium. For example,

Painter:

“and I think something goes on in your head with a drawing, it's almost like you acknowledge, or you understand the way something works, tonally, physically when you draw it, and then you go to paint it, and it's almost like you've got it in your head even without consciously referring to it because you've drawn it.”

The artist also draws out the idea in a conceptual manner. For example,

Sculptor:

“drawing is a practice of taking ideas and developing them and drawing them through and pulling them out [], seeing how they work, and as well as drawing with pencil and making renditions and

things like that”

Conceptual drawing involves extending ideas through idea association and metaphor development.

There are other types of drawing for example making plans and diagrams. This type of drawing organises formal composition or serves to instruct engineers or technicians regarding construction processes. Processes of drawing serve to structure the art work idea, in addition to enriching and expanding it.

The act of writing and recording in a workbook helps to formulate and develop new ideas, extending those ideas, and developing associations about a particular concept. For example,

Installation artist”

“I like words, they trigger off things for me, and they have meaning for me, and they kind of connect with things, and they help to inform ways that I work”

Reviewing the material in the work book serves to reference the work, perhaps suggesting directions to take new work in.

Painter

“I often find this information [in the work book] is really good when I get to the end of a series and I'm not sure what I'm going to do next”

In this way, the material in the work book provides a sense of organisation, by allowing the artist to review the development of ideas and recordings about ongoing work. For example,

Painter:

“I go back to them and I see that three months prior to a show on such and such a year I was in a similar state of mind so yes I can get those works done after all”

Restructuring

After expanding the idea into new and unanticipated areas, the various parts of that network of meaning, and understanding are brought together as links are made between parts of that network. The artist consciously and unconsciously sorts through the material used to structure the art work idea and makes tentative proposals for alternative art work projects. At this point the initial art work idea has been advanced and developed such that its viability (or non-viability) is supported through complimentary formal and conceptual meaning structures. Other restructuring procedures involve considering and dealing with potential problems as a result of extending the network of meaning regarding the proposed art work concept. The artist makes tentative decisions regarding the work’s physical and aesthetic properties, and the meaning associated with the form of the potential work.

Painter / Printmaker:

“for example, I’ve got this idea about yellow, which is no idea at all. I want to do a yellow work, but I’m waiting for that idea to connect with one of my other thoughts. Then when it finds a partner I can do something with it.”

Imagining the potential work is a form of structuring. Alternatively (or in addition) the artist may have a feeling of what they want the art work to look like, or of what the audience might experience upon contemplation of the art work, which in turn affords structure.

Evaluation

Throughout the process of idea development the artist makes multiple implicit and explicit decisions regarding the work and its conceptual and physical development. The artist effectively determines a method, a way of proceeding as they are working. Part of this decision making process involves deciding which particular idea(s), expression, metaphor, analogy to continue exploring, and which to abandon or shelve for other work. For example,

Installation artist:

“and it's very easy to get seduced by an idea just because it's a good idea and you actually have to measure it against whether you really can do it, so a lot of that early period is actually being honest with yourself and saying can I actually do that in this time, is it achievable, can I make a good piece of work in this time”.

Artists report pursuing those ideas that they consider most interesting, that have a richer context of meaning, or more potential with regards to their meaning associations than other art work ideas. These types of art work ideas tend to maintain the artists interest for longer than other ideas, or may be part of a larger art making theme and have arisen from a greater body of idea development. The artist may consider the way in which the developing art work idea communicates, which involves considering the meanings and meaning associations of the developing art work idea in its proposed physical instantiation.

The artist may utilise drawing to render potential ideas in a two dimensional format. Drawing provides additional information about the developing art work because it is a two dimensional representation rather than a purely abstract concept. Through making drawings the artist may see aspects in the work not previously considered, or discover potential problems or unwanted readings of the work.

Painter / Printmaker:

“I do little sketches that also show the main shapes so that I can make an assessment of the work, then I leave the sketches for a few days and then look at them again”

Sculptor:

“drawing is a practice of taking ideas and developing them and drawing them through and pulling them out and letting them, see how they work, and as well as drawing with pencil and making renditions and things like that”

The artist may decide to continue with a particular idea as a result of gathering information and/or forming meaning associations which justify and confirm that idea. Confirmation and justification may come in the form of meaning associations or experiences which match or extend the developing art work idea. The artist may decide to carry out a particular idea on an experiential basis. A particular art work concept may be selected for continuation if it is personally oriented or relates particularly to some experience of the artist. Indeed, part of the process of developing the art work is the cultivation of an implicit experiential understanding of the art work or artwork concept.

Shelving or Abandoning the Work

An art work idea may be abandoned if it is eclipsed by what the artist considers a better idea, or if that idea lacks potential. During this fertile process of idea development many ideas for potential art works are generated. The work the artist produces is limited by what he or she can practically achieve in the time available. This means that many potentially interesting art work ideas are delayed. These art work ideas are recorded in the artists workbook or as studies for future works. For example,

Painter / Printmaker:

“if the ideas compete with each other and time limits the work that I can do, then the idea that is interesting is the one that will get made, rather than an idea I find boring.”

Phase Three: Making the Art Work

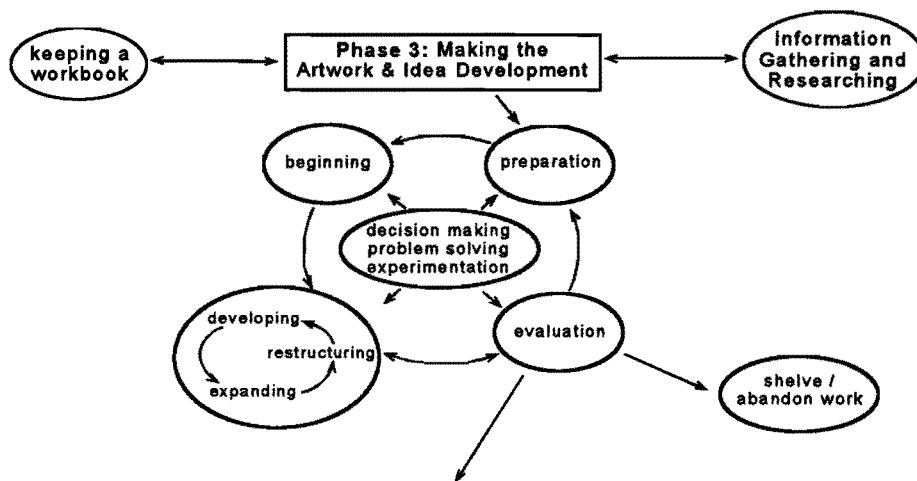


Figure 4. Diagram of Phase Three, Making the Art Work

At some point during the development of the art work idea the artist decides to start physically making the work. At this phase of the art making process the art work undergoes a transformation from a purely conceptual entity into a conceptual and physical entity. The art work now takes on physical constraints which may or may not have been previously considered or foreseen. This transformation involves a movement from conceptual form to visual form (a pictorial image in one’s mind), to material form (physical form and conceptual form combined).

During this stage the process of physically making the art work influences the development of the conceptual component. Similarly the content of the work influences the process of making and the work’s final manifestation. In this way content and form inform each other in an advancing process of development. So

while up until now in this descriptive outline there has been a distinction between the concept of the art work and the art work's physical manifestation, these two are ultimately entwined. For example,

Sculptor:

“and then there's the development of the idea, and the development of the idea kind of goes hand in hand with the development of the material and how you work the material”

It is important to note that making an art work does not involve rendering a pre-thought idea, rather making art works involves a process of negotiation between the artist and the developing art work such that movement through the stages described here are virtually seamless. The artist must manage a delicate balance between suggestions for the work, knowing the outcome of art making activities and discovering outcomes. For example,

Sculptor:

“and then you're thinking about this idea and as you go with the thought things shift a little bit, and you go oh I hadn't seen it that way, so you explore that avenue, it's better if I do it that way, or it's better if I think about it like that, and so even though you have a kind of end view it's not a complete picture ever”

At this stage in the art making process the artist must determine the parameters of the work if they are to start making it. The artist must consider what art form the work will take, whether it will be a painting; multi media; sculpture; installation; a print, and if so, what type. The artist must consider how the materials used will express the art work, and select materials accordingly. For example,

Installation artist:

“so once I settle on an idea I think well how can I do this, because the way that you make something always determines what it means

or the way that it carries it's meaning, so that's really important to me to actually look at how to make it"

Whether the work is a part of an existing and ongoing body or series of work, or whether it is a new and different body of work influences the physical developmental process of the work. For example, if the current work is a part of a larger ongoing body of work then the artist has already developed a background context of information, materials, knowledge and understanding. If so the work may be constructed relatively quickly, particularly if less experimentation and information gathering is required, or the artist is not required to perform studies. These activities have been performed during the making of previous related art works. If the proposed art work is a part of newly establishing body of work or is a one off work then the artist may have to build up a background of knowledge and understanding through gathering information and extensive thought about the proposed art work idea.

Each phase of the process of art work development involves decision making, problem solving and experimental activities. These activities are described below in general terms, and then more explicitly where they fit into each stage of art work development.

Decision Making

Making decisions is an activity inherent to art work development. As is also the case with idea development, decision making in the art making phase can be intuitively and / or explicitly based. The artist must make technical, aesthetic, and conceptually based decisions regarding the ongoing construction of the work. The artist must decide what medium(s) to use, consider the developing form of the work, and the expression of the work. The outcome of each decision is implicitly or explicitly evaluated as the art work progresses. As the art work moves towards resolution, decision making becomes increasingly evaluative. For example,

Painter:

“The work changed compositionally as I made it, because you’re never exactly sure about where I want to put a mark. After a while you just go ahead and do it and then reflect upon it. So I made the decisions as I was making the work”

Problem Solving

Problems and the resolution of problems continue throughout the construction and development of the art work. Problems may be associated with the non-availability of correct or desired materials, the manipulation and construction of materials, the meanings associated with the use of materials, or the aesthetic and expressive properties of the work.

Sculptor:

“other difficulties are getting the work to look right, getting the scale of the work right, and attaching it to the ground properly”

As outlined above, the artist may perceive problems as challenges to overcome rather than constraints on the work. In addition problems may advance the work in unforeseen ways.

Experimentation

During the construction phase of art work development the artist experiments with the work conceptually and physically. The artist continues to explore and extend the conceptual properties of the work through information gathering and idea association. In addition the artist experiments with the physical properties of the work, discovering the outcome of manipulating materials and methods.

Sculptor:

“I have made a preliminary model from scraps of steel and an old car

horn, which I set up to let the wind catch for an afternoon, so I could listen to the sound and evaluate it”

External constraints

Factors external to the immediate art making process can impact on the making of the work. This impact could positively or negatively influence the art work.

The artist may have to deal with facilities or lack of facilities, tools or technical assistance to make the work as desired. The availability and reliability of technical assistance may delay work, or mean that certain work is not made.

Photographer:

“Cost is another thing. I have to make decisions about how much money to spend on the work. Because of the cost of the work I have to control my ideas, and that’s horrible”

Lack of money often requires the artist to take extra paid employment. Working commitments, either paid employment or other art making commitments, impact on the time available for working on the developing art work. This can either delay or postpone the making of work, or alternatively enforce a deadline which the artist then has to work to. In this way, exhibition and commission deadlines can also influence the making of the work, although the artist can overcome this by booking exhibition dates when they feel sure they will have the work ready.

The physical making of the art work has been divided into four general stages. This division has been made for largely practical and conceptual purposes to aid understanding and description rather than a strict reflection of that process. So while this making process is divided into four stages, the transition through these stages is seamless with more or less activity in each stage for different artists and

different art works, depending on the nature of those art works. A single art work may travel through this cycle multiple times before moving through into the next stage, finishing the art work. In addition, the artist may construct multiple art works at any one time with each art work at a different stage of making.

Preparation

When the artist starts to physically make an art work there has been an explicit or implicit acceptance of a general direction to proceed. Physically making a work requires a decision regarding which idea or form of an idea to start working with. Initiating the physical art work involves either making the parts of the work, making studies for the work, or commencing the work itself.

The artist may have to perform certain preparatory activities before production can begin. This may involve setting up an appropriate working environment and the acquisition of appropriate materials. The type of preparatory activities performed depends on the nature of the proposed art work. For example, the medium of oil paint requires the stretching and preparation of canvas. Materials must be bought, gathered, or constructed. The artist may need to make or otherwise obtain equipment required to make the work. The equipment required is dependant on the materials used and the way in which those materials are worked. For example, a sculpture may require a crane or specialist machine to construct the work. Information regarding the use of materials, techniques, and technical and conceptual refinements must be gathered. For example, a sculptor may use the expertise of a structural engineer on a large scale sculptural project, or the skills of a technician to refine a particular technique.

As work begins the artwork may be articulated more substantially in thought, writing, drawings, studies, plans, diagrams, and scale models (marquettes). These activities help to structure the developing art work in a physical manner. The decision to perform these activities depends upon whether the making of a scale model, or study, for example, provides useful information for the art work itself.

This information could be of an aesthetic, conceptual, or formal nature which informs the making of the target art work. In addition the artist may gather information about materials and the way that they can be used.

Gathering information allows the artist to problem solve and trouble shoot. Information may be textual, or provided verbally from technical people involved in the area, or gathered from the artist's direct experience with the materials and the manipulation and experimentation of them. For example, a sculptor constructed a water-based coal polishing machine in order to produce a component of the work - the coal dust.

The decision to make a drawing or study depends upon the relevance of the medium of the study to the target art work. For example, drawing, as a two-dimensional medium, may not suitably inform sculpture, a three-dimensional medium. The artist may instead choose to make a maquette, or scale model of the sculpture to inform the target work. If the artist is unfamiliar with the medium being used, or is unsure about the nature of the work in a physical dimension they may choose to conduct a study. Making (or not making) studies may be determined by the artist's personal art making practice. If the materials of the art work are expensive then the artist may choose to conduct a "test run" on a smaller scale. However, the artist has to make a trade off between investing in the making of a scale model and the relevance of the information that model provides for a larger art work, as often changing the scale of a work significantly changes the impact and expression of the work. Ultimately whether or not the artist makes a study depends upon whether that information provided is suitable, required, and serves to develop the art work.

Many artists engage in drawing activities before, during and after making an art work. Drawings take two basic forms, drawings to develop ideas, which may also be considered finished art works in their own right, and plans or diagrams to organise formal composition. The physical act of drawing affords a kinaesthetically based understanding of the art work concept and encourages it

into a physical medium. Because drawing is a physical activity and the outcome is a physical manifestation then drawing activities develop the work in a manner that cannot be provided by abstract consideration of the concept alone.

Painter:

“I don’t do a lot of drawing nowadays because it’s [drawing] a different sort of medium and a lot of the problems are to do with paint”

Painter:

“and I think something goes on in your head with a drawing, it's almost like you acknowledge, or you understand the way something works, tonally, physically, or whatever when you draw it, and then you go to paint it, and it's almost like you've got it in your head even without consciously referring to it because you've drawn it.”

