



Cape Peninsula
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Creative applications of basic computer software: a practice-led exploration of visual art and design thinking through drawing and animation

by

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I, John William Roome, declare that the contents of this dissertation/thesis represent my own unaided work, and that the dissertation/thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

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ABSTRACT

Digital drawing and animation, using basic computer software, opens up new possibilities in creative practice-led research. The digital medium, with its relative ease of reproduction and storage of images, facilitates a reflective method of thinking-while-drawing, thereby stimulating the creative process and providing a unique means of reflection-in-action. The computer's ability to record images allows for temporal disruption, providing possibilities for exploring alternative creative solutions as well as retrospective, reflection-on-action.

This thesis presents an interrogation of the researcher's creative practice, as well as the findings and creative artefacts of other relevant practitioners in the field of digital drawing, animation, and related creative activities. A reflexive methodology was used to investigate the relationship between making, doing, and knowing in creative practice. The findings are supported by creative outputs (*making*), reflection on the creative process in relation to supporting literature (*doing*), and knowledge resulting from this reflection together with related theoretical research (*knowing*).

The research revealed that digital drawing and animation supports new modes of making resulting in the production of original creative artefacts. It was further revealed that in relation to "doing", the digital medium supports reflective practice by enabling the creative practitioner to document and reflect on these outputs both during and after making. The resulting reflexive actions combined with theoretical research lead to revelations concerning the relationship between thinking and drawing when using digital media as well as in a broader sense.

The study thus contributes insights concerning art and design thinking, and makes a contribution to new developments in visual arts and design research. Practice-led research introduces a theoretical paradigm that has methodological implications particularly in the context of the current re-structuring and transformation of art and design education at South African Universities of Technology.

The findings indicate that digital drawing and animation can encourage a critical and reflective approach not only in the work of creative practitioners by supporting new modes of making, but that it also has positive implications for visual arts research and teaching. In this regard the research highlights the need for promoting the integration of theory and practice in visual arts and design education curricula.

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DEDICATION

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CHAPTER ONE

MAKING (POIESIS), DOING (PRAXIS), AND KNOWING (THEORIA)

The imaginative and intellectual work undertaken by artists is a form of research.

-Sullivan 2010

1.1 Introduction

This research aims to reveal insights concerning creative art and design thinking, by combining an imaginative, creative, visual exploration of digital drawing and animation with an intellectual, reflective, theoretical account of the creative process. Using the subjective experiences of an individual practitioner (myself) as a lens, I hope to contribute to an understanding of the broader complexities of creative visual practice. The intention is not to provide a model or recipe for creative practice, but rather to provide a *credible* account of a creative and imaginative journey that will resonate with the experience of others in the field.

My study seeks to locate creativity and imagination within the context of academic research. For centuries academic research has been situated in a Positivist paradigm, and has adopted a scientific, and quantitative methodological approach. Creativity and imagination are slowly gaining acceptability in academic research circles. In the 21st century the hegemony of Positivism is being challenged by the post-modern position. The belief in the absolute certainty, infallibility and objectivity of the scientific method is being questioned even within the scientific community itself (Sullivan, 2010). In the humanities, qualitative research methodologies have evolved along with a questioning of positivism. The Positivist emphasis on objectivity, validity and reliability has been replaced in qualitative research by subjectivity and credibility (Lewis, 2009, Shenton, 2004).

This chapter provides a background to the study, locating the 'problem' within the context of my subjective experience. I state the broad aims and objectives and provide a theoretical framework for achieving them. I explain how the research 'problem' emerged out of creative practice and outline the resultant research questions. The rationale and motivation for the study is examined from personal, professional, and academic perspectives. I briefly introduce the methodology adopted for the project and explain how it evolved out of practice. The various contexts of the research are provided and the delimitations of the study are defined. Finally, I present a brief chapter outline of the thesis.

1.2 Background to the Study

I have been a practicing artist for over 35 years. Throughout my career I have developed an interest in drawing as a research tool and have used a variety of techniques and processes to stimulate and facilitate creativity.¹ A period of creative inertia in my visual arts practice led to experimentation with digital drawing, commencing in 2006, as a means of generating ideas. Of particular interest was the use of basic computer software as a creative tool. This led to further experimentation with animation that in turn led to the production of artefacts in a variety of forms and media. These experiments helped reignite the creative process and moved it into unexpected directions.

This study investigates how the introduction of new techniques and processes, digital drawing and animation, has influenced and enhanced my approach to drawing and creativity. Drawing plays a pivotal role in my creative process. In recognition of this I began to investigate the cognitive role of drawing in the creative process. Literature reviews revealed that research into drawing, and research through drawing, occupies a place of growing importance in contemporary art discourse. Research studies into the relationship between drawing and thinking, and the benefits of digital drawing are of particular significance for this study. Research into and through drawing is my chief focus.

In South African universities practice-based research in the creative disciplines has recently gained acceptance at doctoral level. This doctoral study provides me with the opportunity to reflect on and interrogate my creative practice in an academic context.

1.3 The Problem

This research set out to investigate the creative applications of basic computer software by conducting a practice-based exploration of visual arts and design thinking through drawing and animation. Creative practice tends to concern itself more with *problem finding* than *problem solving* (Csikszentmihalyi, 1996b).

At the outset of this research I was not sure where my enquiry would lead. In that sense I did not know precisely what the research problem was. The engagement with computer-aided drawing and animation was the beginning of a creative journey with no predetermined destination. What became evident as the journey progressed was that the real purpose of the enquiry was to deepen my 'visual knowing' through creative and reflexive action leading to theorising, which in turn leads to further action. The research developed into an exploration of the relationship between making/*poiesis*, doing/*praxis* and knowing/*theoria* in my visual arts practice using a

¹ See Appendix B.1.2 *The Computer and Creative Block*

multilayered, reflective and reflexive practice-based enquiry (Irwin, 2008). These three key concepts have guided my research and practice and I refer to them throughout.

The Conceptual Framework

The terms *theoria*, *praxis* and *poiesis* are attributed to the ancient Greek philosopher Aristotle “who attempted to resolve an apparent conflict between the arts and philosophy” (Irwin, 2008). Aristotle divided human knowledge into three categories; theoretical knowledge whose purpose is reality, practical knowledge whose purpose is action, and poetic knowledge whose purpose is creation (Potur and Kayihan, 2011).

Theoria (Greek for theory) is defined as “the act of viewing, contemplation, consideration, theory” (Webster’s Third New International Dictionary, 1993). For Aristotle, *theoria* involved a search for reality or truth based on the experience of phenomena rather than concepts (Potur and Kayihan, 2011: 119). In this sense *theoria* is associated with knowledge and learning. For the purposes of this study I interpreted *theoria* as *knowing*, specifically the knowledge and theory leading to and gained from the experience of creative practice.

Praxis is defined as “(a) exercise or practicing of an art, science or skill; (b) usual or conventional conduct” (Webster’s Third New International Dictionary, 1993). For Aristotle, *praxis* involved a quest for “rational behaviours through acquired, moral competence (*phronesis*)” and is “...concerned with concepts loaded with normative values and morals, justice, virtue and politics and problematics created by these concepts” (Potur and Kayihan, 2011: 120). In this sense *praxis* is associated with “behavioural knowledge” (2011: 120) as well as with action. For this study, *praxis* was understood as *reflexive doing*, referring to the actions, activities and behaviours (including reflection and thinking) leading up to, and following on from, the productive act.

Poiesis is defined as “the action or faculty of doing or producing something esp. creatively” (Webster’s Third New International Dictionary, 1993). For Aristotle *poiesis* “included poetry as well as the other productive arts” (Sullivan 2000, in Irwin, 2008: 27). Thus *poiesis* refers to the productive act and is associated with the creative disciplines (Potur and Kayihan, 2011: 120). *Poiesis* has also been defined as the uncovering of meaning through making (Felmington, 2013). In this study I used the term to denote *making*, specifically the act of producing drawings, animations, and artefacts.

This study was based on the hypothesis that an understanding of these three categories of human knowledge, and of how they are inter-related in my practice, would lead to insights concerning the creative process. The following diagram (Figure 1.1) illustrates how the relationship between these three categories serves as a basis for this research.

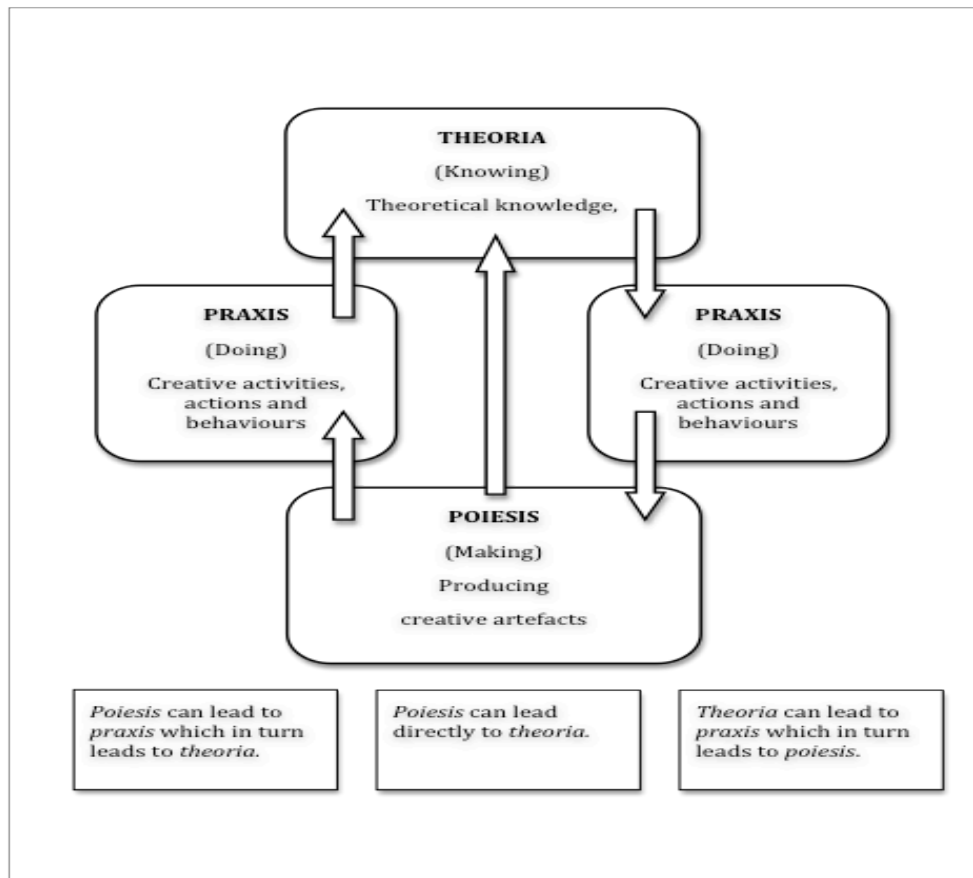


Figure 1.1: The Relationship between Knowing, Doing, and Making

1.4 Aims and Objectives

This research began by investigating the creative applications of basic computer software. In conducting this enquiry it became essential to understand the relationship between the different components of the creative process. In order to interrogate the relationship between making, doing and knowing, it was necessary to formulate aims and objectives for each category.

Making

The initial aim that marked the beginning of this study was to stimulate creativity by using the computer for drawing. The objective was to produce new and original artworks. The computer programmes *Microsoft Paint* and *Windows Moviemaker* are generic to *Microsoft Windows* and are therefore easily accessed by average computer users. There is a perception that these computer programmes are not suitable for specialist visual artist/designer needs. This research challenges

that perception. These programmes were used as creative tools in my fine art practice. The boundaries of these programmes were pushed to open up new ways of thinking and making. I explored the creative potential of these programmes and embarked on a 'serious-playful' journey of possibilities (Scher, 2008).

The artefacts produced as a result of these experiments played a dual role in this study. As *poiesis* they represent research outcomes in themselves. It has been argued that the making of visual artefacts can be seen as research (Duxbury and Grierson, 2008). However they also functioned as data for reflection and analysis. I include examples of my work throughout the thesis. The accompanying Compact Disc contains examples of my digital animations and videos of two exhibition 'walkabouts'.

Reflexive Doing

Although my study arose out of creative art practice involving the making of artworks, it was not limited to the study of those artefacts. I became interested in the cognitive and creative processes and behaviours that led to and followed on from the making of the artefacts. I aimed to contribute to an understanding of creative *praxis* (in the sense that I have defined it above). Concurrent with my practical exploration I sought to understand the cognitive process that took place while making art. This required reflection on the challenges, benefits and revelations of digital drawing and animation. I became involved in a meta-cognitive endeavour with the objective of finding out more about the relationship between thinking and making during the creative process, particularly with regard to drawing.

Knowing

If research can be thought of as a means of generating knowledge, and if the art making process can be considered as a form of research, then the outcomes of this process can be considered as visual knowledge. Hence it can be said that the artefacts contain within them all three aspects: *poiesis*, *praxis*, and *theoria*. Theorising on the production of art and design artefacts led to an understanding of the artefacts, the making process and the knowledge generated. The research aimed to reveal the nature of this knowledge.

This thesis articulates the visual knowing that resulted from making and doing in my visual art practice. The activity of 'making' in visual art and design can be intuitive and instinctive but it can also be premeditated and planned. Often the two approaches are combined whereby reflection on unplanned actions or sub-conscious decisions leads to conscious actions. Such reflection not only leads to further action but also to theoretical analysis of the actions. Theorising out of practice, or what Bolt (2005) refers to as the "double articulation between theory and practice", was an important component of this research. The making was

accompanied and informed by reflection and led to theorising. The theorising of other practitioners was used to further inform practice in a continuous circle.

In the visual arts the knowledge that results from doing and is embedded in the making, is open-ended and presents us with possibilities rather than finite solutions. Sullivan refers to the incomplete nature of 'visual knowing':

If we believe that the outcome of inquiry is the creation of new knowledge, this means that knowing, or the capacity to use our understanding in new ways, will always be incomplete. Although this sense of unknowing propels the imagination, there is always an element of completion as our knowledge helps us understand things we did not know before. (Sullivan, 2010)

The 'knowledge' generated by the study came about not through solving a predetermined problem, but rather as a result of open ended creative enquiry. Thus my research set out firstly to 'find a problem' through creative exploration, secondly to interrogate how the resulting creative contribution came about, and finally to determine the credibility of the contribution in relation to the field (Mottram and Rust, 2008).

In so doing I engaged with alternative forms of knowledge such as *tacit knowing* (Polanyi in Sveiby, 1997), *situated knowledge* (Barrett and Bolt 2007), *embedded knowledge* (Bolt in Barrett and Bolt 2007), and *visual knowing* (Sullivan, 2010). The knowledge is embedded in the making process itself as well as in the artefacts produced and is essentially non-verbal.

Here lies an interesting dilemma: How does one present alternative forms of knowledge in a traditional academic research context? My solution was to contextualise the study in the field of practice-based visual arts research by providing a theoretical and contextual account of these alternative forms of knowledge, of how they came to manifest themselves in my creative practice, and of how they add to my understanding of the creative process.

1.5 Research Questions

Visual art and design practice is a broad and complex field. Approaches vary from practitioner to practitioner. There are as many ways of making art and design artefacts as there are artists and designers. This study examines one individual's practice with a view to providing insights about the process of art and design thinking in a broader sense. Thus in order to carry out *a practice-based exploration of visual art and design thinking through drawing and animation*, the primary research question became:

What is the relationship between making (poiesis), doing (praxis), and knowing (theoria) in visual art and design thinking?

The enquiry into this question was conducted by investigating the following sub-questions:

Making

How does the use of basic computer programmes as tools for drawing and animation influence and facilitate poiesis in my visual art practice?

Doing

How does the use of basic computer programmes as tools for drawing and animation influence and facilitate praxis in my visual art practice?

What is the relationship between thinking and drawing in the visual art and design process?

What role can digital drawing play in the art and design thinking process?

Knowing

How does the use of basic computer programmes as tools for drawing and animation influence and facilitate knowing in my visual art practice?

What insights and knowledge does a reflexive approach to visual art practice reveal about the nature of art and design thinking?

1.6 Context of the Research

Art and the Computer

As the title indicates, this study focused on the creative applications of basic computer software with the aim of exploring visual art and design thinking through drawing and animation. To contextualize the resulting body of work in the light of work made by artists with similar concerns, I conducted a survey of the developments in digital art.

The early beginnings and consequent developments have been well documented elsewhere (Blais & Ippolito, 2006; Leeson, 1996; Paul, 2003; Rush, 1999; Schwarz 1997; Wands, 2006). Therefore I felt it was not necessary to provide a detailed account of the history of digital art. I referred rather to selected artists in whose work I found resonance. I examined the work of some of the early pioneers of digital drawing as well as a number of contemporary artists whose work echoes my own interests and concerns. I focused my attention on those artists who use computer software and hardware not specifically designed for art and design and on those who explore the relationship between digital media and traditional media. My aim was to identify the way in which digital technology influenced the creative process of selected artists, and to find parallels with my own creative process.