In this manner, drawing can act as a stepping stone to making the final art work by encouraging a descriptive compositional, tonal, and colouristic understanding of the developing art work.

Painter:

“but the drawing is not the idea, well the drawing might have a feel about it that might reflect the idea, but the idea, or whatever it is the work's going to be about is over there and doing the drawing is like a way of articulating that to get to the painting point so that you can articulate that”.

For all varieties of art media, the process of beginning the art work involves setting up the basic composition of the work. The composition sets up the foundation or structure of the work. Starting the art work involves setting up and finding, through manipulation and change, this underlying structure. This structure plays a significant part in how work on the art work continues in so far as it

influences the construction of the remainder of the work.

Beginning the Art Work

Once a general direction has been determined and the physical art work initiated the artist continues to extend the art work through idea association, metaphor, analogy, and the manipulation of physical materials and the expressive properties of those materials. Doing this, the artist continues to explore and construct a body of meaning associated with the art work. This meaning is conceptually and formally (appearance) based. These expansive and exploratory activities may be performed in the art work itself, in test works, or in drawings and sketches.

During this phase additional information may be required. This information could be of a technical nature, or directly pertaining to the formal qualities or the subject of the work. Information may be gathered from external sources or provided through rendering formal qualities in a drawing or a study.

Painter:

“[so when you’re drawing and taking photo’s what is it that you are doing?] I’m just collecting information such as photographs or drawing so when I go to do the painting I can refer to that information to get the composition right”

Sculptor:

“I actually want to get a model dressed in the exact historically correct uniform that [he] would have been wearing .. and I really want the person to be a soldier, and if at all possible to be a thirty three year old Captain”

The artist may conduct experiments to explore conceptual and formal variations. Experimentation is an inherent part of the art making process which involves discovering the conceptual and formal outcome of manipulating materials and

methods. An experiment often involves dealing with technique or the visual properties of the work primarily rather than the conceptual or emotional component of the work. Experimentation may be performed within the actual art work itself or in an experimental piece. For example,

Painter / Printmaker:

“I make controlled guesses [] it's like an experiment you do that you think will work, So I create lots of things that I think will do it, and imagine colours and things that I think will do it, but I'm not generally sure, Then I print them. When I can see them then I can make a judgement which parts will work and which parts won't.”

Experimentation may be an exercise in developing techniques or visual effects to be used in another art work. Indeed, one artist has particular experiments in mind which she is waiting to explore with failed work. Artists may conduct experiments if they are unfamiliar with a particular medium or need to explore the outcome of manipulating certain components of the art work.

Painter / Printmaker:

“a visual experiment might be bringing in a horizontal line at a particular point in the picture to see what the effect is.”

Problems may allow the work to advance in ways not previously considered. Admitting and identifying problems can be advantageous, encouraging the artist to identify gaps in one's knowledge and skill base and determine ways of dealing with it. The artist may use a problem to inform an alternative approach to future work. Problems can be approached as challenges that require technical refinements that extend one's art making knowledge base. In this regard problems may serendipitously advance the art work in unanticipated ways.

Installation artist:

“because sometimes when things go wrong [] and things don't go

quite as you thought they were going to, other things turn up, and I like those surprises”.

Developing, Expanding and Restructuring

Through this process of exploration and expansion the physical and conceptual art work develop together. In this way the art work undergoes a developmental process such that it often changes from the artist’s original intention or glimpse they had when they first started the work.

Sculptor:

“The concept of the work and the physical art work itself are very connected. The idea comes through the materials and the way that I work with them, and the way that they are formed or presented.”

The direction that the developing art work takes may be re-focused as a result of this process of enrichment. In this regard, a working method is formed as the art work is being made rather than before it is made. The artist continues to intuitively and explicitly determine the direction the art work takes as a result of a constant interplay between the developing vision or feeling for the art work, the latest activity in the work and whether or not that was successful. In this way the direction of the artwork is determined by a process of constant negotiation between the developing concept of the work on the part of the artist and the developing work itself.

Evaluation

Evaluation is a part of the negotiation between the artist and the art work. Towards the end of making the work the artist moves into a more deliberate evaluative stance. The work is evaluated in terms of its expressive and aesthetic qualities. The artist considers the work in its current instantiation and determines what is required in order to consider it satisfactorily resolved. Evaluative activities

involve observing the work and considering its visual, expressive, and conceptual qualities. The artist may observe the work from variable distances or in alternative lighting to evaluate its aesthetic qualities. The work may be put out of sight for a period of time, then brought out for further evaluation. Artists report difficulties determining whether the work is indeed finished. This may be due to a difficulty being objectively evaluative while still emotionally engaged with the work.

Painter / Printmaker:

“I operate by the rule that when you get to a point in the picture and you feel that it doesn’t need much else, then you start looking for the minimum amount of work you can put on it, rather than starting to make major changes”.

Sculptor:

“if you finish something before it should be finished, it looks unfinished and it’s kind of wrong to the original concept, and if you hang over something for a longer period then maybe you might become a bit too pedantic and the work kind of loses some energy by doing that too, it’s actually coming up to that time where you know that you’re going to finish it at the right time, and it will be stronger for that”.

The artist measures the work against the latest conception or image in a series of developing mental and conceptual images of what they considered the work to be. So while at the beginning of making the work there was possibly large increments of change, these increments or adjustments get smaller and smaller as the art work concept is defined and the art work nears conclusion. During evaluation the artist evaluates the work’s current aesthetic and conceptual qualities and determines what is required of the work in order to advance it or consider it satisfactorily resolved. These sorts of decisions are often described by artists as intuitive, or feeling based.

Sculptor:

“I don’t know it just feels right, it’s a feeling thing, it’s not an intellectual thing, it’s sort of an intellectual thing because you’re asking questions and your processing ideas in yourself, but it’s got to feel right”

Painter:

“so I can't even put it into words what it was that I felt was missing but it was more like a feeling that it didn't have”.

Shelving or Abandoning the Art Work

As a result of evaluative processes the work may actually be considered non-viable and abandoned. The developing art work may not be considered viable either because the idea or the art work becomes eclipsed by a new idea or art work or the artist considers the work uninteresting. The art work may not be viable because it has not been clearly worked out by the artist, for example,

The artist may lose interest in the work, or consider that it doesn't have enough power to be worth continuing with. The idea may not be practical upon construction, either materials being too expensive, too difficult for the artist to work with, unsafe, or not expressing what the artist intends the work to express. Problems may arise as a result of the non-availability of correct or desired materials, which may impact on the aesthetic and expressive properties of the work as well as the meanings associated with the use of that material.

Installation artist:

“This is the real down part of the whole thing. This is where the materials that I used to make the bellows is not letting it function”

The artist may be unable to resolve the work or be unable to overcome difficulties as they arise. As a consequence the art work may either be abandoned altogether or re-enter the developing, expanding and restructuring stage where the artist re-works the idea and the physical art work. The art work may be abandoned if the artist considers that there is no challenge in actually making the work. Alternatively, the artist may have abandoned a particular variety of that art work concept and opted to carry on with another as a result of the enriching process.

Painter:

“having already spent about five days working on and off on that one that didn’t work then I know what I want to do, I’ll just go in and paint a similar composition but I’ll just make the elements bigger”

The abandoned work may be used as an experiment if it affords experimentation, whether there is time to conduct an experiment, and indeed, whether the artist sees a way towards an experiment. The expense of using particular media may place constraints on the nature of the art work produced. Similarly, the availability or non-availability of materials can influence which materials are used and thus impact on the final work. Due to the toxicity of some art making materials certain types of work or effects may be used less often.

Phase Four: Finishing the art work

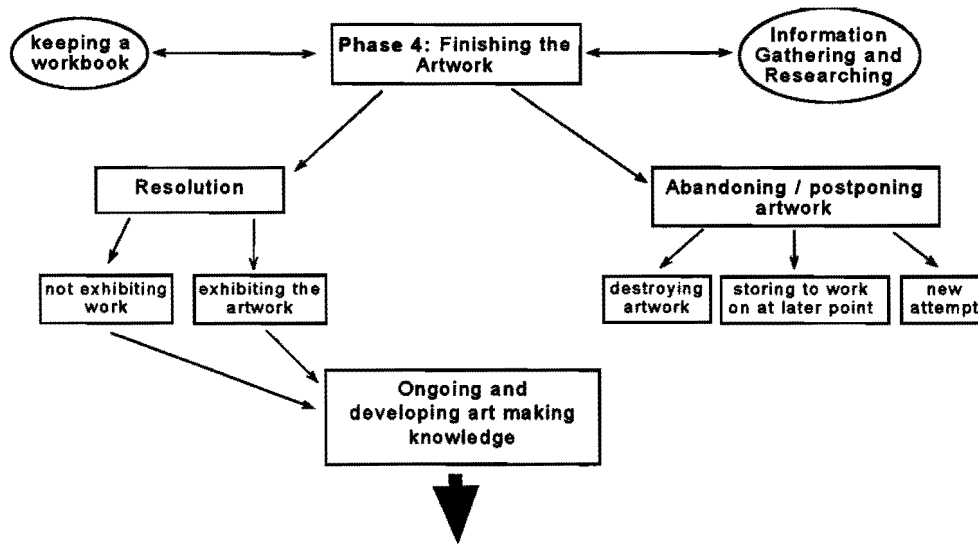


Figure 5. Diagram of Phase Four, Finishing the Art Work

As a result of implicit and explicit process of evaluation the work is either resolved and considered viable to some extent, or abandoned as non-viable and therefore is postponed, put into storage or destroyed.

Abandoning or Postponing the Work

The art work is abandoned if the artist cannot satisfactorily resolve the work. If the work is abandoned as non-viable, the artist may *destroy* it or put it into *storage*. However, if the conceptual component of the art work is considered viable the artist may explore this in future work, and destroy the current rendering. In this case the art work re-enters the idea development phase. The artist may opt to make a *new attempt* on the work, changing a component of the work, for example scale. In this case the art work re-enters the art work development phase. For example,

Painter:

“there comes a point where you feel that you've manipulated it to the point where you feel that it's just not going to work, and maybe

you have to change the scale of the whole thing, or maybe you just have to concede the fact that that's not necessarily going to make a good painting, which is really hard to do”.

If the artist is unable to successfully resolve the work it may be stored until the artist feels capable of successfully resolving it, making a new attempt at a later date. In this case the art work re-enters either the idea development phase or the art work development phase to undergo further development, or the artist learns the skills required to successfully render the work. For example,

Painter:

“I’ve had experiences in the past where I’ve done a painting and it didn’t work and I went back to it and three years later, and I approached it from a different angle and it worked that time, so I haven’t completely given up”

Resolution

If the artist considers the work successfully resolved, and if it is to be shown, then it must be prepared for installation at the gallery or wherever it will reside. Preparing the work may involve framing or mounting the work on plinths or other structures. Complicated sculptural or installation work may require structures or additional equipment to install the work. For example, if the work is kinetic (moving) the artist must consider how the movement will be powered while the work is still in the development phase. In addition the artist must decide whether, and if so how, this powering source will be disguised. The artist must also consider maintenance of the moving work for the duration of the exhibition, and the safety of those viewing or experiencing the work. For example,

Sculptor:

“This is a moving piece, and moving works always need a bit of maintenance after they have been up for a while”

Installation artist:

“You don’t want the work to break down during the exhibition. If the work makes it through the show you’re lucky, well not lucky, but you know it’s done its job”

With regards particularly to installation work, the gallery space, or site in which the work will be shown or finally rest, is an integral component of the final art work. Ideally a gallery space will be selected which suits or contributes to the work. For installation work the space in which the work is shown is an important contributor to the work. The space is a part of the work, and not just a place in which the art work resides. In this regard the artist actually works with the space as a component of the work during the development phase. If possible the work is made on site. If the space is not available until a few days prior to a show and between exhibitions (for example dealer galleries), then the artist makes as much of the work as possible in a temporary space such as an office or studio, transporting the work to the space when it becomes available. Such a work allows very little time between evaluating the work and exhibiting the work. This places considerable pressure on the artist to produce the work successfully in the few days prior to the exhibition opening.

Exhibiting the art work

If the artist considers the work to be successfully or sufficiently resolved, then in most cases it is exhibited. For professional artists making art work involves showing or exhibiting that work to the art world public and general public. For example,

Painter:

“but if you want to paint big and travel your shows, and show overseas and in different centres, you just can’t afford as an artist not to show consistently and keep up your profile.”

Resolved art works are generally exhibited in a gallery space or placed on site. Exhibition dates are largely booked in advance. Because of this there is pressure on artists to complete work by certain dates. However, some artists prefer not to book exhibitions until much of the work is completed.

Artists exhibit in order to maintain a profile in addition to selling work. Selling the work is the job of the art dealer or gallery director who takes a commission. Artists tend to exhibit work regularly through the same gallery, thus being aligned with particular Dealer galleries. The artist may have multiple galleries in which to exhibit work nationally. The same work may be exhibited in multiple galleries unless it is sold, and even then it may be exhibited on other occasions.

Artists exhibit their work in order for that work to be seen by art world peers. It is important to maintain a profile in order to continue exhibiting work, selling work and functioning within the art world. However, gallery directors act as gatekeepers who accept work or decline exhibiting work. If a gallery director does not think the work will sell, or for any other reason chooses not to exhibit the work then the art work will not be seen by the public, at least not in that particular gallery. In this regard galleries either offer exhibitions to artists or artists must approach galleries in order for their work to be exhibited.

Exhibiting work usually involves an artist bringing together multiple works in one exhibition space. Often these works are related or part of a series or theme. They may be brought together after the fact, or made with the intention of exhibiting them together. With regards to exhibiting work, the artist considers how multiple art works interact with each other in the gallery space. The artist considers how the work can be best viewed, heard or experienced. Consideration is given to the maintenance of kinetic art works and its continued functioning for the duration of the exhibition. The work is installed such that mechanisms are safe and, if desired, unseen.

The art work may not be exhibited at a gallery, but rather installed at a specific site. If the work is site specific then the site itself is a component that is included in the art work's developmental process. A potential site could be anything from a mountain side, a botanical setting, or urban environment. In addition, a particular gallery may be selected specifically to show the work, and that gallery setting may be worked into the art work's developmental process. This kind of installation tends not to be shown in a gallery other than the one for which it was made.

If the work is a commissioned piece, then it often has a pre-determined destination. In this case the site also becomes a component in the development of the art work.

Not Exhibiting the Art Work

Not all of an artist's work will be shown at gallery exhibitions. The artist may select and exhibit those art works that work best together. Works that aren't exhibited immediately may be exhibited at later dates or not at all. For example,

Painter:

"I made a painting for the University and when I hung it in the building it was so wrong in that space that I'm going to throw it out"

Printmaker:

"I often don't show my work until about a year after I've made it, so that I can have it with me for a long time and play around with it and then show it."

Ongoing and developing art making knowledge

The artist's art making knowledge is continually developed as a result of this dynamically interactive and ongoing practice of art making. Whether or not the current art making activity has been successfully resolved in a finished work, the

artist nevertheless learns from the minutiae of activity experienced during the process of making the work. The artist adds to and refines their repertoire of technical skills and knowledge, and extends their understanding of their art making interest, whether that be thematic or abstract.

Painter:

“even if I abandon the work, having done it adds to my experience.”

Throughout the making of the current work, new ideas for additional work arise which serve to further explore areas of the artist’s art making interests or to extend that interest into new realms. In this regard, rather than being a linear production process, making art work is dynamically interactive, in so far as the making of an individual art work is influenced by multiple factors, including the development of other art works.

Sculptor:

“so as soon as this work is all done I’ll be cranking into the next lot of work, and it will grow out of this work probably”

Figure six unites all four phases of the art making process described in this chapter. The arrow at top and bottom represents the artists’ ongoing and developing art making knowledge, which continues throughout the art making process and interacts with each phase of the art making process. The categories either side of the main diagram represent moderating variables that impact at multiple points in the process. Arrows returning to earlier stages represent feedback loops.

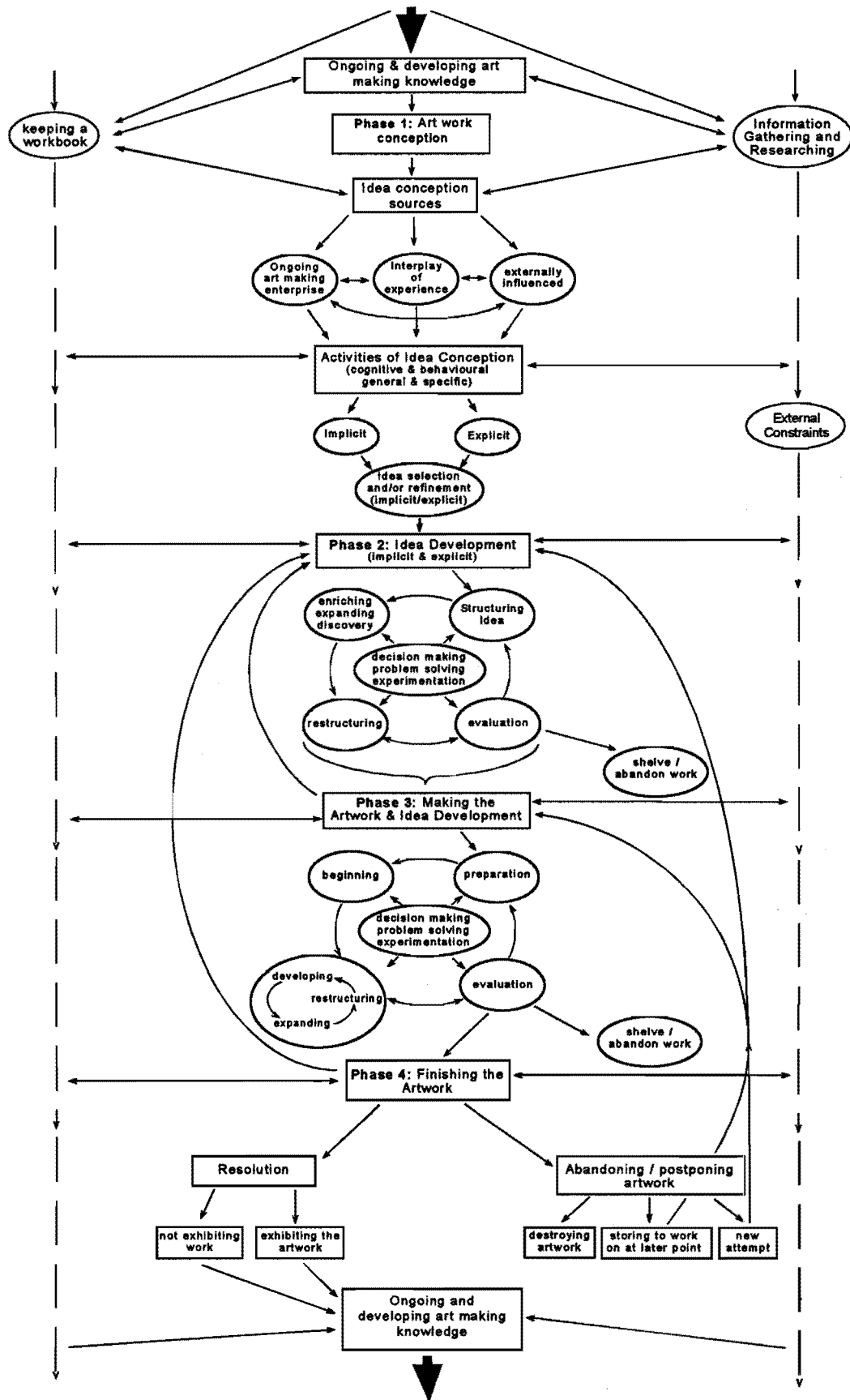


Figure 6. Diagram of the art making process showing the four main phases, feedback loops and moderating variables.

Diary material and photographs of the art work

The photographs and diary material collected during the course of making each art work was used to check the artists' self reports in the interview transcripts. Material entered into the diaries was consulted during the process of reading interview transcripts and indexing meaning units into categories. Material within diaries was not indexed into the category structure used to develop the model of the art making process. Rather, diary material was consulted by the researcher in order to verify statements artists made during the interviews.

Material within the diaries was often reflected in the interviews. In addition, diary material often fleshed out issues discussed during the interviews. Diaries often contained drawings, diagrams, and other visual representations of the developing art work. This material served to illustrate points artists had described verbally in the interview transcripts.

Artists took a series of photographs of the art work in progress from its physical beginning, through the process of its development to its completion. The photographs provided a visual illustration of the progress of the art work that was verbally described in the interviews. In this manner, the photographs provided the researcher with a visual illustration of what each artist conveyed verbally regarding the progress of their art work.

Results of Study Two

Study two was comprised of 21 interview protocols taken from nine artists. Overall these interviews comprised 1661 individual meaning units, with an average of 79 meaning units per interview. The independent coder considered that eight of these 1661 meaning units could not be indexed into the model but were nevertheless relevant to the art making process as he understood it from training material (training required the independent coder to read and understand the results of study one and the accompanying diagrams). Thus, 99.5% of the meaning units from study two could be accounted for by the model independently produced during study one.

A comparison of the coding between the independent researcher and the primary researcher revealed an overall agreement score of 81%. This means that both coders indexed 81% of the individual meaning units in the same phase of the art making process (including agreement for the catch-all categories).

One of the interviews had a coding agreement score of 33%. This was not included in the overall agreement statistics because this low score was due to the fact that the coding of that interview by the primary researcher was coloured by her knowledge of the actual status of the art work (because she conducted the interviews), rather than the information provided by the edited transcripts alone. From the statements in this particular interview, it was not clear whether the artist was in phase two or phase three, however, the primary researcher was aware of the status of that particular art work in that interview and thus her coding of those statements were influenced by that additional knowledge. Upon reflection, and with discussion with an independent supervisor, it was considered that the independent coder had more correctly indexed these statements given the available information and the task at hand.

Part Four

Discussion

Chapter Six

Discussion: Towards Understanding Creativity in a Broader Context

This chapter begins by highlighting the particular strengths of the model while outlining its key features. This is followed by a discussion of the relationships between the model developed here and existing models of artistic creativity. There is a discussion of the wider implications of the model for the concept of creativity and its study. The multi-variable perspective is discussed in terms of current and future creativity research. Finally, some limitations of the current research are discussed with outlines for future research.

Key Features of the Model

The model developed here has a number of key features. These features are introduced here in brief before outlining them in greater detail. Firstly, the model describes creativity as a *process* from inception to resolution. Prior to this study the examination of creative process has been limited to studies observing artists working on contrived art problems, initiated by the experimenter rather than the artist (for example, Getzels & Csikszentmihalyi, 1976; Patrick, 1937), or the examination of retrospective self-reports (for example, Cawelti, Rappaport, & Wood, 1992; Marsh & Vollmer, 1991). The description of creativity in its wider process reveals *underlying variables* of creative production and idea inception that might not otherwise have been identified. For example, alternative processes of idea conception; how ideas are developed; the relationship between the concept of the art work and the physical making of the art work; and the emergence of art works and art work ideas from artist's ongoing and developing art making

knowledge, to name but a few.

Creativity is described as it takes place over *time*, rather than smaller instances of creative achievement, such as insight experiences. In this model, each phase, and stages within each phase, contribute to the creation of the art work; creativity is not reduced to particular parts of this wider process. The model is *dynamically interactive* such that its various parts interact. This reflects the way in which individual art works may return to earlier developmental phases. In addition, the *multiple pathways* through the model accommodate artistic diversity. The model describes how producing art works derives from, and contributes to, the artist's *wider career* and *art work production*. This is a further reflection of the dynamic nature of the model. Finally, conducting a second study on an independent group of artists provided a test of the *validity* of the model.

One of the main strengths of the model developed here is that it provides a description of the *process* of creativity from the initial stages of idea inception to the resolution of the art work. The model outlined demonstrates that creativity, as manifest in making art works, takes place over a period of time rather than being actualised at a single point in time. Each of the four phases identified in the model contribute to the production of the art work. This includes the processes of: art work conception, idea development, making the art work, and finishing the art work. Within each of these phases the artist performs a number of activities, all of which integrally contribute to the development of the art work. Individual phases, or activities performed within phases, cannot be pinpointed as the single source of creativity. The model developed here illustrates how creativity is manifest in a range of activities and processes, all which contribute in different ways to the production of the art work.

For example, Phase One, Art Work Conception describes the tentative process of identifying an implicit or explicit idea for a potential art work. The art work concept or idea often emerges from the process of making other art works,

perhaps before that other art work is even completed. In addition, art work ideas emerge from a context of meaning and research that the artist has built up over the course of their career. In this regard the beginning of the art work can often occur far in advance of explicit work upon it, yet art work idea inception cannot be identified as the locus of creativity because the art work undergoes continued development throughout its making process.

During Phase Two, Idea Development, the art work idea is extended and restructured as the artist engages in a range of decision making, problem solving, information gathering, experimental, and evaluative activities. The art work idea may change considerably during this process, yet work upon the art idea during and prior to Phase One, contributes as much to the creation of the art work as the artist's efforts during Phase Two.

Phase Three, Making the Art Work, involves the physical development of the art work. The artist now begins work on the physical dimensions of the art work. The concept of the art work, and what the artist wishes to express influences the physical development of the art work. In this regard, the abstract art concept takes on certain physical constraints that it may not previously have had. In turn, the physical development of the art work influences the concept of the work, and how and what the art work expresses. During this Phase, the art work may undergo considerable change as the artist comes to terms with the physical parameters of the work, yet the creation of the work is not limited to this particular phase alone.

Towards the end of Phase Three, the artist evaluates the art work in a more deliberate manner. The work is evaluated in terms of its expressive and aesthetic qualities. As a result of evaluation, the artist may decide to continue with the development of the art work, shelve or abandon the work, or consider it sufficiently resolved to exhibit. Phase Four, Finishing the Art Work, describes what happens to the art work when these decisions have been made. Despite whether the art work is abandoned or shelved as a non-viable art work, the

process of making that work contributes to the artist's wider repertoire of skills and art making knowledge, thus contributing to the initiation and development of future art works.

To view creativity as occurring in distinct points in time, as for example, insight or problem solving experiences, masks the real work of creativity and offers only a superficial perspective of the wider creative process. Creative moments may occur, but those moments are inextricably linked with an ongoing dynamically interactive making process. Creative moments occur while the work is being made, but creativity is more meaningfully identified in the wider process of art making rather than in components of that process.

In addition to demonstrating the process of creativity, the model describes how the process of making that art work emerges from and in turn influences the artist's ongoing aesthetic development. In the model presented here, the importance of recognising creativity in its ongoing wider process is also exemplified in the way in which ideas for an art work arrive out of the process of making other art works. Artists tend to produce a number of art works that explore and express particular themes. This encourages an extensive knowledge base about that theme. Art making themes represent the artist's exploration of a particular style or concept. This theme may dominate their working life, or the artist may explore multiple themes over the course of their career. Working on an identifiable (albeit vague) theme means that multiple art works may be produced that explore facets of that evolving theme. In this regard the inception and creation of new works derives from the temporal process of working with ongoing themes. Art works do not often arrive spontaneously from unidentifiable sources.

Working with particular themes contributes to the development of the artist's knowledge base regarding their trade. This knowledge base includes technique and skills, aesthetic knowledge, information regarding art theory, historical and contemporary art knowledge, and personal interests and theories. A consequence

of building such an extensive and personally felt knowledge base is that it provides a background for new work and innovation. In this regard, new ideas for additional work do not necessarily arise without an apparent source. Rather ideas for new work arise out of this ongoing art making enterprise, itself often derived from the interplay of life experience.

The creative process in art making takes place over *time*. The temporal development of the art work should not be lost in the description of process. While breakthroughs may take place in the form of pronounced verification experiences during periods of evaluation, these breakthroughs represent snapshots of creativity rather than creativity in its wider process.

The model is *dynamically interactive* such that multiple feedback loops link various parts of the model. This means that a developing art work can return to an earlier developmental stage. In this regard, it is important to note that the process of art making is not linear, and the boundaries between phases can be fuzzy. For example, as the art work moves from phase to phase, feedback loops link that art work with earlier phases. In this regard, if an art work is considered non-viable in its current state, it may return to the beginning of Phase Two, Idea Development, or Phase Three, Art Work and Idea Development, depending on the artist's evaluation of the abandoned art work. Similarly, successfully finishing an art work can suggest additional related art works, which may take the artist directly back to Phase Two, Idea Development for a new work, or continuing the process at an earlier developmental phase, Ongoing and Developing Art Making Knowledge.

Because there are *multiple paths* through the model, the model can account for diversity in artist's working processes. The diverse working processes amongst artists result in different art works travelling alternative paths within the model. This means that the model is capable of reflecting various features of art making that are common to a range of artists, yet is rich enough to describe the art making process in a diverse range of artists. The artists from who's work the model was derived represent variety in expertise, experience, style, and medium used.

For example, in Phase One, Art Work Conception, the model describes three different idea conception sources: the artist's ongoing art making enterprise, the interplay of experience, and externally influenced ideas. These multiple pathways reflect the diverse ways in which an art work concept may arise. Phase Two, Idea Development, includes the stages: structuring the idea, enriching and expanding that idea, restructuring that idea, and evaluation of the art work concept. The art work concept moves through these stages in a cycle of development. At the point of evaluation, the art work concept may be abandoned or shelved for working on at a later date. Evaluation may result in further structuring and restructuring of the concept, in which case the art work may cycle through this phase again.