Closing the Theory-Practice Gap

The research question “*What is the relationship between making (poiesis), doing (praxis), and knowing (theoria) in visual art and design thinking?*” implies an investigation into the

relationship between theory and practice. This relationship is dealt with in the paper *Mind the Gap: Drawing theory and practice together* (Roome, Ziegler, 2012)² where Ziegler and I discuss a teaching project designed to break down the perceived gap between art theory and studio practice in the Durban University of Technology fine art programme. We note that the contemporary notion of ‘research’ originates in the desire to “discover and understand the ‘theory’ behind (natural) phenomena” which led to the invention of the university itself. In this sense theory and practice were originally integrated.

Over time there has been a tendency to separate theory and practice, resulting in educational institutions that are either theory driven or technology focused. We further note that “theory driven university degrees are currently criticized for their lack of practical application, yet practice-based courses, especially in art and design, have in turn, changed their curriculum towards a more theory oriented, cognitive approach”. Whilst much contemporary art has a strongly theoretical basis, in art education there is still a tendency to separate the two by having subjects that are either purely theoretical or purely practical.

The reason lies in their different functions within the process of ‘problem solving’, - practical as opposed to factual. But it is the thinking that leads the way to the solution, not the doing. This separation of thinking and doing causes the problem. By separating the two, we are tempted to see them as not related, which is a fallacy. (Roome, Ziegler, 2012)

Our proposed solution to this misconception was to emphasise the interrelatedness of theory and practice in our teaching. My hypothesis is that theory does not only lead to and influence practice, but also that practice leads to and influences theory. My research aimed to investigate the closeness of ‘thinking’ and ‘doing’. By investigating the cognitive aspects of drawing I hoped to add to our knowledge of how ‘thinking’ and ‘doing’ are part of an integrated process in practice-based research.

1.7 Rationale and Motivation for the Study

A study by Mottram and Rust in 2008 on fine art practice, research, and doctorates makes it clear that academics working in the visual arts in universities are working across two realms, that of the professional context of creative practice and that of the academic context. In professional practice problem finding leads to individual and distributed cognition while in academic research practice the focus is on how this creative contribution comes about, how it can be utilized or might test any implied hypothesis (Mottram and Rust, 2008).

Taking Mottram and Rust’s idea further, I have identified three realms in which my research is situated. As part of a multi-layered approach, my study was conducted from the different

² See Appendix C 4

perspectives of maker/thinker/researcher. Whilst these aspects of my persona are integrated and often inseparable, the study set out to examine the way in which each facet contributed to the art making process in a holistic sense.

Personal Rationale

This study arose in a creative context. By using basic computer software as a tool for art making I sought to side step a creative-block and transform my practice. The research reflected on a personal creative journey and interrogated the process of transformation that took place. My personal rationale for conducting this study was to provide deeper insights into my practice as an artist in order to stimulate further creative development and production.

Professional Rationale

The personal and professional roles are closely linked. I hoped to open up new understandings that will not only assist in transforming and improving my practice, but will also resonate with the experience of other practitioners. By investigating the cognitive processes that accompany art making I hope to provide insights into art and design thinking that will be of value to others in the field of art and design.

Academic Rationale

This study interrogates the roles and methodologies of the 'artist-academic'. By placing art practice in an academic research context, I challenge the view that art and academic research are incompatible. Although the study arose in a creative and professional context it did not simply present the artefacts for consumption by the viewer as might ordinarily happen in a gallery. By situating the creative work in the field of academic research I opened it up to scrutiny through a process of reflection, contextualising and theorising. De Freitas (2007) points out that there is a difference between the professional context and the demands of an academic degree. The focus was on understanding the creative *process* rather than on the artefacts alone.

An additional focus of the research was the implication of the findings for teaching purposes. Basic computer software for drawing and animation was used as a teaching tool to facilitate critical and creative thinking as well as to promote the integration of theory and practice.

1.8 Methodology

A Methodological Challenge

This study presented a methodological challenge. In order to articulate verbally knowledge of an essentially visual nature I needed to find a methodological framework that would facilitate the integration of visual arts theory and practice.

The obvious and logical choice was to place the study within the paradigm of practice-based research. Practice-based research is however a relatively broad and evolving field with a wide variety of possible approaches. Not only did I need to find a methodology that would incorporate the integration of theory and practice, but also I had to find a methodology that would suit my particular research problem. I carried out extensive literature research to develop an understanding of emerging practice-based methodologies.³ I sought to contribute an understanding of practice-based research in the visual arts using my own practice as a case study.

Emergent and Reflexive Methodologies

The methodology I adopted *emerged* out of my visual arts practice or *making*. There was a strong reliance on creative experimentation, intuitive action, as well as reflection on, and response to, unexpected developments. Creative practice is by nature highly subjective and even within one individual's practice the methodology may vary from situation to situation. Barrett (2007) notes that an important feature of creative practice as research is its *emergent methodologies*. She cites Heidegger's notion of *praxical knowledge*, which emerges out of practice, and Ihde's *technics*, where knowledge emerges through material processes that are the result of the 'tacit and alternative logic of practice *in time*' and are therefore unpredictable. Barrett further notes that practice as research involves Bourdieu's *reflexivity* where both the researcher and the object of the research are taken into consideration. Because of *reflexivity* artistic research methodologies are emergent by necessity and are also subject to repeated adjustment. Barrett argues "that because of its inbuilt reflexivity, the emergent aspect of artistic research methodology may be viewed as a positive feature to be factored into the design of research projects rather than as a flaw to be understated or avoided" (Barrett and Bolt, 2007).

Thus any methodology adopted for my creative practice would need to be emergent and reflexive. I also needed to find or develop a theoretical methodological framework that would accommodate the different aspects of practice. This methodology would have to facilitate the research objective of investigating *the relationship between making (poiesis), doing (praxis), and knowing (theoria) in visual art and design thinking*.

I identified that reflection and reflexivity play an important role, before, during, and after making. For this reason I decided on a reflective and reflexive methodology. Literature research into practice-based methodologies provided a number of potential models (Barrett and Bolt, Smith and Dean, Sullivan). However I realised I would need to adapt elements of these to suit my needs, particularly the reflective and reflexive nature of the research. Chapter three gives a detailed account of the methodology that emerged from my practice.

³ See Appendix A, *Practice-based Research in Visual Arts and Design*

Theory Building: the Dual Role of the Literature

The literature consulted plays a dual role in this study. The approach adopted is not strictly speaking one of Grounded Theory (Glaser and Strauss, 1967) but it does involve a form of theory building. Like Grounded Theory, practice-based visual arts research does not start with a hypothesis. There is no specified 'problem' to solve (Sullivan, 2010). Grounded Theory begins by collecting data from participants that is then coded and categorised to provide the basis for theory construction. This practice-based research project did not begin with data collection but rather with the *generation* of data through making or *poiesis*.

In Grounded Theory, literature reviews are generally not conducted before the research begins in order to avoid undue influence on the findings obtained. In this study the practical work was produced first for similar reasons. This was followed by reflection on the resulting drawings and artefacts as well as by a review of related visual art and literature to provide resonance.⁴ This brought about a deeper understanding of my own creative process and assisted in providing explanations for what occurred.

The experiences and observations of other practitioners in the field provided supporting data. Thus the theorising that resulted from this project was derived not only from the interrogation of practice, but also from the interrogation of relevant literature. In this sense the literature functioned both as data and also provided resonance and credibility for the findings based on practice. In many instances the questions I asked concerning my practice were drawn from the literature. In addition conclusions based on the literature are presented as findings. For this reason references to and discussions of the literature are not confined to a "Literature Review" chapter, but are integrated throughout the thesis.