Phase Three, Making the Art Work, is similar to Phase Two in that individual art works may cycle through this phase once or upon multiple occasions before moving onto the next phase. Evaluation in this phase may also result in the art work being abandoned or shelved, moving back into the process of restructuring and development, or beginning physical work on the art work again.

Finally, within Phase Four, Finishing the Art Work, the art work is either resolved, in which case it is exhibited or not exhibited, or the work is abandoned or postponed. If the artist abandons the work altogether, it is destroyed. If the artist wishes to postpone the work with the possibility of working upon it at a later point, the work is put into storage. Alternatively, the artist may consider the concept of the work sufficiently viable as to make a new attempt on the art work, in which case it re-enters Phase Three for further development.

Multiple pathways within the model reflects how different art works may undergo different developmental processes. The existence of multiple pathways within the model is a strength because it accounts for variability in artists' working processes, while also revealing certain features of art making that are common amongst artists.

Another significant feature of the model is that it accounts for the way in which making one artwork influences and is influenced by making other art works. This is more clearly represented in figure 1. (p. 97) which is an overview of the four phases of art making. This diagram describes how the making of individual art works overlays another feature of the model, Ongoing and Developing Art Making Knowledge, an ever present factor that interacts with each phase. In this regard the model describes how the making of a current art work is derived from the context of the *artist's experience and expertise*, and in turn adds to that experience and expertise. This places the making of an individual art work within the wider intra-personal context of its production. In this regard, the creation of an art work cannot be identified with any single phase, but rather emerges from the interaction of the entire model.

Figure 1 (p. 97) illustrates how the artist's ongoing and developing art making knowledge continues throughout each art work that they make. In this regard the development of experience and expertise continues from work to work. It is possible for an artist to be working upon multiple art works. An artist may work upon one art work, and then move to another art work as it suits. This means that different works could be at different stages of development within the model itself.

A possible consequence of working on multiple art works is that different art works in progress may influence each other's development. This influence may be conceptual, aesthetic, or regarding the form of the art work. For example, the outcome of technical experimentation with one art work may provide insight into dealing with potential technical problems with another art work in progress. The nature and degree of influence between different art works may depend on their conceptual and physical similarities.

Conducting a second study provided a measure of the *content validity* of the model produced from study one. (See Chapter Four, pp. 88-93, for a full discussion of the nature of this second study, and Chapter Five, p. 143, for the

results of the study). Briefly, study two required an independent coder to code material taken from artists' working processes into the model produced from study one. The protocols of artists in study two did not contribute in any way to the production of the original model in study one. The successful coding of meaning units from protocols of artists in study two into the model suggests that the model has sufficient scope to accommodate the working processes of a range of artists, including those who did not contribute to the formation of the model. Agreement between the two coders for coding material into phases of the model suggests that the model is not idiosyncratic, the phases in the process are relatively stable, and that the material being coded into the model is robust.

Relationship to existing models of the creative process

The current model of artistic creativity builds upon and advances existing models. The ability of a model to accommodate diverse theories and extend the scope of existing models provides a measure of its theoretical adequacy. The following sections outline relevant models of the creative process. Two simple models are presented and discussed in relation to the current model. This is followed by a discussion of a number of more complex empirically based models that largely explore creativity as a problem solving process. The model developed here is compared and contrasted with each model, with a discussion of the implications this work has for the study of creativity.

The current model is based upon the exploration of the working process of artists while they were making work. Artists were interviewed while the art work was in progress, rather than retrospectively, when the art work was finished. Because of this the resulting model places the artist's experience within the context of actually making art work, which provides a great deal more validity to resulting theory than models based upon retrospective reports of artists' activities (for

example, Cawelti, Rappaport & Wood, 1992; Marsh & Vollmer, 1991).

Marsh and Vollmer (1991) developed a model of the creative process after questioning 25 professional artists and writers about their art making experiences. While Marsh and Vollmer's model represents an advance in so far as it is based on consultation with creatively active individuals, its validity is somewhat reduced because it is based upon the artist's retrospective evaluations of their own creative experience rather than accounts while they were still engaged in making the art work. In this regard, it is unknown to what degree the artists' responses reveal their implicit theories regarding the art making process (Nisbett & Wilson, 1977). In addition, the use of a retrospective method results in a model that is unable to provide detail in terms of the actual process of making an art work.

The current model describes details of art making as a four phase process that takes place over time. The model also describes how that making process is influenced by, and influences, the artist's art making experience and expertise. This can be seen in the links between each phase in the model and the artist's ongoing and developing art making knowledge. (See p. 96 for an illustration of this).

Marsh and Vollmer's (1991) model reflects artists' responses in light of three realms of experience: the internal, the transitional, and the external realm. These realms represent the creative individual's private and public psychological reality and the transitional experience that bridges the two. As such Marsh and Vollmer's (1991) model describes the artist's *experience* in terms of these realms instead of the *process* of making particular art works. There is no attempt to describe the artist's experience in terms of a creative process over the course of making a work of art.

Cawelti, Rappaport, and Wood's (1992) study advances Marsh and Vollmer's (1991) work in that it models the creative process over time. Like Marsh and Vollmer's (1991) model, Cawelti et al.'s model concentrates on the artist's

experience of art making, but it places that experience within a temporal context. Cawelti et al.'s model is based upon questioning a group of five expert artists about their experiences when they last produced a creative product.

An initial criticism of Cawelti et al.'s (1992) model is that it is based on a small number of artists. It seems unlikely that five artists would provide sufficient diversity to describe a generic artistic process. This problem is perhaps illustrated in the difficulty one of those five artists found participating in the construction of the model of the creative process over time. As a consequence, the fifth artist produced a model independently of the other four artists.

In Cawelti et al.'s (1992) study it is unclear whether artists' reflections were based on work that they were currently working on at the time. This limits the model's validity because it cannot be determined whether or not the model is based on the artists' retrospective implicit theories about their creative process, or their actual creative process. (Nisbett & Wilson, 1977; Rennie, Phillips, & Quartaro, 1988). In addition, because Cawelti et al.'s model is apparently based on retrospective recollections of artists' art making experiences then it is unable to provide sufficient detail about the actual activities and experiences of the artists while they were working on the art work.

The model developed in the current study accommodates the process outlined in Cawelti et al.'s (1992) model, largely because Cawelti et al.'s delineation of process exists at a basic level. For example, Cawelti et al.'s model describes artists' experience of creating through a temporal process that includes: centring, expanding, creating, revitalising, distancing / renewing / separating, evaluating, and restarting. Description of each of these stages is based on the artist's subjective experience rather than activities the artists engage in while they are making works of art. The current model advances this in terms of detail, complexity and dynamism, because it reveals artists' activities while they were actually engaged in making a work of art, and links those activities temporally and dynamically. For example,

Painter / Printmaker:

“So I’ll be reading some books, and I’ll be thinking about the way people relate, or I’ll be looking out at the world and seeing some angles, or I’ll be thinking through a theory about the effect of time on things, just using normal thoughts, all mixed up, and then usually there’s a link between one type of thing and another”

This statement describes activities an artist undertakes in order to generate suitable art work ideas. In this particular statement the artist describes some explicit activities of idea conception, which are located in the first phase of the model, Idea Conception.

Sculptor:

“I looked for stories of his exploits, right the way back to what he was like at school, his nicknames at school”

Sculptor:

“I think that by knowing a bit about his life, his history, what he’s done, how important the whole thing was, it will be there [in the statue]”

This statement describes how this particular artist gathered information about the subject of his sculpture, which served to increase the artist’s knowledge about the subject and thereby informing the developing work of art.

The current model differentiates between developing the idea of the art work in Phase Two, and developing the idea in conjunction with making the art work in Phase Three. This distinction is not apparent in previous studies. This distinction is important because in Phase Three, the artist now has to deal with the physical constraints associated with working within a three dimensional medium and how that physical construction interacts with the continued conceptual development of

the art work. Prior to this point, in Phase Two, the artist has been dealing with an abstract idea, not yet expressed in physical form, although there has been some guidance towards that physical form in terms of drawing, sketching, and other planning activities. At this point, the art work idea is limited by a two or three dimensional context and the artist's ability to render the abstract idea in this medium. Some of the artists interviewed here expressed a distinction between the "idea" of the work, and the actual art work itself.

Sculptor:

"And then there's the development of the idea ... which goes hand in hand with the development of the material and how you work the material"

This artist expresses how, in the making of the work, the development of the idea of the work is constrained by the materials that he used to make the art work and thus the expression of the idea.

Painter:

"But the drawing is not the idea the drawing might have a feel about it that might reflect the idea but making a drawing is a way of articulating that [the idea] to get it to the painting point"

This artist is describing how she makes a drawing, to express an idea that she has developed up to this point, in order to more effectively render that idea in the medium of painting. Drawing acts as a stepping stone to the physical medium of painting. In this regard, it is as if the idea of (or for) the art work and the art work itself are not one and the same.

It is possible that developing the concept of the art work without regard of the physical consequences of those conjectures gives the art work greater conceptual richness and possibilities for physical manifestation than if the concept of the work was only developed with regard to its physical limitations.

While in the current study it became apparent that the distinction between the development of the idea of the work and the making of the physical art work was an important one, this distinction is not apparent in other studies of creative process. For example, while Sapp's (1995) model identifies major stages in artists' experience of the problem solving process: Associative Exploration, Problem Parameter Exploration, Multiple Focus Exploration, Primary Focus Exploration, and Refinement, he does not differentiate between the development of the concept of the work and the physical work. This lack of distinction may be a direct result of the fact that Sapp's model was not derived from creatively active individuals, but instead builds upon previous models of creativity.

Problem Solving

The model developed here does not derive from a preconceived notion of the role of problem solving in the creative process. Rather, the model and associated theory derive from actual data obtained from practising artists. This meant there was no attempt to interpret the creative process in artists as a problem solving process. In the current study the role of problem solving emerged from the data, rather than being imposed upon the data. In contrast, Sapp's (1995) model of art making is delineated as problem solving process. This is largely because it is based upon other models of problem solving, for example, Getzels and Csikszentmihalyi (1976); Isaksen & Treffinger (1985); and Parnes (1981).

In the current model problem solving emerged as a intervening variable in Phases Two and Three. Within these phases the notion of problem solving involves dealing with difficulties or obstacles as they arise in the course of making the work. In Phase Two, Idea Development, problem solving involves refining and abandoning ideas, and anticipating potential problems with the use of materials. In Phase Three, Making the Art Work and Idea Development, problem solving also involves dealing with the non-availability of desired materials, the manipulation and construction of materials or physical parts of the work, and the aesthetic or

expressive properties of the work. Therefore, in the model developed here, problem solving is a component within the process of making art works. Making art works is not preconceived as a problem solving / finding process. Scientific theories and discovery are generally defined as a solution to a problem, but in this model the artists are not working towards solving a problem as such, but are expanding and linking concepts in order to achieve a new way of thinking or perceiving. Art making involves theory generation of an aesthetic, abstract variety.

The model developed in the current research provides more detail in terms of the artists' behaviour at each stage in the process, particularly at the initial and final stages. This is likely due to the direct emergence of the current model from artists' real world art making activities, In contrast, Sapp's (1995) model is derived from other models rather than empirically derived data. The model developed here represents an advance upon that of Sapp's (1995) in so far as it acknowledges the artist's ongoing art making knowledge and experience; the tendency to make multiple works about particular themes; and the evolution of themes over the course of the artist's career, as significant factors that impact on the making of the current work. The model developed here also acknowledges how making the current work in turn influences the development of the artist's wider art making experience and expertise.

In developing the current model it became apparent that the artist's progress on art works could re-enter earlier stages in the cycle, and this is reflected in feedback loops. In contrast, Sapp's (1995) model contains no feedback loops to previous phases. However, Sapp acknowledges that artists may take up and work upon ideas that were produced out of the making of the current work, thereby exploring a related theme of the art work idea in a new work.

At a general level there are similarities between the current model and Sapp's (1995) model. The five primary stages in Sapp's model: Associative Exploration, Problem Parameter Exploration, Multiple Focus Exploration, Primary Focus

Exploration and Refinement (see pp. 47-49), Chapter Three for detail) are similar to the four phases in the model outlined here. However, the model outlined in the current research provides more detail regarding the processes at each major phase in the process.

For example, Sapp's (1995) Associative Exploration phase bears similarities to Phase One. Art Work Conception here. In both models this particular phase describes how ideas for art works are generated from the artist's conceptual, emotional and perceptual experience. In both models this stage is defined by a general exploration that is not yet directed towards a particular goal. In both models moving to the next stage in the process requires the identification of an idea or general theme. However, Sapp's model fails to acknowledge the significance of the artist's overarching art making career in the initiation of an art work. This factor is reflected in the current model by the existence of the category Ongoing and Developing Art Making Knowledge, which precedes and interacts with each phase in the process of art making. This category is important because the process of making art works is ongoing. Rather than arising from a conceptual void, the art work develops within a complex context of art making, thinking, and ongoing experience. Sapp's model recognises the role of the artist's experience in generating potential image opportunities but it does not acknowledge the powerful aesthetic role the artist's involvement in art making plays in the making of each work.

Stages two, three and four in Sapp's (1995) model: Problem Exploration, Multiple Focus Exploration, and Primary Focus Exploration correspond with the components within Phase Two and Three in the current model. In the current model, Phase Two Idea Development, includes the following components: structuring the idea, enriching / expanding / discovery, restructuring, and evaluation. The art work may revolve through this cycle multiple times before moving into the next phase. Sapp's Problem Exploration stage involves working out the structure of the specific problem, or the art work idea. This corresponds to the first component of Phase Two in the current model - Structuring the Idea.

Sapp's third stage, Multiple Focus Exploration, involves exploring multiple alternative responses to the identified problem, and corresponds to the second component of Phase Two, enriching, expanding and discovery. The fourth stage in Sapp's model, Primary Focus Exploration involves exploring one primary image that emerged from previous stages. This corresponds with Phase Three, Making the Art Work and Idea Development, which proceeds through processes of developing, expanding and restructuring the art work while it is the process of being made.

Similarities between these two models are notable on a theoretical and methodological level because these general level similarities indicate that neither model is idiosyncratic in terms of describing the creative process of art making. These similarities also indicate that the phenomena observed in the current research are robust.

Empirical studies and problem solving processes

While the model developed here did not explicitly explore the nature of problem solving processes in art making, problem solving is relevant because a creative response is generally regarded as a solution to some problem (Finke, Ward and Smith, 1992; Getzels and Csikszentmihalyi, 1976; Runco, 1994; Weisberg, 1988). In addition, processes of problem finding are increasingly considered an important forerunner to problem solving processes (Dudek & Cote, 1994; Getzels & Csikszentmihalyi, 1976; Jausovec, 1994; Jay & Perkins, 1997; Mumford, Reiter-Palmon & Redmond, 1994). Because of the significance given to problem solving in the creativity literature, its role is discussed here in relation to the current model.