⁴ See Chapter Two: *Poiesis – The Computer as a Creative Tool*

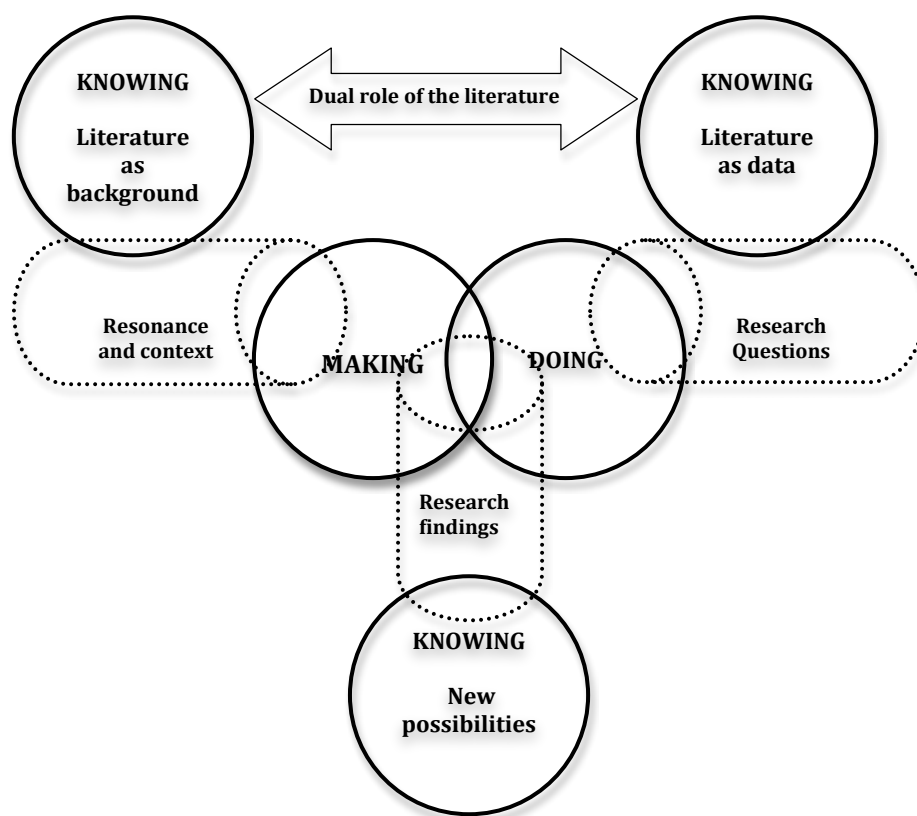


Figure 1.2: The dual role of the literature

1.9 Delimitations of the Study

Academic Rigour: Ensuring Trustworthiness

The study is based on my experiences as a creative practitioner. The emphasis is on gaining insight and understanding of the creative processes involved. A distinguishing feature of creative practice-based research is that the practitioner generates the data, implying a degree of subjectivity.

Creative practice-based researchers have to reconcile the inherent subjectivity of practice with the requirements concerning objectivity and reliability of academic research. It is in the interpretation of the data that claims for rigour and trustworthiness can be made. Creative research falls within a paradigm that is distinct from the Positivist emphasis on 'objectivity' and 'truth'. Qualitative researchers in the social sciences have begun to develop mechanisms for ensuring trustworthiness in order to acknowledge and incorporate elements of subjectivity that inevitably occur in qualitative studies (Lewis, 2009).

Creative research differs from qualitative research in the social sciences in the way the data is obtained. Social scientists gather information from participants or informants other than themselves, whereas creative practitioners reflect primarily on their own practice. Nevertheless,

creative practice-based research shares certain characteristics with qualitative research and adapts many of its methods (Sullivan, 2010). To establish trustworthiness for this study, I employed measures adapted from qualitative research involving credibility, transferability, dependability, and confirmability (Shenton, 2004).

Artistic Merit

The study does not evaluate the artistic merits of the artefacts produced, but rather focuses on understanding the cognitive and creative *processes* surrounding the production of artworks. The research did investigate the relationship between *what* was produced and *how* it was produced. Subject matter and content of the work produced was discussed and analysed largely in relation to the process of production. The artworks produced here were all of an experimental nature. As a result the 'artistic quality' of the artefacts varied.

During the course of this study I produced hundreds of experimental digital drawings for animation. Woodcut panels and drawings using traditional materials were made in response to the digital work. Selected examples, which I considered 'successful' as artworks, were publicly exhibited. I also made numerous digital drawings, as part of an investigation into visual thinking, not intended for public consumption. Selected examples of these drawings are included in the thesis as research data.

Basic Computer Software

Drawing by means of *basic computer software* was the starting point for the study. It is important to note that I am not a 'high-tech' computer technologist who dabbles in art, but rather an artist who uses computers in order to stimulate creativity. My approach has been to explore the lower end of digital technology. The study focused on the use of basic computer software (*Microsoft Paint*, and *Windows Moviemaker*), although I did involve the use of a programme designed to simulate traditional art media (*Artrage*) by way of comparison. This decision was based on the assumption that programmes not designed to simulate traditional media would encourage innovation and stimulate creative thinking.

1.10 Brief Outline of the Chapters

Chapter One: Making, Doing, and Knowing

Chapter one provides an introduction to and overview of the thesis.

Chapter Two: Making - The Computer as a Creative Tool

In chapter two of this thesis I provide a contextual analysis of the work of selected artists in the field, and establish resonance with my own creative production. I introduce concepts such as new media versus traditional media, the digital aesthetic, movement, and animation.

To establish the conceptual framework for interpreting *poiesis*, I review literature concerning alternative approaches to knowledge in practice-based research.

Finally I explain the dual role of the literature in relation to the findings of the study.

Chapter Three: Doing - A Reflective Methodology

In chapter three I introduce the emerging paradigm of practice-based research in the visual arts.

A review of Schön's "alternative epistemology of practice" provides the theoretical background to the methodology of this study (1983). I discuss the concepts of reflection in action, tacit knowing, reflection on action, and explicit knowledge.

Projective reflective practice is introduced as the method adopted for this research (Scrivener, 2011).

The rationale for using drawing as a research method is explained.

Finally I examine mechanisms for ensuring the trustworthiness of the research.

Chapter Four: Findings - From Making to Doing to Knowing

Chapter four presents a visual documentation of the practical work that forms the basis for the research. Illustrations of digital drawings and works in traditional media are provided. Commentary and artist's statements accompany the illustrations. (A computer disc is provided that contains the digital animations produced during the study.)

The field of drawing research is introduced. I discuss the development of this emerging domain. Various approaches to drawing and research are examined: drawing and the academic research environment; the critical rigour of drawing; drawing and the production of knowledge.

The relationship between drawing and thinking is investigated. I introduce the notion of drawing as a tool for reflection and cognition, and examine how this is evident in my drawing practice. A method of enquiry into drawing and thinking using the computer is discussed.

I examine the challenges, benefits and revelations of digital drawing. I give an account of how the use of basic computer programmes for drawing influenced my creative practice.

Chapter Five: Revelations

In the final chapter I provide an overview of and meta-reflection on the research.

The relationship between *making*, *doing* and *knowing* in the study is reviewed.

The findings are presented as a series of "revelations" and "possibilities" in response to the research questions.

I discuss the value of the research in relation to its credibility.

The implications of the research are discussed from personal, educational, and academic perspectives.

Recommendations for further research are made.

1.11 Appendices

In most cases the appendices overlap with the findings reported in the thesis. They are included to provide background, context and credibility for the research.

Appendix A: Practice-based Research in Visual Arts and Design

I introduce methodological paradigms in visual arts research by providing an overview of current literature, including a definition of terms, a brief historical background, and an introduction to a range of different approaches. This provides background and context for the methodology used in the study.

Appendix B: Reflective Writing

I present a series of self-reflections on creative work produced prior to and during the writing of the thesis. The early reflective writing provides background information regarding the initial processes of this research. Later reflective journaling serves to amplify and contextualise the findings discussed in chapter four of this thesis.

Appendix C: Published Papers

During the process of conducting this research I undertook the writing of research papers that explore various aspects of the study. The findings presented in the papers overlap and underline those of the thesis. Their publication was subject to peer review. They therefore provide evidence of credibility.

Appendix D: Peer Review

A review of the research by a 'critical reader' is included for further evidence of credibility.

CHAPTER TWO

MAKING - THE COMPUTER AS A CREATIVE TOOL

In the computer, man has created not just an inanimate tool but an intellectual and active creative partner that, when fully exploited, could be used to produce wholly new art forms and possibly new aesthetic experiences.

- A. Michael Noll, 1967

2.1 Introduction

The questions addressed by this study arose out of the production of a body of creative work. They were generated by my practical involvement in the field of digital drawing and animation. The aim is to interrogate and understand the way in which my use of basic computer programmes influenced and facilitated a creative process. In so doing I seek to provide insights into the nature of creative thinking that will find resonance with other practitioners in the field.

I consider my art practice itself as part of the research process. Producing original art works involves complex intellectual, emotional, often instinctive and sometimes idiosyncratic procedures. The outcome of creative practice is not only a series of artefacts but it also represents a body of knowledge. In this sense mine is 'an original investigation undertaken in order to gain new knowledge partly by means of practice and the outcomes of that practice' (Candy, 2006).

This chapter explores images and ideas that *resonate* with my own experience as a visual practitioner. In this sense the work of others is used to establish the context for my own practice and assists in establishing the credibility of the research. It is important to note that my practice evolved independently of these artists and was not directly influenced by them. In most cases I only started to become aware of their work after beginning my own creative journey with the computer. However the investigation of their work has contributed to a deeper understanding of the relationship between the computer and the design thinking process.

This research sets out to explore the relationship between making, doing and knowing in my visual arts practice using a multilayered, reflective and reflexive practice-based enquiry (Irwin). The starting point for this enquiry was a body of work produced over a period of four years. The work involved the exploration of computer drawing and digital animation using basic software. The results of these explorations influenced the production of work in traditional media. Reflection on the process leading to this body of work led to an inquiry into the nature of its production.

While exploring the computer as a creative tool I began to take an interest in other artists working in similar ways, rapidly discovering that the field was broad and dynamic. Computer technology is in a constant state of change and development. This dynamic state is reflected in the art that uses or is influenced by computer technology. As digital technology has developed and become more sophisticated the creative possibilities offered and inspired by technology has grown exponentially.

By examining the similarities and differences between my work and that of selected artists I intend to demonstrate my understanding of the relationship between the use of digital technology and the creative process. I will explain how developments in computer technology since its early beginnings have enabled computer scientists and artists to explore different creative possibilities and aesthetic forms. I will indicate how my own creative practice harnesses the creative potential offered by the development of basic computer software programmes.

2.2 Early Pioneers

One of the chief aims of this research is to investigate the use of the computer as a tool for creative work, with a particular emphasis on the computer as a drawing instrument. Working in the 1960s, A. Michael Noll, arguably one of the earliest pioneers of computer art in the USA, shared similar interests. Noll had been interested in drawing as a child and later developed an interest in art. This interest in drawing and art, together with the supportive atmosphere at Bell Laboratories New York in the early 1960s, where he was involved in researching new methods for determining the fundamental frequency of speech, encouraged Noll to begin experimenting with the computer as an art-making device. The equipment used, a Stromberg Carlson SC-4020 microfilm plotter, became the basis for his investigations into computer art (Noll, 1994).

The 1960s was an important decade for the development of digital technology. It was “a time when the groundwork for much of today’s technology and its artistic exploration was laid” (Paul, 2003). Bell Laboratories initiated a project that encouraged collaborations between scientists and artists, for example Noll, an engineer, worked with painter Lillian Schwartz (King, ca. 2002). It was a period that saw the introduction of concepts such as hypertext and hypermedia as well as the development of bitmapping, windows and direct manipulation through a mouse (Paul, 2003). Many of the early pioneers of digital art used basic programmes to produce visual art.

The work of computer scientists such as A. Michael Noll foreshadowed an entirely new phenomenon in the creative arts. Abstract computer patterns resulting from an accidental programming error inspired Noll in his deliberate attempts at making computer generated art. Noll’s early experiments consisted of plotting lines on the computer that resulted in random effects and patterns. He went on to make more sophisticated computer drawings, including

simulations of work by artists such as Mondrian and Bridget Riley, as well as computer animations and choreographed computer generated ballet (Noll, 1994).

The graphic quality of Noll's computer generated drawings resonates with my own experiences with computer drawing. Noll was working before the development of the computer mouse. However the quality of the line produced by his microfilm plotter is similar to the quality of line produced by drawing with a mouse using a basic programme such as *Microsoft Paint*. As the lines consist of horizontal and vertical units, the drawings have a distinctive aesthetic and a strong geometric feel. It is probably not accidental that Noll was attracted to the work of Mondrian. The geometric style of Mondrian's late work lends itself to digital drawing.

My own work *Black Lung* (Figure 2.2) appears to be a reference to the work of Mondrian. This was unintentional. However the process of translating a highly pixelated image into a charcoal drawing emphasised the almost mechanical and geometric quality of the marks. It is this pixelated quality of line that is emphasised as an expressive, and at times, decorative element in my wood cut panels and drawings.

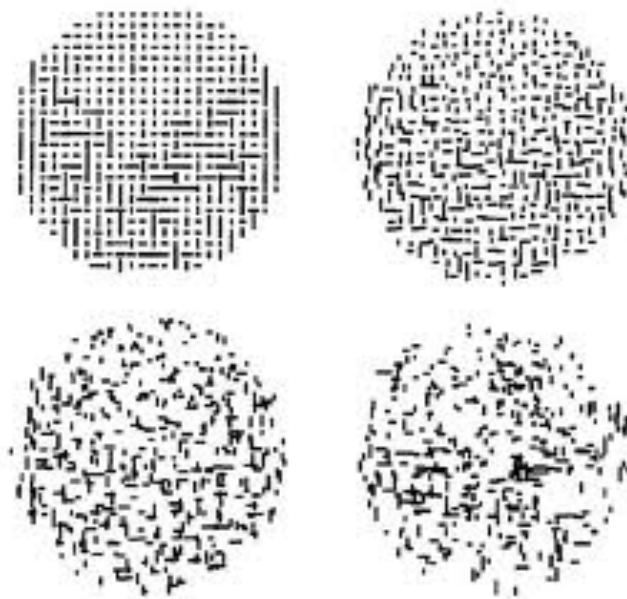


Figure 2.1: Noll, A. Michael, 1964. *Computer Compositions with Lines*, Computer Graphics. (image), Available at <http://www.dam.org/mix/noll-all-artworks-4-computer-patterns-with-lines--dam-11493-gUmmn-de-2.jpg>, (Accessed 10th July 2010)

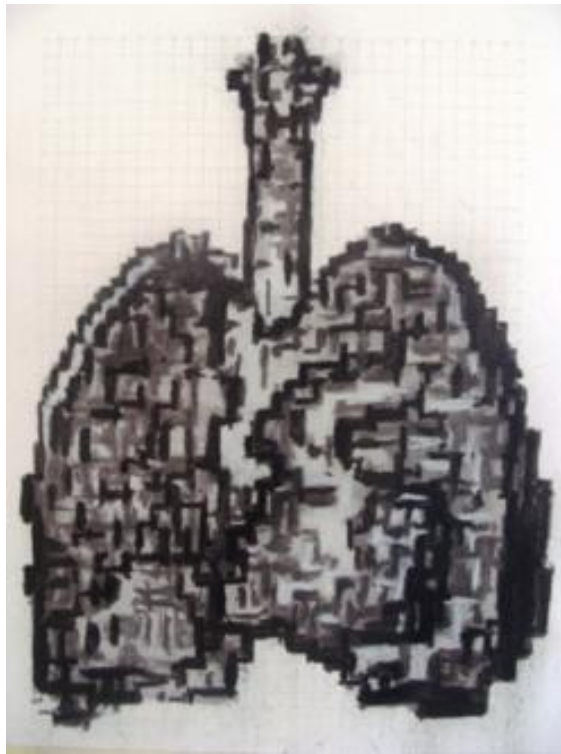


Figure 2.2: John Roome, 2009. *Black Lung*, Charcoal on paper



Figure 2.3: John Roome, 2007. *Flower, (detail)*, Woodcut panel

Noll exploited the character of the marks produced by early computer plotters resulting in a particular aesthetic quality. In a similar way the character of the lines produced by using the *Microsoft Paint* programme influenced me to explore a 'digital aesthetic' in my work. In

addressing the question of how the use of basic computer software influenced 'making' in my art practice, I became increasingly aware of a relationship between the computer and the art making process.

In contemporary terms Noll's early work may appear technically rudimentary. He was limited by the hardware and software available at the time, but the importance of his pioneering work should not be underestimated. Of great significance is his realization that computers can be used to make art. Most of Noll's colleagues with whom he exhibited in 1965 at the Howard Wise Gallery, New York did not see their work as art. Thus the exhibition was titled *Computer Generated Images*. Noll however did think of his work as art (Noll, 1994).

Noll's work and that of his contemporaries raised the issue of authorship for computer art. By arguing that it was the programmer and not the computer who was the artist, he was able to obtain the first copyright for computer generated images.