Getzels and Csikszentmihalyi's (1976) and Patrick's (1937) research represent the first empirical studies on problem finding during the creative process in artists. Both studies involved the direct observation of art students' activities during the

process of making a work of art. This work resulted in the distinction between problem finding and problem solving processes.

Problem solving consists of a set of cognitive processes that involve formulating a problem, adopting a method of solution, and reaching a solution (Getzels and Csikszentmihalyi, 1976). Runco (1994, p. 281) suggests that problem finding itself consists of a family of behaviours including, “problem construction, problem discovery, problem expression, problem posing, problem definition, problem identification”. Each of these behaviours represents distinct parts of the process of actually finding a problem.

Because the present study utilised a grounded theory method such that the resulting theory was derived from the data rather than using that data to confirm or disconfirm a pre-formulated hypothesis, the nature of problem finding and problem solving processes was not directly studied. Furthermore, there was no attempt to judge the “creativity” of any of the artists’ work. The focus of the current study was on the real life working processes of practising artists producing self initiated work, whether that work was successfully completed or not.

Phases One, Two, and Three of the model developed here include processes that are comparable to Getzels and Csikszentmihalyi’s (1976) accounts of problem formulation processes. Problem formulation involves identifying what the art work is to be about, before that problem can even be solved. Problem identification begins when the artist experiences either a conceptual, perceptual, or emotional conflict. The artist then determines a way of articulating that experiential conflict and expressing it in a visual format. Getzels and Csikszentmihalyi consider this a process of problem finding because the artist is determining what the work is to be about.

Phase One of the current model describes the process of tentatively identifying, implicitly or explicitly, a specific or general idea for an art work. This art work

idea continues to be developed in Phase Two and Phase Three. In Phase Two idea development involves a process of extending and restructuring a particular art work idea through processes of idea association, metaphor, analogy, research, experimentation, and problem solving in order to build up a richness in form and content. For example;

Sculptor:

“You’re thinking about this idea and as you go with the thought, things shift a little bit, and you go oh I hadn’t seen it that way, so you explore that avenue, it’s better if I do it that way ... so even though you have a kind of end view it’s not a complete picture ever.”

Painter / Printmaker:

“Even if I try and fix it down to something you might call the original idea too much, the work gets really limited. So I want there to be decisions along the way when I am making work.”

These quotations illustrate how the identification of the art work or the art work concept continues along with its actual development. The art work idea undergoes an ongoing process of expansion, enrichment, restructuring, and evaluation. The artist continually reformulates the art work concept on the basis of gathering new information, and this process continues as the work is being made. The process of formulating and constantly reformulating the art work concept can be identified as a process of formulating a problem, in so far as the problem is some ill-defined concept the artist wishes to express.

In Getzels and Csikszentmihaly’s (1976) study, extending the process of problem formulation served to maintain the artists high level of interaction with the still life objects from which they were working, and also the developing drawing itself.

This delay in problem foreclosure was most related to long term artistic success in their longitudinal analysis. In the current study, the process of ongoing expansion, restructuring and evaluating the art work concept can be conceived as an extended problem formulation process, where the artist is attempting to formulate and re-formulate a suitable art work concept.

This process of extended problem formulation takes on extra significance in the case of art works that are related, or a part of an ongoing series of work. Making series of related works is a consequence of contemporary art making practice, where artists produce individual, related art works about a particular theme. If the art work concept is a part of an ongoing series of work, then the concept may begin with relative clarity. Such a work is relatively more structured and enriched because it is built upon the development of associated works. A self initiated work of this type could be considered to exemplify a presented problem situation in Getzels and Csikszentmihalyi's (1976) sense of the term⁶, however the artist is (consciously or unconsciously) utilising their reservoir of conceptual and formal knowledge from previously made associated works. Problem formulation may have been undertaken in the making of an earlier and related art work. If this is the case then identifying a problem situation as either a presented or discovered problem situation may not always relate to differential evaluations of creativity as suggested by Getzels and Csikszentmihalyi (1976).

The model developed here advances the work of Getzels and Csikszentmihalyi (1976) because it goes some way towards outlining the nature of the artistic problem, from where it derives (Phase One), and the process of its development (Phase Two and Three). Because the art stimuli in Getzels and Csikszentmihalyi's study were contrived, the origins of the art problem cannot be determined.

⁶ Getzels and Csikszentmihalyi (1976) distinguish between discovered and presented problem finding processes, and concluded that working from a discovered problem situation was related to higher evaluations of creativity. A discovered problem is one that has no known method of solution or established problem formulation. In contrast, a presented problem is one that has a predetermined formulation and customary method of solution.

The art students in Getzels and Csikszentmihalyi's study did not produce work that was self initiated. The experimental drawing task upon which Getzels and Csikszentmihalyi's model is based was set by the experimenters and not the artists. While the artists were free to manipulate the still life objects as they explored potential artistic problems, that work did not derive from their ongoing art making enterprise. The current study suggests that the tendency for artists to produce work about certain themes which are otherwise ongoing in their artistic career, is an important variable in the art making process. Ideas for new art works arise from this personally felt knowledge base. It is likely that this knowledge base is the source of motivational and emotional variables that also contribute to the artists creative process. The impact these variables might have on the observed creative process are outlined below.

Expertise

The current study suggests that the degree of discovery oriented behaviour (Kay, 1991) artists engage in when doing self initiated work may depend in part on the location of the current art work within the wider series of art works to which it is related. If the current work is being developed at the end of a series of related works then it enjoys the associated conceptual and formal development of those related works. Therefore, discovery oriented behaviour may not be quite so apparent in the artist's working processes for art works that fall at the end of a series of related works, because these tasks have been performed in the making of related art works.

Kay (1991) explored the relationship between discovery oriented behaviour and expertise in the domain of artistic creativity. Kay's results suggest that discovery oriented behaviours are associated with the working processes of art students who are learning how to produce ideas in their art work. In contrast, more professional artists may not need to conduct extensive explorations of art work

ideas because their considerable experience informs them regarding what will work and what will fail (Kay, 1991). In the same way, art works that are produced as part of a series may benefit from the experience gained making related work.

Expertise and the development of aesthetic knowledge

A major underlying variable in the model developed here is the artist's ongoing and developing art making knowledge. Over the course of their career artists build an extensive knowledge base regarding their particular art making interests. This knowledge base includes skills, techniques, and the exploration of particular themes. This art making knowledge continues to be developed and utilised as a resource throughout the artist's career. This knowledge base could be described as a developing personalised aesthetic sensibility. This sensibility is discussed below as it relates to expertise and creativity.

Reflecting on their ongoing research into the creative process with professional artists, Dudek & Cote (1994, p. 144), conclude that over the course of their career artists develop a "unique aesthetic sensibility", that guides their work. The artists may or may not be aware of, or be able to express the nature of this aesthetic sensibility. In the current study this aesthetic sensibility relates to the category, Ongoing and Developing Art Making Knowledge. It is, "an intuitive mode of sensing, feeling, judging, and organising" that is more than just learned skills (Dudek & Cote, 1994, p. 144). The current model demonstrates a process of constant interaction between the artist and the developing art work which guides the next step in making the work. Decisions about making the art work are not directed by some preconceived ideal or externally defined standard or solution, or are even random, but are the result of a constant interplay between the developing work and some aesthetic guidelines that the artist has developed over the course of his or her career. Evaluation takes place as a negotiation between the artist and the art work throughout the course of making the work.

The model developed here demonstrates that while sources for art works largely arise from the artist's art making enterprise and / or personal experience, work that is made for commissions may be still be developed under the umbrella of an existing theme the artist is working on, utilising the artist's particular aesthetic sensibility. According to Dudek and Cote (1994), it is this aesthetic sensibility that directs the development of the art work whether the art work is preconceived or not, as for example in the case of commissioned work which may have some predetermined parameters.

Kay (1991) refers to a related concept - a personal aesthetic bias - which influences professional artists' thought processes when making work. This personal aesthetic develops over the course of the artist's career and acts as a framework for organising the professional artist's perceptual information gathering and thought processes. Kay argues that this personal aesthetic bias transformed what was designed as a problem-defining task into a problem solving task in her study on problem finding behaviour and expertise. Kay found that professional artists (compared to semi-professional artists and non artists), applied personal conventions from their own artistic work to the task at hand, which served to organise and guide their thought processes and perceptual information gathering processes. This transformed the problem defining task into a problem solving task. In contrast, semi-professional and non-artists either had no experience transforming figural information or had not yet fully developed their own set of artistic conventions, and thus viewed the task as a problem-defining one. Kay suggests that the development of this aesthetic bias is evidence of a more mature problem finding process which may not be observed in studies utilising fine art students as a source of data.

In the current model this personal aesthetic bias - which is effectively a personally developed set of artistic conventions - would arise out of the artist's ongoing art making knowledge. Over the course of the artist's career, the process of making art works advances this knowledge base. The artist's tendency to work in themes is a manifestation of this personal aesthetic bias. The difficulty for young artists

who are still establishing their career is that their knowledge base (or personal aesthetic) has yet to be established. The following example from a young artist illustrates this difficulty.

Installation artist:

[Is there any pattern or theme in your work over the course of your career?] “that’s a question that I continually ask myself if I could work out that then I could make decisions more easily about what I was going to do next because it would kind of be like the next step.

When coupled with the results of the current research, Kay (1991) and Dudek and Cote’s (1994) studies on problem finding and problem solving processes highlight the importance of studying creativity in its wider context of production. That is, considering the impact of the artist’s wider, ongoing career on the making of particular art works. The process of creativity in art making certainly involves problem exploration behaviours, but those behaviours are directed by a constantly evolving personal aesthetic that is much more than just problem solving. The artist’s personal aesthetic may be used as a resource to direct decision making at any stage in the process of making an art work. The process of making the art work may involve problem finding and problem solving processes but it is not clear what kinds of problem finding procedures in particular are more associated with higher evaluations of creativity. This problem arises because these problem finding / solving procedures may be confounded by expertise and the level of development of the artist’s personal aesthetic.

Wider implications of the research

The following section outlines the generality of the current model. The multiple variables that contribute to creative production are discussed. The model’s relevance to other domains is considered. Finally, the relationship between eminent and everyday varieties of creativity are discussed in light of the current model.

The model developed here demonstrates that there is more to creative production than just problem finding and problem solving activities. Phase One of the model, Art Work Conception, describes how the genesis of art works are embedded in the artist's ongoing and developing art making enterprise, which is often personally felt and derived. For example, an emotional experience may serve as a source for an art work, and to some degree, making the art work involves attempting to understand human experience. The process of articulating that experience visually involves problem solving processes, but those processes serve the intention to express. Problem solving per se may not be the primary concern of the artist making the art work. In this regard, Getzels and Csikszentmihalyi's (1976) conception of problem solving serves as an analogy for understanding the art making process, but there is more to that process than just problem solving.

In the current model, problem solving activities occur in conjunction with other activities that serve to develop the art work. The primary activities of development include: structuring, enriching and expanding, restructuring, and evaluation, rather than problem solving. In the current study, artists described these activities as being both cognitively and emotionally based. The art work develops out of the constant interplay between the artist's developing vision for the work, and the relative success of whatever the artist has recently done to the work. Problem solving activities may be performed, but the process of developing the art work is primarily one of discovery and expression. To some extent, conceiving art making as a problem solving process veils these other aspects of the activity.

Barclay and Petitto (1988) argue that the reason creativity is seen largely as a problem solving process is because solutions to problems are more easily observed, more tractable, and therefore more easily modelled than other variables that contribute to creative production such as insight experiences, arousal and motivation to persevere. Indeed both Barclay and Petitto (1988), and Csikszentmihalyi (1988b) question purely rational models of cognition because

they “do not represent human thought as it actually occurs in real life” (Csikszentmihalyi, 1988b, p. 173). In order to adequately account for creativity, we need to also consider, for example, the emotional and motivational variables which impact on these processes (Barclay & Petitto, 1988; Csikszentmihalyi, 1988b; Runco, 1994).

Problem solving is only one model that can be used to describe and represent the process of art making and creativity. Csikszentmihalyi (1988) suggests another model - the energistic perspective - to account for creative acts. In the energistic perspective the notion of psychic energy refers to the capacity of attention to process information. In the expanded view, reason, perceptions, feelings, and motivations are all types of information that are processed in attention and all influence the likelihood of a creative response. In this regard, human thought processes involve the interaction of all these types of information, where emotional nuance and goals impact on rational thought.

In this expanded view of human thought, Csikszentmihalyi (1988b) proposes four non-rational components that contribute to creativity: interest in some aspect of the domain; perseverance with the task or problem; a dissatisfaction with the current state of knowledge in a particular domain; and the social context in which the creative person is working. It must be acknowledged that affect and motivation as well as rational thought contribute to these four factors if we are to provide a comprehensive picture of creativity and discovery (Csikszentmihalyi, 1988b).

It is this thought complex (in Csikszentmihalyi's, 1988b, expanded view) that contributes so significantly to the development of the art work idea and the making of the art work. The operation of this thought complex can be seen in the way that artists work in themes. In this study the artists tended to produce multiple artworks about a particular theme. That theme may be based on a certain concept or concepts, or relating to formal qualities or appearance. A particular theme or group of themes continues to evolve over the course of the artist's

career, each art work produced expressing some facet of the artist's aesthetic, conceptual and formal development of the theme. Because these themes are personally felt and derived then they encourage the emotional, perceptual, and motivational complex that engages the artists so deeply with the work. Working with personally felt and evolved themes provides the art work with a background of meaning, information, and associations. This means that art work ideas and their development emerge from this background rather than apparently coming from a void. The fertility of ideas and work is a natural consequence of producing work about personally evolving themes.

In so much as artists tend to make a number of works that revolve around certain themes then those works express components of that theme or idea. In this regard there is not an exact mapping between the status or expression of the final art work and the thought complex that the artist had while they were making the work. Here I refer to thought as Csikszentmihalyi (1988b) does, which includes the emotional, perceptual, and aesthetic information processed in attention. Dudek and Cote (1994, p. 145) express this well, "No one painting can express a complex inner reality, because the painting is only an abstraction and thus imperfect and inexact, and becomes obsolete the moment it has been finished." It is this thought complex and the discovery that comes with its development over the course of making the art work that likely maintains the artist's interest in the work during the difficult process of making the art work manifest. Similarly, Dudek and Cote (1994, p. 146) describe the creative process as the "emotionally involved extension of a continual search until the artist puts down the tools and declares the problem to be solved; but because it is never solved, he or she returns the next day to do another version of the same theme, pushing it further".

Here creativity is expressed in terms of the thought complex (which includes emotions, perceptions, motivation) which maintains the artist's attention during the course of making the work. The art work itself is not the by-product of that process, it is the best expression of it. Indeed, Dudek and Cote (1994) reflect that the originality of the resulting art work depends on the rich and complex nature of

the artists internal state during the making of the work, as much as the artists skill, expertise, and guiding aesthetic sense.