Noll recognised the potential of the computer as a creative tool but was also aware of its limitations. He stated:

However the computer is only a medium, and the medium should not be emphasized over the artistic result. If there is any failing in computer art it is that the medium is still an excuse for poor art. I hope that this will soon change as computers become more prevalent in our art schools. Computers might actually be the single common tool that will lead to an integration of various arts, such as music, animation, sculpture, drama, architecture, design and dance. The future of computers in the arts continues to excite me, and I look forward to seeing the maturing of this still new artistic tool and medium. (Noll, 1994)

Noll's vision of the creative possibilities offered by computers has proved to be prophetic. Although Noll came from a computer science background he is generally regarded as one of the forerunners of digital art and "created some of the earliest computer generated images" (Paul, 2003).

Subsequent developments in hardware and software have made it possible for artists without any computer science knowledge to make use of digital technology. Whilst numerous artists have chosen to learn computer programming in order to make their art, others explore the possibilities of available software. The latter option has become more common with the increased sophistication of available software. Highly specialised programmes for designers and artists have lead to a proliferation of digitally generated work.

Noll's enthusiasm for the computer as an art medium is tempered by the observation that it is "still an excuse for poor art" (1994). This might explain why, despite the strides made by artists working with computers, mainstream art historians, critics and gallerists have tended to sideline the medium. Paul Brown maintains that the mainstream has always been reactionary and

critical of experiments beyond the boundaries it sets for art. Writing in 1996 he stated that the same thing applies to computer art, a forbidden medium for the past 25 years. He noted that computers were only acceptable when used by established artists such as Warhol and Hockney, but were “the kiss of death for young unknown artists” (Brown, 1996).

I share Noll’s view that the computer is a tool and medium for art making that can lead to ‘an integration of various arts’. The computer allowed me to explore animation and movement. This significantly altered and broadened my approach to making art. While the value and quality of the work produced is largely dependant on the input of the artist, it became clear that the medium did have a profound affect on the creative process. My ‘accidental’ realisation that by means of ‘copy and paste’ I was able to animate the drawings opened up new creative possibilities. A dialogue had taken place between me and the computer suggesting a new direction and freeing up my previously ‘blocked’ creativity. Thus the computer acted as a stimulant for the creative process and influenced the aesthetic decisions made. This addresses my question: *How does the use of basic computer programmes as a tool for drawing and animation influence and facilitate “making/poiesis” in my visual art practice?*

2.3 New Media and Traditional Media

The relationship between so-called traditional media and new media is investigated through my working process by moving between digital tools and traditional tools in an attempt to blur the boundaries or alternatively exaggerate the differences.

The development of digital tools for art making has brought along with it much debate concerning the relationship between what has been termed traditional or old media and new media. It also highlights the distinction between computer-generated art and handmade art.

It is revealing that one of Noll’s early experiments into the computer-generated image revolved around this issue. Due to his interest in human and perceptual aspects of technology, Noll began to use computer-generated patterns to investigate aesthetic preferences. He wrote a programme to generate a Mondrian-like drawing. A study was conducted to determine which pattern was preferred, the original Mondrian drawing or the computer-generated simulation. The results were inconclusive (Noll, 1994).

What I find interesting about Noll’s research is that it focused on the relationship between digitally produced and handmade images. Christian Paul, in *Digital Art* (2003) points out that the increased use of digital technology in daily life has lead to speculation that “all forms of artistic expression will eventually be absorbed into the digital medium”(Paul, 2003). He refers to many contemporary artists making use of digital technology, but the degree to which the digital

quality dominates, varies. There are works which appear to be handmade but are digital and there are works that appear to be digital but are handmade (Paul, 2003). It is precisely this ambiguity that fascinated me as an artist. The exploration of the relationship between the virtual and the physical became a focus of my practical research. In this way I aimed to draw attention to the potential of a 'partnership' between the computer and the artist.

How does computer art differ from traditional art? Artist and media researcher Frank Dietrich attempted to answer this fundamental question in *The Computer: a Tool for Thought Experiments* (Dietrich, 1987). His paper, written during the early period of digital art,

...proposes that the computer as a symbol-processing machine is capable of simulating mental acts similar to the creative activity that is embodied in a work of traditional art. Therefore, the computer artist becomes empowered not only to craft a particular art object with the computer but also to design an art subject in the form of a digital system that is able autonomously to perform artistic activities and create art objects itself. (Dietrich, 1987)

Artists such as Harold Cohen have explored the concept of the computer as a creative collaborator, or even as an independent artist in its own right. Cohen created a computer programme AARON that is capable of generating paintings. Cohen aims to develop AARON to a point where it can function as an independent artist. In a paper presented at the third *Creativity and Cognition Conference* (1999), Cohen acknowledged that he had not yet reached the point where the computer programme could be said to be independently creative. Even though AARON produces new and original images, the creativity comes from the programmer. Cohen's paper titled *A Self defining game for one player* provides a fascinating discussion on the nature of creativity in the context of computer programmes. He poses the question of whether computer programmes will ever be truly creative. Cohen has not ruled out this possibility but noted that it was still a long way off (Cohen, 1999).

What Dietrich suggests and what Cohen demonstrates is that the computer can be used as an active participant in the creative process (1987). My study focuses on the relationship between the computer as a tool and the creative process. I am particularly interested in the way in which computer technology can be used to facilitate and influence the drawing process and the creative process itself. Reflection on my practice has led me to conclude that the process of drawing is pivotal to gaining an understanding of my own creative process. My thesis is that by working digitally, my approach to drawing was altered significantly. I further propose that digital tools provide a unique means of analysing, understanding and transforming the drawing process, and through that, the creative process itself. This addresses the question: *How is the "doing/praxis" of visual art and design influenced and enhanced by the use of basic computer programmes?*

2.4 The Digital Look

The early digital art pioneers produced work that had a distinctive look. This was a result of the unavailability of hardware and software specifically designed for art making. Computer artists working before the 1980s designed their own software and used available hardware. In 1987 Herbert W. Franke stated that computer art was not yet mature because the 'instrumentarium' was still developing. He noted that output devices at the time (1987) were inadequate for what he termed "aesthetic productions"⁵ (Franke, 1987).

Paul Brown, writing in 1996, hypothesised that it was this fact that gave computer art produced pre 1980 'more integrity'. The early pioneers had to adapt available hardware and had to make use of difficult programming. Later technological developments have resulted in so-called 'user friendly' software specifically designed for art and design work. Brown observed that because this software mimics established art mediums it tends to "reinforce the past at the expense of the future". Thus the potential for a new and unique medium was held back by this clinging to the past. Brown predicted that it would take another decade for a new language, aesthetic, and paradigm to emerge (Brown, 1996).

What both Franke and Brown have suggested is that early computer artists produced work that was more innovative and experimental than work produced later using more sophisticated software and hardware. Brown implied that early computer art experiments represent a major paradigm shift in art. He claimed that the evolution of art from the experimental works of the 1960s undermines the modernist aesthetic of "intrinsic value" and the "grand narrative of the gilded frame", introducing a new paradigm where art becomes "valueless" and is relevant as a signifier, where content becomes "extrinsic dialogue and interpretation" (1996). This brings into question the relationship between computer art aesthetics and traditional art aesthetics.

As Paul (2003) points out, it has become common for artists to employ digital technology as a step in the creation of traditional media artworks. The results are works that have a traditional physicality whilst the aesthetic qualities are distinctly digital. An example is the work of painter Chris Finley (Figure 2.4) whose

...work process mirrors the limitations that are inherent to the restricted menu of imaging software: working within the restraints of a set of options determining colour and form, ...The result are paintings where traditional craft blends with the clearcut shapes and colour fields of computer generated painting. (Paul, 2003)

The above description of Finley's process could be applied to my own way of working. My series of colour woodcut panels *'Press Delete and Start Again'* (2006-2007), were based on images produced digitally using the software *Microsoft Paint*, which has an extremely limited menu. The

⁵ By this I understand Franke to mean works of art.

pixelated quality was emphasised by incising a jagged edged line into the wood, defining areas of flat colour. The colour was applied by means of a rubber roller using printer's ink. The strong, vibrant, predominantly primary and secondary colours reflect the palette of the software programme. To reinforce the reference to their digital source I shaped the edges of some of the panels with a zigzag cut using a jigsaw. In this way I produced physical, handmade artworks that referenced the aesthetics of computer generated 'virtual' painting.



Figure 2.4: Chris Finley 2002. *Couplink Creature Polarcoord*, acrylic sign enamel on canvas over wood, 152.4 x ca. 172.7 cm. (Image), Available at <http://www.artnet.com/magazine/reviews/wood/wood3-22-5.asp>, (Accessed 11th July, 2010)

Similarly, Cory Arcangel's *Japanese Driving Game* (figure 2.5) references the digital aesthetic of computer games such as Nintendo. Arcangel modified the code of the Nintendo game *Super Mario Brothers* in order to produce images reminiscent of Pop art in their appropriation of mass media images. His *landscape studies* (figure 2.6) were produced by taking photographs of his hometown that were scanned and adapted to the format of the Nintendo Entertainment system (Paul, 2003).