Mumford, Reiter-Palmon, & Redmond's (1994) analysis of problem construction processes found that individuals perform more effective problem construction activities, and thus are more likely to be creatively successful, when they work in areas that correspond with their own interests and values. This suggests that creativity ought to be studied as it occurs in real life contexts - as creative responses and production emerges from and operates within particular domains. Li's (1997) study outlines how the structure of particular domains influences creative production within that domain. If creative activity and products of creativity are influenced by forces within the social context of their production then we can conduct research to identify these forces within particular domains and how they differentially influence creative production. The impact of the social context of production on creative activities and evaluations of creativity are outlined in the following section.

The multi-variable perspective

It is apparent that multiple variables contribute to creative production, including intra-personal, interpersonal, and environmental variables. The multi-variable perspective is important because it suggests there may be multiple paths to creativity, and in addition, multiple types of creativity. In this regard, the multi-variable perspective has certain important implications regarding the generality of the current model. This multi-variable perspective and its implications for the study of creativity are outlined below.

Multi-variable perspectives (Csikszentmihalyi, 1988a, 1990; Harrington, 1990), suggest that creativity cannot be meaningfully explored if the activities of creative individuals are analysed in isolation from the social and historical context from which they emerge. From the multi-variable perspective creativity is more than a matter of problem solving strategies. Variables that contribute to creative

outcome include: the personal resources of the individual, how those personal resources are complimented by the domain in which the creative person works, the creativity relevant resources and the structure of the domain, the functional relationship between the resources of the domain and the creative individual, and the functional relationships between individuals within that particular domain (Csikszentmihalyi, 1988a, 1990, 1994; Harrington, 1990).

Li's (1997) comparison of two domains - modern western painting and traditional Chinese ink brush painting - illustrates how various structures within these domains influence the kind of creativity evident within each domain. If creativity is manifest in different ways in particular domains of endeavour, or influenced by its domain of production, then we need to study creativity as it occurs within the domains from which it emerges. In this regard, the multi-variable perspective has important implications for future research in creativity. What follows is a closer look at the structure of the domain of art making and the individuals who compose the field.

Within the art world exist members who fill different roles - gallery directors, curators, art historians, art dealers, as well as artists. Each of these members operate under particular directives and pursue distinct goals through the operation of the art world. These directives may even conflict with the art making process of artists. For example, anecdotal evidence in the current research suggests that art curators can influence the type of work that is made, by curating exhibitions with particular themes and which support certain types of work. In the domain of visual arts institutionalised art practice (via fine art schools) can influence artists' reported art making process. For example, an artist's ability to be articulate regarding the processes of their art making may vary depending upon the degree to which particular processes were actually taught and made explicit to them at art school. In this regard, creative instances cannot come about insulated from the forces of the larger world that impact on its production. We can investigate these forces and how they differ between different domains and differentially impact on creative production within these domains.

If creative production is influenced by the domain in which it is produced, then we must conclude that there may be multiple paths to creative production. If creativity is manifest in different ways in particular domains then we cannot accurately, or with any precision, define creativity outside of its domain of issue. In this regard, rather than there being an objective construct which is “creativity”, creativity as it occurs in real life contexts is also culturally, domain, and genre dependent. Within the domain of art making, artistic conventions of the time govern art production within that genre. Artistic conventions encourage certain types of art making processes because these processes result in art works that are in accord with current conceptualisations of good art. In this regard, evaluations of creativity are inextricably linked to the domain of issue, and the current genre from which the creative product emerges. From this perspective the concept of creativity is to some degree socially constructed because acts of creativity are acknowledged and supported by the domain and field in which those acts emerge (Barclay & Petitto, 1988).

From the multi-variable perspective it follows not only that there are multiple paths to creativity, but that there are multiple types of creativity. The issue of different varieties of creativity was raised in chapter One, *Defining Creativity*. While we can differentiate between mundane and exceptional varieties of creativity (Barsalou & Prinz, 1997; Shank & Cleary, 1995; Simonton, 1997) it is unclear whether these two varieties are undergirded by distinct cognitive processes.

The multi-variable perspective identifies how creative evaluations are contingent upon socially determined evaluations of creative instance. Members of particular fields determine the value of individuals’ creative performance and by doing so, determine the likelihood of success and support of creative performance. In contrast, social recognition and support does not impact on everyday creative performance, at least not in the same way as it does in the case of original, eminent varieties of creativity. According to the multi-variable perspective,

individuals are creative as they work within particular domains. From this perspective it does not make sense to say that individuals are creative in general (Gardner, 1994). If we take this definition of creativity then we can distinguish between eminent and mundane varieties of creativity, because mundane varieties are not culturally or socially supported.

However, it is more than just art activities per se that contribute to success in the arts. In their 1979 study, and in their professional experience as artists, Gotz and Gotz (1979, p. 923) conclude that artistic success “is not synonymous” with artistic ability. Artists who have successful careers in terms of the number of exhibitions they have, references to their work in art literature, and sales of their work, may not necessarily possess exceptional artistic ability. Stohs (1991) found that individuals identified as more artistically able as young adults had less stable art careers and made less money from their work than artists who were identified as conservative and normative as young adults. In contrast these normative individuals had stable art careers which were more financially rewarding. Eysenk (1994, 1995) also reports that the creative traits and creative achievement correlate only moderately. This suggests that evaluations of creativity do not necessarily reflect creative ability on the part of the individual. In this regard, adopting a multi-variable perspective is important because it allows us to identify and acknowledge all variables that contribute to evaluations of creativity, including the ability of the individuals and the forces within the art world that differentially select that ability.

In order to advance our understanding of creativity it is important to distinguish between two things: creative activities (or skills), and creative success. In art making creative activities include factors such as: enriching and expanding an art work idea by gathering relevant information, restructuring that idea given information gathered and experiments performed, and evaluation of that art making idea via drawing activities. These creative *activities* are employed to creative *outcome*, which are quite different phenomena. One is an activity or selection of activities (that comes to be called creative ability when performed

with adeptness within a particular domain, such as art making), and the other involves the cultural acknowledgement of a product (and by virtue of that, acknowledgement of activities).

Considering creativity from a multi-variable perspective then, the types of activities that contribute to creativity between domains may be very similar (except of course for domain specific abilities such as drawing etc.). The difference is that some activities may be supported by the particular domain in which they emerge, and others may not. Li's (1997) comparison of Modern Western and Traditional Chinese ink brush painting is an example of this. Modern Western artists are allowed considerable freedom in their use of materials and the expressive qualities of the work they produce. In contrast, artists working within the domain of Traditional Chinese ink brush painting are highly constrained with regards to the methods and symbol systems they may use, and the rules and standards of production. It is the structure of the domain that influences creative production within it. Particular structures support, and therefore select, certain skills and activities, but it does not necessarily follow that the *processes* of creativity differ from domain to domain.

It is also important to distinguish between skills / activities and processes. Skills and activities are to some extent domain specific. For example, within the domain of art making certain skills are valued such as drawing and technical expertise with equipment. Processes are methods that achieve certain outcomes. For example, in the current model, processes include: gathering information, structuring art work ideas, restructuring those ideas given information gathered, and evaluating the art work. Activities are performed within each process. For example, observing an art work from multiple distances and under different lighting conditions serves an evaluative process. It is these creative *processes* that are identified within each phase of the current model that may well be similar from domain to domain.

If we are to advance our understanding of creativity we also need to distinguish

between *types* of creativity. Eminent varieties of creativity solve problems and contribute to the development of particular domains, and are recognised as doing so by influential members of the field of that domain. In contrast, everyday creative production need not be original or culturally valued. The current model suggests that creative production in the fine arts is associated with the development of an extensive knowledge base about their particular art making enterprise. This knowledge base consists of a rich body of associations about particular art concepts which form themes and patterns across the artist's work. While everyday varieties of creativity may not be culturally valued, they may (or may not) be underpinned by the same richness of domain relevant concepts. The results of this kind of mundane creativity may simply not be regarded as valuable by any particular field. In this regard, it is important to be very clear about the types of creativity we are talking about if we are to avoid confusion regarding what contributes to creativity.

Limitations

In the current study there was no attempt to judge the relative "creativity" of the art works produced. This makes it difficult to make conclusions about the relationship between different working processes (for example art works that were the first in a new series of work, or works placed further along the line in the development of the series), and the perceived creativity of the work. Evaluating the "creativity" of the work produced in this study would be difficult not only because some artists abandoned their work, but because it's unclear how these evaluations of creativity would be made. From the multi-variable perspective creativity results from the interaction between multiple components including factors residing in the person, the product, the process, and the social and cultural environment in which the creative person works. Having independent raters⁷

⁷ The reader is referred to Dudek and Cote's (1994) partial replication of Getzels and Csikszentmihalyi's (1976) study. A component of their study required expert judges to evaluate artists work in terms of its aesthetic quality and originality. However, the authors found that the professors of art whom they initially approached to judge the work were unable to because they couldn't agree regarding principles of aesthetic judgement, and felt that evaluating creativity on the basis of a single work misrepresented the evaluation process.

judge the relative creativity of the artists' work would only be one component of this wider creativity equation. In the current study it was thought that the ability of the artists was indicated by their exhibition history and the recommendations of art educators and curators.

From the multi-variable perspective, creative activity should be studied as it is emersed in the social and historical context from which it emerges. In the domain of art making that context includes the wider art world within which the artists operate and exhibit their work, and the individuals who make up the field - gallery directors, curators, art historians, and art dealers. While the current research explored the creative process, that process also extends to the way in which particular art works are selected for exhibition and sale, that is, the art work's marketability and the influences of institutionalised art practice (in the form of art education institutions).

The model developed here is not based on any direct information from individuals filling roles within the field of art other than artists themselves. In so far as these individuals support and endorse individual performance then they play a role in determining the judged creativity of artists' work (Csikszentmihalyi, 1990). In order to determine the nature of this relationship, future research exploring the creative process in artists should identify and include influential members of the art world. Indeed, it is unclear that field members endorsement of art work even constitutes judgements of creativity, but they nevertheless influence the circulation of art works within the local art world.

The data used in this analysis are limited to interview transcripts and therefore, the experiences, beliefs, and perceptions of the people being studied. Because of this the resulting theory ignores the wider context that influences the production of the art work (Layder, 1993). This wider production context includes the structural relations between members of the field and how this structure endorses varieties of creativity. Suitable research strategies need to be adopted, in addition to the procedures of grounded theory (Strauss & Corbin, 1990), in order to determine

how these wider contextual variables influence evaluations of creativity, and therefore creative production.

Another shortcoming in this study arises from the use of a qualitative method. The grounded theory is derived from self reports of artists engaged in making art works. Self reports are problematic because it is unclear whether self reports reflect an individual's cognitive and behavioural processes or their implicit theories about the phenomenon of investigation (Nisbett & Wilson, 1977; Rennie, Phillips & Quartaro, 1988). This was addressed in the current study by attempting to gather data about artists' behaviours regarding the art work they were currently working on. Whenever artists reflected upon that process the researcher asked the artist to relate those reflections to the process of making the art work they were currently working on. Nevertheless, and despite these efforts, it is possible that artists' implicit theories about their art making process resulted in some degree of interpretation of the very processes they were reporting.

There is no easy way of avoiding this potential problem without losing the comprehensive theory derived from the grounded theory approach. A potential solution would involve triangulating (Breitmayer, Ayres & Knafl, 1993; Fielding & Fielding, 1986; Marshall & Rossman, 1989) the grounded theory with information provided from the Experience Sampling Method (Csikszentmihalyi, 1988b, Hurlburt, 1997), or the Descriptive Experience Sampling Method (Hurlburt, 1997). The Experience Sampling Method requires respondents to make self reports at randomly chosen times throughout a certain time frame, as they are cued by an electronic pager. This would also provide a quantitative measure of the amount of time spent engaged in various activities associated with art making.

While artists' implicit theories may provide biased reconstructions of their art making process, these implicit theories may play some role in the creative process, even if just in terms of consolidating the creative effort. The multi-variable perspective therefore suggests that artists' implicit theories ought to be recognised as a viable source of data.

Another limitation often directed at qualitative research regards potential bias on the part of the grounded theory researcher. The grounded theory is inductively derived through the use of conceptualisation to connect facts (compared to inference and hypothesis testing), (Rennie, Phillips & Quartaro, 1988). Problems of potential subjectivity and bias arise with the process of inference, particularly regarding the possibility that the resulting grounded theory may derive from the theorists implicit assumptions about the phenomenon being explored. While provisional verification takes place through the coding procedures of grounded theory (Strauss & Corbin, 1990), it is not always possible to candidly outline the development of categories in reports of the research. A potential solution involves representing each category with an appropriate example (Rennie, Phillips & Quartaro, 1988), and outlining the process of developing one category as the grounded theory developed.

In this study, category description is accompanied by typical examples taken from artists' original transcripts. In addition, the second study provided a measure of the external validity of the model developed from the grounded theory. However, because the same interviewing procedure was used, it could be argued that the researcher's implicit assumptions (reflected in the interview guide), influenced artists' responses in the same way in both studies, despite the use of an independent coder. However, to the extent that the model produced in this study bears general level similarities to other models (for example, Sapp, 1995), this suggests that neither model is idiosyncratic or reflective of the researchers personal biases, and that the observed phenomena are sufficiently robust so as to be regularly identified.

Future research

The multi-variable perspective has certain important implications for the study of creativity. Firstly it suggests that creativity ought to be studied in the context of all its relevant components, including: intra-personal components such as

motivation, emotion, and personal interests; inter-personal components such as support and information resources, and other functional relationships between the creative individual and members of the field; and the structure of the domain in which the creative person is producing work. Including all these variables in a comprehensive study of creativity would require an analysis of creative individuals producing self-initiated work in their everyday context of production. Laboratory studies utilising contrived stimuli may only provide detailed information about particular relationships between variables, but once these relationships and variables have been identified by more descriptive analyses.

If creative production is influenced by the domain in which it is produced, then it follows that there may well be multiple paths to creative production, and further, that creative production differs from domain to domain. However, the underlying *processes* identified in the model developed here may well underlie creative activities between domains. Further research exploring creativity in domains related to visual art making (such as fiction writing or musical composition), may reflect creativeogenic variables central to creativity in the arts, and variables distinctive to certain domains. This suggests research directives involving a comparative analysis of two domains within a field such as Li's (1997) study of modern western painting and traditional Chinese ink brush painting, and also two apparently distinct domains such as modern western painting, and robotic engineering or computer science. Comparative research would provide information regarding variable clusters similar across diverse domains, and variable clusters and relationships that are distinctive to particular domains. Studies of this sort are required in order to determine the degree to which processes of creativity identified in the current model also underlie creativity in diverse domains.

It is important to note that comparative studies between diverse domains would provide information regarding the differential structures, variables, and relationships between those domains. If these variables, structures, and relationships differ from the domain of art making, then any research would issue

in a model of creativity relatively distinct from the one developed here, unless the underlying processes are the same. Future research conducted in a domain quite distinct from art making would provide information regarding the creative processes common to both domains, and therefore serve as a test of the generality of the current model.

Future research should explore creativity in its multiple contributing variables, including intra-personal, inter-personal, and environmental variables, in order to provide a comprehensive and accurate account of creativity. It has been suggested here that an individual's motivational and emotional efforts contribute to creative production, and in order to include these variables research should be focused on self-initiated work as it emerges from its normal production context.

Finally, future research ought to explore not only observable behaviour, products and outcomes, but also the structural relationships within domains that support, encourage (and discourage) certain types of creativity, which may not be directly detectable or observable. If we are to explore creativity in its wider context of production then researchers need to utilise additional research strategies to complement those methods of grounded theory (Layder, 1993).

The distinction between eminent and everyday varieties of creativity also needs to be examined. Research might explore how functional social relationships support everyday varieties of creativity - in the form of familial and friendship bonds, compared to social recognition from societies and professions in the case of eminent creativity; or the process of gaining entry into particular domains of endeavour and excelling within it, that is, the journey to eminent creative accomplishment. The initial answers to such questions can be best provided by descriptive analyses of self-initiated creative activities as they emerge from their normal production context. Comparing the real life production of eminent and everyday varieties of creativity would provide information regarding the degree to which the same processes underlie both types of creativity, and where they differ.

Summary

Creativity is a construct that describes a complex phenomenon that interacts with many levels of human functioning. Creativity is generally identified in those processes, acts, and thoughts that are novel and valued because they have adaptive outcomes. Research approaches to creativity are diverse. Some researchers focus on creative individuals' cognitive and behavioural activities (for example, Ward, Smith & Vaid, 1997), others explore the personality traits of the creative individual (for example, Dudek & Hall, 1991; Torrance, 1988), while yet other researchers investigate how creative acts and products are acknowledged and valued by the social system from which they emerge (for example, Csikszentmihalyi, 1988a, 1990; Harrington, 1990). While individual researchers may focus on components of a wider creativity equation, most would acknowledge that creativity, in its broadest sense, results from the interaction of these components. From this multi-variable perspective, creative individuals, their activities, and products must be analysed in the social and historical context of their production.

The multi-variable perspective suggests that there may be multiple types of creativity and multiple paths to creative outcome, particularly in different domains of creative endeavour. If creative acts and products are influenced by the structure of the domain from which they emerge, then creative activity ought to be studied as it takes place within that domain. From the multi-variable perspective, research should focus on the creatively active individual producing self initiated work in real world environments, in order to identify the creativeogenic properties of that interactive relationship. The first step in such a multi-variable study would involve forming a descriptive data base about a creative endeavour as it emerges from its domain of production.

Taking up the directives of the multi-variable approach, and addressing the problems associated with retrospectively obtained reports and laboratory contrived studies, the research conducted here explores the working processes of

professional visual artists during the course of making self initiated art work from inception to completion.

In this study it was thought that developing such a descriptive data base would be most suitably derived from, and analysed using, a qualitative method. In this regard the Grounded Theory approach (Strauss & Corbin, 1990) provides a method for gathering and analysing qualitatively derived data. This research built upon the procedures of the Grounded Theory method to provide a rigorous and empirical analysis of the descriptive data base.

The resulting grounded theory was used to develop a dynamically interactive model that describes the developmental process of making visual art works. This model consists of four developmental phases of activity associated with the production of art works: Art Work Conception; Idea Development; Making the Art Work, and Finishing the Art Work. The developmental progress of the art work is described in a longitudinal framework and accompanied by exemplar statements taken from the artists' transcripts.

The model is then evaluated in terms of its particular strengths and key features. The model is compared to other models of creativity and accompanied by a discussion of how the model developed here builds upon and advances existing models of creativity. There is a discussion of the multi-variable perspective and the implications that perspective has for further study of creativity, particularly in terms of studying creativity as it occurs within its wider production context.

Finally the limitations of the current research are outlined and suggestions are made regarding future research directives in the field of creativity research. It is suggested that future research address the demands of the multi-variable perspective and thereby explore creativity in its multiple contributing variables including intra-personal, inter-personal, and environmental factors. Studying creativity effectively requires first identifying manifest and also unobservable contributing variables (for example, the organisational structure of the art world

and how it endorses creative instances), and the utilisation of suitable research methods to identify and access these multiple variables.

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Appendix A

Interview Guide

Introductory questions: lead in to the topic:

As you know I'm interested in the process that you go through as you produce a work of art. I'm going to ask you specific questions about the things that you do when you make an art work, and also ask you about art making in general. But first I thought it would be interesting to get some idea of how you set up the work space in which you actually make art works.

- * Can you tell me about your work space.
- * Do you do all parts of the art making here, maybe you think about the work somewhere else?
- * Can you tell me about how you organise your studio space or working environment before, or as, you work.
- * How might this workspace influence the development of the art work?
- * How long would you estimate it takes to make an art work?
- * Do you have a pre-conceived time limit for completing the work, for example, work required for shows?
- * How can this time limit influence the way the work develops?

Stages in the process - using a current work as an example:

Now I want to focus on a particular art work to explore the process of making an art work. So the following questions relate to the work or works that you've just started.

- * Is there a conceptual component of the artwork that you could actually talk to me about?
- * How would you describe this concept?
- * How does that develop or become manifest physically?
- * How do you know that an idea that you have might possibly result in an artwork?
- * What factors might determine that an idea/feeling doesn't become manifest as an art work?

- * What is the relationship between the concept/idea of the work and the medium that you use, and the art works final manifestation.
- * With regards to this current work, how & when did you first come up with the concept of doing it?
- * How long did it take to develop this initial 'idea' into something that could become an artwork?
- * What are some of the things that you did, or will do, to develop the work?
- * Have there been any difficulties? How have you addressed these?
- * What are the primary resources or materials for the current work?
- * Do you gather information for an upcoming work,
- * What kinds of information feeds into the work?
- * Are there any procedures or things you do to get this information?
- * What do you do with this information?
- * How has the work changed over time?
- * What do you think has caused this change?
- * How do you go about making decisions within the work? things that afford change & development.
- * How do you think you're communicating through your art making?
- * Do you consider the audience / viewer as you make the art work?
- * After you have finished making the work what happens to it then - physically and conceptually?

General questions about the art making process: (asked in final interview)

Now that we've discussed some specifics of your art making process, I want to step back and explore the process of your art making generally. The following questions relate to general themes that might appear in your art works

- * Can you tell me if there any particular themes or concepts that are basic to this current series of art work?
- * Is there a pattern that seems obvious across art works over the course of your career?
- * or, in other words, how, in retrospect, as you look over your previous works, do you see the connections between them?

Appendix B

First List Of Descriptive Categories Used To Index Meaning Units

The numbering of these categories reflects the organisation of the categories in the NUD.IST program used to structure the data. As categories were successively reorganised, the category numbering system was reassigned. Thus the numbering of categories in successive reorganisations may differ.

- (1 3 1) references to the appearance of the work
- (1 3 2) materials and resources for the work

- (2 1) references to ideas for the art work
- (2 1 1) idea conception processes
- (2 1 1 1) idea conception behavioural processes
- (2 1 2) idea development processes
- (2 1 2 1) idea development behavioural processes
- (2 1 3) ideas that hang around
- (2 1 4) ideas that come quickly
- (2 1 5) references to interests and personal theories

- (2 2) art work
- (2 2 1) art work development
- (2 2 1 1) researching for the art work
- (2 2 1 1 2) researching/reference to & recording in workbooks or journals
- (2 2 1 1 3) researching/ making studies or maquettes for the work
- (2 2 1 2) experimentation
- (2 2 1 3) art work problems
- (2 2 1 4) evaluating the viability of the art work
- (2 2 1 6) pressures on making the work
- (2 2 1 7) reference to time
- (2 2 1 8) technical assistance
- (2 2 1 9) references to change in the art work

- (2 2 3) the art work solution
- (2 2 3 1) finishing the art work
- (2 2 3 2) references to shows & exhibitions
- (2 2 3 2 1) reference to communication and the viewer
- (2 2 3 2 2) art work not communicating
- (2 2 3 3) titling the art work
- (2 2 3 4) how the working process influences the art work

- (2 2 4) influences of the medium on the art work
- (2 2 5) different types of working processes (WP)
- (2 2 5 1) (WP) different artwork types
- (2 2 5 2) (WP) the subject of the work
- (2 2 5 3) (WP) size of work
- (2 2 5 4) (WP) etchings

- (2 2 5 5) (WP) woodcuts
- (2 2 5 6) (WP) drawing
- (2 2 5 7) (WP) lithographs
- (2 2 5 8) (WP) painting
- (2 2 5 9) (WP) collage:assemblages

- (2 2 6) emotional response:feeling
- (2 2 6 1) reference to emotion
- (2 2 6 2) what the artists likes about art making

- (2 2 7) working environments
- (2 2 7 1) organising the working environments
- (2 2 7 2) influence of the working environments on art workk

- (2 3) thematic:conceptual development
- (2 3 1) overiding art themes in the artist's career
- (2 3 1 1) working on a series of work

- (3) personal references
- (3 11) how the artist became involved with art making
- (3 12) why the artist started art making
- (3 16) references to creativity
- (3 17) references to influences of the art world on art work

Appendix C

Final List Of Descriptive Categories Used To Index Meaning Units

The numbering of these categories reflects the organisation of the categories in the NUD.IST program used to structure the data. As categories were successively reorganised, the category numbering system was reassigned. Thus the numbering of categories here differs from the numbering of categories in Appendix B.

(1) Art Work Development

(1 1) Conceptual Entity

- (1 1 1) Idea Conception
- (1 1 1 1) Idea Conception/Meta talk about idea conception
- (1 1 1 2) Idea Conception/Form of the idea for the work
- (1 1 1 3) Idea Conception/How ideas occur
- (1 1 1 4) Idea Conception/Origins of idea
- (1 1 1 5) Idea Conception/Idea Conception activities
- (1 1 1 6) Idea Conception/Idea Conception - non-activities
- (1 1 2) Idea Dvpt & meta talk about idea development
- (1 1 2 1) Idea Dvpt & meta/how idea develops
- (1 1 2 2) Idea Dvpt & meta/strategies of development
- (1 1 2 3) Idea Dvpt & meta/emotional component associated with idea devpt

(1 2) Physical Manifestation

- (1 2 1) **idea transformation-activities**
- (1 2 1 1) idea transformation-activities/Meta talk about Idea Transformation
- (1 2 1 2) idea transformation-activities/information gathering
- (1 2 1 2 1) idea transformation-activities/info gathering/Generic Recording
- (1 2 1 2 1 1) idea transformation-activities/info gathering/Generic Recording/workbook:journals
- (1 2 1 2 1 2) idea transformation-activities/info gathering/Generic Recording/studies & drawing
- (1 2 1 2 1 3) idea transformation-activities/info gathering/Generic Recording/storing material
- (1 2 1 2 1 4) idea transformation-activities/info gathering/Generic Recording/image collection

(1 2 2) **Art Work Development**

- (1 2 2 1) Developing the Art Work
- (1 2 2 1 1) Art Work -idea interaction
- (1 2 2 1 2) META
- (1 2 2 1 2 3) META/technical activites
- (1 2 2 1 2 5) META/strategies
- (1 2 2 1 3) Strategies of Development
- (1 2 2 1 3 1) Strategies of Development/Techniques

- (1 2 2 1 3 1 1) Strategies of Development/Techniques/preparation for Art Work
- (1 2 2 1 3 1 2) Strategies of Development/Techniques/techniques beginning AW
- (1 2 2 1 3 1 3) Strategies of Development/Techniques/mid range techniques
- (1 2 2 1 3 1 4) Strategies of Development/Techniques/finishing techniques
- (1 2 2 1 4) Conceptual development
- (1 2 2 1 4 2) Conceptual devpt/expression of conceptual properties of AW
- (1 2 2 1 5) Pressures other
- (1 2 2 1 5 1) Pressures other/external. impactors
- (1 2 2 1 6) Experimentation
- (1 2 2 1 7) Emotion feeding into Art Work
- (1 2 2 1 8) Skill development
- (1 2 2 2) Resources
- (1 2 2 3) Evaluation
- (1 2 2 3 1) Evaluation/physical properties
- (1 2 2 3 2) Evaluation/Art Work problems
- (1 2 2 3 3) Evaluation/viability of Art Work
- (1 2 2 3 5) Evaluation/ Evaluation Strategies
- (1 2 2 3 5 1) Evaluation/strategies Evaluation/Impact of evaluation strategies
- (1 2 2 4) Resolution
- (1 2 2 4 1) Resolution/Meta talk about Resolution
- (1 2 2 4 2) Resolution/Finishing Art Work
- (1 2 2 4 2 1) Resolution/Finishing AW/strategies for finishing the Art Work
- (1 2 2 4 2 2) Resolution/Finishing AW/physical properties of finished AW
- (1 2 2 4 2 3) Resolution/Finishing AW/conceptual properties of finished AW
- (1 2 2 4 3) Resolution/Showing the Art Work
- (1 2 2 4 3 1) Resolution/Showing the Art Work/reference to viewer, audience
- (1 2 2 4 3 2) Resolution/Showing the Art Work/communication
- (1 2 2 4 3 3) Resolution/Showing the Art Work/working in series
- (1 2 2 4 3 4) Resolution/Showing the Art Work/gallery space
- (1 2 2 4 4) Resolution/what the artist will do next

(1 3) AW dev. Broader

- (1 3 1) AW dev. Broader/recurring themes in artists work
- (1 3 2) AW dev. Broader/meta talk about recurring themes
- (1 3 3) AW dev. Broader/ links between different series of work

(2) Emotion, experiential, personal aspects

- (2 1) Emotional sources for the work
- (2 1 1) Emotional sources for the work/Emot - beginning an AW
- (2 1 2) Emotional sources for the work/Emot - making stage
- (2 2) translation of emotion into AW
- (2 3) motivating force
- (2 4) Impact of Art Work
- (2 5) experience of Art Making
- (2 5 1) experience of AM/what the artist likes about Art Making
- (2 5 2) experience of AM/why artist makes Art Work
- (2 6) interest:theories about art making

- (3) Working Environment**
 - (3 1) Physical Working Environment
 - (3 1 1) Physical/Nature of Working Environment
 - (3 1 2) Physical/Organisation of Working Environment
 - (3 2) Cultural Working Environment
 - (3 2 1) Cultural/Initiation of Art Making career
 - (3 2 2) Cultural/Meta talk
 - (3 2 3) Cultural/Art World influences

- (5) Art Making general**
 - (5 1) Art making general/Meta general
 - (5 2) Art making general/artists ability to express self about AW

- (6) miscellaneous**

Appendix D

Descriptions of Categories Used To Index Meaning Units

(1) Art Work Development

general title

(1 1) Conceptual Entity

general title

(1 1 1) Idea Conception

general title for conceiving an idea for an art work

(1 1 1 1) Idea Conception/Meta talk about idea conception

meta talk about conceiving ideas.