Figure 2.5: Cory Arcangel, 2005. *Japanese Driving Game*, Digital Video, (Image) Available at <http://rhizome.org/editorial/2009/sep/1/f1-racer-mod-2004-cory-arcangel/>, (Accessed 11th July 2010)



Figure 2.6: Cory Arcangel, 2002. *Nes Home Movies: 8-bit landscape studies*, (Image) Available at <http://rhizome.org/editorial/2009/sep/1/f1-racer-mod-2004-cory-arcangel/>, (Accessed 11th July 2010)



Figure 2.7: John Roome, 2006. *Helicopter*, Wood panel, printing ink on board, 120 x 92.5 cm

Helicopter (Figure 2.7) is based on a frame from my own digital video, *Circling the Island* from the series *Press Delete and Start Again*. The video has a playful, child-like quality similar to that of early digital games.

This reference to the digital aesthetic is another example of the way the use of basic computer software has influenced making/*poiesis* in my visual arts practice. My choice to use a basic programme was initially not a conscious one. I used what was available. Reflection on the results and implications of this choice convinced me that it had played a role in stimulating my creative thinking and had resulted in a new approach to my art making. I cannot make the claim that this innovation was as groundbreaking as those of the early digital art pioneers. However in the context of my personal creative development the use of basic software programmes, rather than a more sophisticated or ‘user-friendly’ programmes, was a significant factor.⁶

⁶ My paper titled *Digital Drawing and the Creative Process* (Published in TRACEY 2011) contains a detailed account of my reflection on the implications of using basic computer software for creative purposes. The paper is included in Appendix C 2.

2.5 The Virtual and the Physical

Much of the initial scepticism surrounding the use of computers for making art was related to its lack of physicality, body, weight and texture (Brown, 1996). Digital images, whether viewed on a monitor, projected onto a screen or printed onto paper, do not exhibit the physical qualities associated with so-called traditional media. As Brown observed, this was often interpreted as a 'loss'.

Twentieth century visual art was predominantly concerned with physicality where the art object itself takes precedence. Dietrich refers to the British philosopher Richard Wolheim with regard to the shift to the physical:

For the mainstream of modern art, we can postulate a theory that emphasizes the material character of art, a theory according to which a work of art is importantly or significantly, and not just peripherally, a physical object. Within the concept or art under which most of the finest, certainly most of the boldest works of our age have been made, the connotation of physicality moves to the fore. (Wolheim in Dietrich, 1987: n. p.)

The introduction of digital technology has brought with it a move away from the physical with the advent of virtual and web-based artworks. These works often exist purely in digital form. Artists such as Finley, referred to by Paul (2003: 55), have not completed the shift from the physical to the virtual and represent a transitional position. It is as if they are unwilling to totally abandon the physicality that Wolheim highlights. My art process takes a similar position. The new possibilities suggested by working digitally were, in my case, translated into the traditional media that I was familiar with.

By translating digitally generated images into woodcut panels or pencil and charcoal drawings, I set out to create a dialogue between the virtual and the physical. I further extend this conversation by projecting animated sequences of digital drawings onto woodcut panels.

Paul describes the virtual nature of digital imagery as follows:

The digital image consists of discrete, modular elements, pixels that are based on algorithms, mathematical formulas. While bits are essentially threads of light, they do not by nature require a physical object to 'represent' and are not based on a principle of continuity with the real world. (Paul, 2003)

The relationship between the virtual nature of digital imagery and the physicality of traditional media appears to fascinate many contemporary artists:

While digital media and traditional painting or drawing, in particular seem to occupy opposite ends of the scale in their inherent languages, these media are now frequently merged into new unities by artists who employ digital technologies as a step in the creation of a painting, drawing or print. (Paul, 2003)

In my case this step was initiated when I noticed similarities between my digital images and the formal aesthetic qualities of traditional woodcut prints. I merged the two languages of the digital images and woodcut prints into a 'new unity' by projecting an animated video onto a woodcut panel.

2.6 The Digital Mark

The jagged edge and the quality of the incised line in works such as *Helicopter* (Figure 2.7) makes reference to their source in computer-generated images. In other works I investigated and exploited what I call the 'digital mark'. Paul refers to what he calls the "loss of relationship" with the mark in digital media.

It has been suggested that the creation of artworks such as paintings or drawings on a computer implies a loss of relationship with the 'mark' – that is, that there is a significant lack of personality in the mark one produces on a computer screen as opposed to one on paper or canvas. (Paul, 2003)

Paul finds the comparison with painting and drawing problematic and maintains that in art created by computer technologies "the individuality and voice of an artist does not manifest itself in a direct physical intervention" (2003).

Whilst I agree that the digital mark lacks individuality, by translating it into a physical mark I attempt to imbue it with 'personality', a kind of hybrid personality, half mechanical, half man-made. Although the digital mark lacks personality, the way it is applied and manipulated can reflect the 'individuality and voice' of the artist. The degree of sophistication of the software the artist chooses to use can influence the character of the mark. My decision to use basic software emphasises the pixelated quality of the image, whilst more sophisticated programmes can simulate traditional mark making. This further highlights the relationship between "making/poesis" and the use of basic computer software. The decision to use a particular programme had a direct impact on the aesthetic outcome.

Jochem Hendricks developed a highly original method of making computer drawings. He used special goggles that scan the movement of the human eye and transmit the data to a printer. The resulting 'eye drawings' provide a record of the artist's gaze (Figure 2.8). The rawness of these drawings is reminiscent of Noll's early plotter drawings (Paul, 2003).

For me Hendricks's drawings also resonate with the raw quality of line I obtain in my series *Journey into the Ineffable* (Figure 2.9). In Hendricks's drawing the criss-crossing and overlaying of lines is the result of the tracing of his eye movements. In my drawing, part of a series of drawings for animation, the similar criss-crossing and overlaying of lines results from the build-up and erasure of lines as part of the animation process. Whereas Hendricks's images are a graphic record of the process of looking, and have an essentially abstract appearance, my drawings

record the process of drawing and are representational. Hendricks *traces* and *records* movement whilst I *express* and *represent* movement.

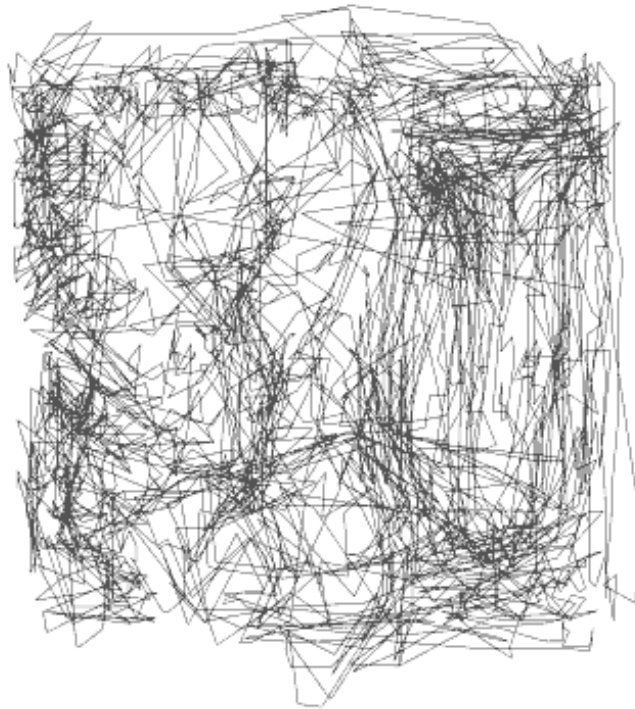


Figure 2.8: Jochem Hendricks, 2001. *EYE*, digital drawing, (Image) Available at http://www.jochem-hendricks.de/englisch/w_auen/non_03.gif, (Accessed 1st August 2010)



Figure 2.9: John Roome, 2009. *Journey into the Ineffable*, digital drawing

Not only did the use of *Microsoft Paint* influence the aesthetic outcome, or look, of my work, but it also contributed to the reflection on and analysis of the *design thinking process* that underpins

the work. I found that drawing digitally afforded me the opportunity to record my design process and provided a document of creative decisions made.