(1 1 1 2) Idea Conception/Form of the idea for the work

The nature of the idea - whether it is symbolic, conceptual, imagematic.

(1 1 1 3) Idea Conception/How ideas occur

How art work ideas come about.

(1 1 1 4) Idea Conception/Origins of idea

Origins of the art work concept, and reports that origins are unknown

(1 1 1 5) Idea Conception/Idea Conception activities

Activities affording idea conception: these might be strategies, behavioural or involve experimentation.

(1 1 1 6) Idea Conception/Idea Conception - non-activities

Non-action: unconscious work. May involve shelving the idea or prolonging conception.

(1 1 2) Idea Dvpt & meta talk about idea development

Meta-talk about idea development.

(1 1 2 1) Idea Dvpt & meta/how idea develops

How the idea develops and transforms - the nature of the change.

(1 1 2 2) Idea Dvpt & meta/strategies of development

Strategies and activities that afford development and change.

(1 1 2 3) Idea Dvpt & meta/emotional component associated with idea devpt

Emotional component: The impulse for the work - reference to a drive or urge fueling the process.

(1 2) Physical Manifestation
The physical manifestation of the art work

(1 2 1) idea transformation-activities
Idea transformation, translation and articulation of the idea into a physical art work.

(1 2 1 1) idea transformation-activities/Meta talk about Idea Transformation
Meta talk about the nature of the transformation and the degree of control the artist has over it.

(1 2 1 2) idea transformation-activities/information gathering
Information gathering and researching: What the information is, how it is used, and how it is obtained.

(1 2 1 2 1) idea transformation-activities/info gathering/Generic Recording
Deleted category.

(1 2 1 2 1 1) idea transformation-activities/info gathering/Generic Recording/workbook:journals
Recording, monitoring, reviewing, source book, memory, motivator

(1 2 1 2 1 2) idea transformation-activities/info gathering/Generic Recording/studies & drawing
making studies and drawings

(1 2 1 2 1 3) idea transformation-activities/info gathering/Generic Recording/storing material
Storing material for art works

(1 2 1 2 1 4) idea transformation-activities/info gathering/Generic Recording/image collection
Collecting images and pictures

(1 2 2) Art Work Development
Continued development of the work.

(1 2 2 1 1) Art Work -idea interaction

(1 2 2 1 2) META
meta talk (general title)

(1 2 2 1 2 3) META/technical activities
meta talk about technical activities

(1 2 2 1 2 5) META/strategies
Meta talk about strategies

(1 2 2 1 3) Strategies of Development

(general title)

(1 2 2 1 3 1) Strategies of Development/Techniques
Techniques of development

(1 2 2 1 3 1 1) Strategies of Development/Techniques/preparation for Art Work
Activities in preparation for art work.

(1 2 2 1 3 1 2) Strategies of Development/Techniques/techniques beginning AW
Techniques associated with beginning the art work

(1 2 2 1 3 1 3) Strategies of Development/Techniques/mid range techniques
Techniques associated with working on the art work, but not beginning or finishing the art work.

(1 2 2 1 3 1 4) Strategies of Development/Techniques/finishing techniques
Techniques associated with finishing the art work.

(1 2 2 1 4) Conceptual development
(general title)

(1 2 2 1 4 2) Conceptual devpt/expression of conceptual properties of AW
Artist's expression of the conceptual properties of the art work - nature of the concept.

(1 2 2 1 5) Pressures other
Pressures impacting on the work and influencing it's development.

(1 2 2 1 5 1) Pressures other/external. Impactors
External impactors which are not "negative" pressures, but which nevertheless influence the development of the work.

(1 2 2 1 6) Experimentation
Any type of experimentation when making the work

(1 2 2 1 7) Emotion feeding into Art Work
Emotion that feeds into the art work.

(1 2 2 1 8) Skill development
Development of the artists skills as a result of making art work.

(1 2 2 2) Resources
Resources required for the art work.

(1 2 2 3) Evaluation
Evaluative processes and strategies.

(1 2 2 3 1) Evaluation/physical properties
Physical properties of the work: composition, structure and impact of these.

- (1 2 2 3 2) Evaluation/Art Work problems
Problems that occur to the work
- (1 2 2 3 3) Evaluation/viability of Art Work
Viability and non-viability of the developing art work.
- (1 2 2 3 5) Evaluation/ Evaluation Strategies
Strategies for evaluating the work.
- (1 2 2 3 5 1) Evaluation/strategies Evaluation/Impact of evaluation strategies
Impact of evaluation on the work
- (1 2 2 4) Resolution
Resolving the art work.
- (1 2 2 4 1) Resolution/Meta talk about Resolution
Meta talk about resolving the art work
- (1 2 2 4 2) Resolution/Finishing Art Work
The process of finishing the art work.
- (1 2 2 4 2 1) Resolution/Finishing AW/strategies for finishing the Art Work
Strategies that are used to determine whether the art work is finished
- (1 2 2 4 2 2) Resolution/Finishing AW/physical properties of finished AW
Physical properties of the finished art work.
- (1 2 2 4 2 3) Resolution/Finishing AW/conceptual properties of finished AW
Conceptual properties of the Finished art work.
- (1 2 2 4 3) Resolution/Showing the Art Work
Showing / exhibiting the art work, and deciding when the art work is finished.
- (1 2 2 4 3 1) Resolution/Showing the Art Work/reference to viewer, audience
Artist's references to the potential viewer / audience
- (1 2 2 4 3 2) Resolution/Showing the Art Work/communication
What the artist wants / thinks the work communicates.
- (1 2 2 4 3 3) Resolution/Showing the Art Work/working in series
If the work is part of a series, but not broader recurring themes (see 131).
- (1 2 2 4 3 4) Resolution/Showing the Art Work/gallery space
Physical space in which the work is shown and how that influences the work.
- (1 2 2 4 4) Resolution/what the artist will do next
What happens to the art work / art concept after exhibiting the art work.

(1 3) AW dev. Broader

(1 3 1) AW dev. Broader/recurring themes in artists work
Art work development on a broader scale.

(1 3 2) AW dev. Broader/meta talk about recurring themes
Recurring themes over the artist's career, and the development of them.

(1 3 3) AW dev. Broader/ links between different series of work
Links between different series of work.

(2) Emotion, experiential, personal aspects

(general title)

(2 1) Emotional sources for the work
What the emotional sources for the work are.

(2 1 1) Emotional sources for the work/Emot - beginning an AW
How emotion fuels the initiation of the work.

(2 1 2) Emotional sources for the work/Emot - making stage
Emotion associated with making the work.

(2 2) Translation of emotion into AW
Translation of emotional / personal experiences into the art work.

(2 3) Motivating force
Motivation for making the art work

(2 4) Impact of Art Work
Emotional impact of art work on viewer (perceived / intended)

(2 5) Experience of Art Making
The experience of art making, and reference to emotion that cannot be indexed elsewhere.

(2 5 1) experience of AM/what the artist likes about Art Making
What the artist reports to like about art making

(2 5 2) experience of AM/why artist makes Art Work
Why artist makes art work and how first got involved.

(2 6) interest:theories about art making
reference to theories and interests, if can't be indexed elsewhere.

(3) Working Environment

(general title)

(3 1) Physical Working Environment

The artists physical working environment.

(3 1 1) Physical/Nature of Working Environment

The nature of the artist's physical working environment.

(3 1 2) Physical/Organisation of Working Environment

How the working environment is organised, and influence of this on art work.

(3 2) Cultural Working Environment

The artists cultural working environment - the art world.

(3 2 1) Cultural/Initiation of Art Making career

The initiation of an art making career.

(3 2 2) Cultural/Meta talk

Meta talk about the concept of creativity

(3 2 3) Cultural/Art World influences

Influences of the art world on the artist and work produced.

(5) Art Making general

General references to art making

(5 1) Art making general/Meta general

Meta talk - general references.

(5 2) Art making general/artists ability to express self about AW

The artist's references to their ability to express self about the artwork, or art making process.

(6) miscellaneous

Information that is not about art making.

Appendix E

Examples Of Meaning Units Indexed Within Categories

(1 1 1 3) Idea Conception/How ideas occur

How art work ideas come about.

the concept arrives out of the practice, sometimes that can happen, 91

but yeah it's got to come out of something in the imagination that has
some form, otherwise it's formless. 92

well when I start with an idea, and it comes along, I play with it a lot in my mind,
I do a few drawings, but I really develop it and enrich it through a process of
associations 153

that work started just basically because I was interested in the idea of
something that was beautiful and yet very ordinary, 162

other times I'll have an idea for a painting because I saw an image that
I liked 88

and right from that stage, a year ago when I first heard it I sort of set
my sites on winning the commission, 59

I just thought that it was a most prestigious sculpture commission in New
Zealand's history because the guy is the only combatant who's won the VC
twice in world history. 60

So I suppose the collecting of things that you're interested in is a way
of providing enough things around you so that you can put them together
as ideas. 213

(1 2 2 1 3 1 1) Strategies of Development/Techniques/preparation for Art Work

Activities in preparation for art work.

so I've spend two to three months getting the right material, taking
trips to the coast, getting the materials right, developing machines to
make it. 159

and I still haven't got the coal, I'm still waiting for them to get the mine to work.
160

the mine where I'm getting it from, this particular seam in the mine they only get
to every five years and I've got to get, and luckily it's when I want the coal, I'm
about a week away from getting it, which is pretty good timing, timing's

everything, 161

and I've been doing lots of reading about natural crystals and crystal forms and where crystals, do you know there's 32 types of crystals and that's all there is, there's 32 different shapes, 176

and of course I had to get the right kind of coal, that's the first thing, you've got to get the right material, cause not just any old coal will do it. 222

and I've had to work on developing the polishing of coal and so I've made a machine which is going to have water going through it and different grits of sandpapers and so I can change them and make it finer and finer and finer, and then polish and I end up with this thing, hopefully, probably, 227

I have an idea for a work and I might do a study of it from what I'm thinking about, 100

and hopefully I have a canvas already prepared, if not I get one prepared 106

so it's always just that same process, go out, get the material, as much as you need, come back, start painting, 119

if you haven't got enough material, go out get more 120

after gathering the material, then just paint the work. 121

(1 2 2 3 5) Evaluation/ Evaluation Strategies
Strategies for evaluating the work.

I'm just using all the lumps of coal, and at the end of it when it's all finished I'll go through it and look at the ones that are the most successful, the ones that interest me. 21

well I'm going to start by getting an accurate likeness of him, a three dimensional model, and I'll be consulting with the family over that. 204

And so how do you know that, how do you know when you reach that stage?
 just by the feel and the look of the work.

So I let go of my initial emotion and see if, on a rational basis, the picture is any good, whether it's composed properly, whether there are any faults in it

Appendix F

The Final List Of Categories Used To Develop The Model

This category structure was not used to index meaning units, but rather contributed to the conceptual development of the final model.

The numbering of these categories bears no relationship to the numbering of the category structure in previous appendices.

Overarching process: Art Work Development

1 The Conceptual Component

- 1.1 Idea Conception
 - 1.1.1 Meta Talk
 - 1.1.2 Form of the Idea
 - 1.1.3 How Ideas Occur
 - 1.1.4 Origins of the idea
 - 1.1.5 Idea Conception Activities
 - 1.1.6 Non-activities
- 1.2 Idea development
 - 1.2.1 Meta talk
 - 1.2.2 How the idea develops
 - 1.2.3 Strategies of development
- 1.3 The Physical Manifestation of the art work concept
 - 1.3.1 Activities of idea transformation
 - 1.3.2 Meta idea/concept transformation
 - 1.3.3 Information gathering
 - 1.3.3.1 Work Books and Journals
 - 1.3.3.2 Studies and Drawing

2 Development of the physical art work

- 2.1 Art Work - Idea interaction
- 2.2 Art work development - Meta
- 2.3 Strategies & Techniques of development
 - 2.3.1 Strategies
 - 2.3.2 Techniques
 - 2.3.2.1 Preparatory techniques
 - 2.3.2.2 Techniques associated with beginning an art work
 - 2.3.2.3 Mid range techniques
 - 2.3.2.4 Finishing techniques
- 2.4 Conceptual Development
- 2.5 Physical Development: Expression of Conceptual Properties
- 2.6 Pressures and External impactors
- 2.7 Experimentation
- 2.8 Skill development
- 2.9 Resources
- 2.10 Evaluating the Art work
 - 2.10.1 Art work Problems

- 2.10.2 Viability of art work and idea
 - 2.11 Resolution of the art work
 - 2.11.1 Meta resolution
 - 2.11.2 The finished art work
 - 2.11.2.1 Physical properties
 - 2.11.2.2 Conceptual properties
 - 2.12 Showing the art work
 - 2.12.1 The viewer / audience
 - 2.12.2 Communication
 - 2.12.3 The Gallery space
 - 2.13 What happens next in terms of the current work
- 3 Art work Development on a broader scale**
- 3.1 Recurring themes in an artists work
 - 3.2 Making series of work and links between them
- 4 Personal Aspects of art making**
- 4.1 Emotional and experiential factors as source material
 - 4.2 Emotion associated with making the work
 - 4.3 Translating emotional experiences into the art work
 - 4.4 The experience of art making
 - 4.4.1 What the artist likes about art making
 - 4.4.2 Why the artist makes art works
 - 4.4.3 Interests and theories
 - 4.4.4 The initiation of an art making career
- 5. The artists working environment**
- 5.1 Physical working environment
 - 5.1.1 The nature of the physical working environment
 - 5.1.2 Organising the working environment
 - 5.1.3 Art making support people
 - 5.2 Cultural working environment
 - 5.2.1 Meta and Art world influences
 - 5.2.2 The business side of art making
- 6. Art Making Generally**
- 6.1 Meta General
 - 6.2 The artists ability to express themselves about their art making process

Appendix G

Transcription Notation

The transcription notation used in this thesis was developed by Gail Jefferson and presented in Potter and Wetherell (1987). The current author has adapted this notation to indicate additional information regarding the presentation of transcript material within this dissertation.

1. Empty square brackets indicate that some transcript (generally “um” and “ah”) has deliberately been omitted. Material within square brackets is written by the author in order to clarify artists’ statements. For example,

“it’s [goal directed] definitely [] but it depends not so much on”

2. Round brackets indicate the material within the brackets is either inaudible or there is doubt about its accuracy. For example,

“it varies a lot (sometimes) it’s completely different”

3. Italicised text within square brackets indicates that material is the interviewer speaking. Generally this is in the form of a question directed to the artist. For example,

“I’m sure that it influences everybody. [*a lot of artists would deny that*], but you just have to ask people ...”

4. Square brackets containing a full stop indicate that two parts of the transcript have been joined in order to clarify a point. This also indicates that one or more sentences have been omitted. For example,

“you don’t start something without knowing. [.] I’ve got a theory about that....”