As noted above, the use of *Microsoft Paint* had a direct influence on the aesthetic character of my work and indicates that there was a clear relationship between the choice of software and the making/*poiesis* of the work. The process of digital drawing also led me to explore the expressive possibilities of movement and animation. When the drawings were animated (using another basic programme *Moviemaker*), reflection on the development of visual ideas was facilitated. Thus the question concerning doing/*praxis* could be addressed. The animated sequences enabled me to reflect on the intuitive design thinking that took place while in the process of drawing.

2.7 Movements that are Drawn

2.7.1 Precursors of Animation

A detailed historical account of animation is not within the scope of this study. However, in order to place this aspect of my work in context I will examine some early precursors of animation as well as selected examples of contemporary fine art animation.

One of the earliest examples of a drawing that represents physical movement can be found in the Chauvet caves, France. These drawings have been dated at ca. 31000 years BCE. The so-called *Seven Horned Rhino* (Figure 2.10) is an astonishingly sophisticated rendering of movement. By representing a Rhino with seven horns the artist has created the illusion of the animal raising and lowering its head. This remarkable study is arguably the earliest precursor of the art of animation and attests to an innate and ancient human fascination with depicting movement. It can be argued that *Seven Horned Rhino* is one of the earliest research documents in the history of mankind, making a strong argument for the power of drawing as a pre-verbal research tool.



Figure 2.10: Seven Horned Rhino, ca. 31000 B C E, Chauvet Caves, (Image) Available at <http://www.bradshawfoundation.com/clottes/page3.php> (Accessed 1st February 2011)

The *Seven Horned Rhino* is not strictly speaking animation but a graphic depiction and analysis of movement. In a similar way the Italian Futurists of the early twentieth century depicted

movement in their paintings and sculptures. Giacomo Balla's *Dynamism of a Dog on a Leash* (Figure 2.11) adopts the same device used by the cave painters at Chauvet to depict movement in a literal, illustrative manner. In a later work *Velocità d'automobile* (Figure 2.12), movement is expressed rather than illustrated. Here speed and dynamism are interpreted through rhythmic abstraction.



Figure 2.11: Giacomo Balla. 1912. *Dynamism of a Dog on a Leash*, oil on canvas, collection Albright-Knox Gallery, Buffalo, N.Y. (Image) Available at <http://www.artchive.com/artchive/B/balla/dogleash.jpg.html> (Accessed 1st February 2011)



Figure 2.12: Giacomo Balla, 1913. *Velocità d'automobile (Velocità n. 1)* Indian ink in watercolour on covered paper - 46,5x60 cm - Mart, L.F. Collection, Rovereto, (Image) Available at <http://sm1011vanz.blogspot.com/2009/05/giacomo-balla.html> (Accessed 1st February 2011)

According to Norman McLaren “Animation is not the art of drawings-that-move, but rather the art of movements-that-are-drawn” (Solomon, 1987: 11). The works illustrated above are fine examples of this and provide a context for my own exploration of the depiction of movement.

In my visual practice drawing with digital software allowed for the drawings to be copied and altered. This lead to a realization that making alterations to each subsequent copy could easily

animate the drawings. The process resulted in the production of drawings that suggested movement even in their static form. In response to the dynamic quality of these drawings, I translated some of them into hand-carved woodcut panels (Figure 2.13). Projecting the virtual animations onto the physical woodcut panel further emphasized the reference to their original source (Figure 2.14). Here both my questions concerning making/*poiesis* and doing/*praxis* were addressed.



Figure 2.13: John Roome, 2009. *Journey into the Ineffable*, Woodcut Panel, 92.5 x 138.5 cm



Figure 2.14: John Roome, 2009. *Journey into the Ineffable*, Woodcut Panel with Digital Projection, 92.5 x 138.5 cm

The two examples above (Figs. 2.13, 2.14) are the outcome of a prolonged engagement with digital drawing and animation. They represent a new direction in my creative output. The

aesthetic character of the works as well as their preoccupation with movement and visual narrative would not have been achieved without the use of computer software.

2.7.2 Pioneers of Digital Animation

Comparing computer-generated graphics to those produced using conventional media, Franke noted that there were many similarities and that the main difference was the time needed to produce them. He concluded: “Therefore the significance of the computer graphic lies only in animation”. He observed that the computer lends itself naturally to animation. “By putting single frames together – e.g. 25 frames/second as in movies – a kinetic sequence is obtained” (Franke, 1987).

Early pioneers of digital art such as John Whitney (1917-96) investigated the possibilities of film making using computers. His short film *Catalog* (1961) is literally a catalogue of different digital effects. His *Permutations* (1967) and *Arabesque* (1975) established his reputation as a pioneer of computer filmmaking. Charles Csuri used digital images for his film *Hummingbird* (Figure 2.15) that is considered “a landmark of computer generated ‘animation’”. This sequence of 22 birds was created with an IBM 7094 computer and the images were printed by means of punch cards and a drum plotter (Paul, 2003).

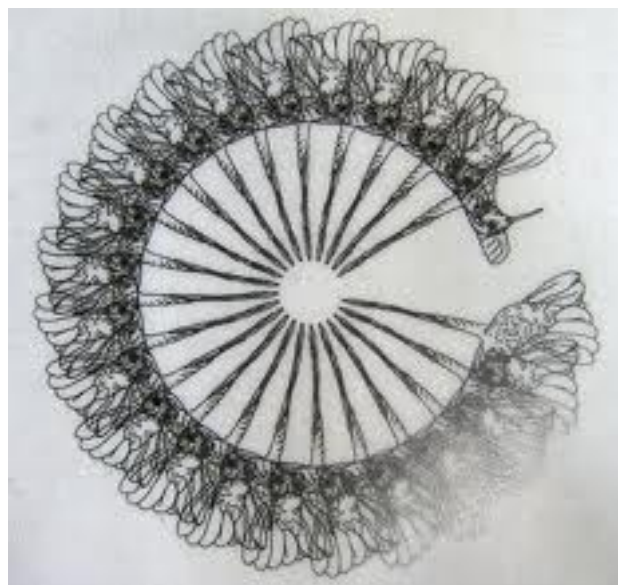


Figure 2.15: Charles Csuri, 1967. *Hummingbird*, digital sequence, (Image) Available at <http://www.siggraph.org/artdesign/profile/csuri/artworks/plot/plot9.html> (Accessed 1st August 2010)

What distinguishes these early digital filmmakers from their analogue predecessors is their interest in the computer drawing process for its own sake. Storytelling and narrative are either non-existent or take second place. The narratives that emerge are purely visual. In many cases the primary aim of the works seems to be to explore the capabilities of the computer as a tool for making images.



Figure 2.16: Charles Csuri 1968. *Aging Process*, Digital drawings, (Image) Available at <http://www.flickr.com/photos/removethatnow/2820896447/in/photostream/> (Accessed 1st August 2010)



Figure 2.17: John Roome, 2007. *Aging Heads* (from *Journey into the Ineffable*), Digital drawings

Csuri's *Aging Process* (Figure 2.16) is similar to a work I began in 2007. At the time I was not aware of Csuri's work. My *Journey into the Ineffable* begins with a series of drawings of a male head that undergoes an aging process (Figure 2.17). I originally titled this series of drawings *Aging Heads* but later changed the title to *Journey into the Ineffable*, to reflect the nature of the animation process that they led to.

Csuri's process was as follows:

Two drawings were digitized, one of a young girl and the other of an old woman. The program starts with the young girl and then in stages moves it toward the older woman. Gradually the drawing is fragmented with a greater displacement as it reaches the center. Then the fragments begin to incrementally change their shape until the drawing of the woman is realized. This process was used to create a short animation sequence and it was probably more effective as an animation rather than a still image. (Visual Aesthetics in Early Computing, Translab, n.d.: n.p.)

In *Journey into the Ineffable* instead of using a computer programme to fragment the drawing I altered each drawing manually by means of a mouse using *Microsoft Paint*. Csuri did not use a mouse but his knowledge of computer programming enabled him to programme the computer to produce the desired result. (The computer mouse was invented in 1963 but was not widely available before 1970 when it was first patented).⁷

My lack of computer programming knowledge led me to find an alternative, more labour intensive, solution. In both cases the sequences work best when animated. Conceptually and aesthetically the two works are similar although different technical processes were used. Csuri's intention was to explore the graphic possibilities of computer programming. My intention was to explore the possibilities of drawing with a mouse using an available programme. In so doing I addressed the question: *How does the use of basic computer programmes as a tool for drawing and animation influence and facilitate 'making' in my visual art practice?*

What I have in common with the early pioneers of digital animation is their interest in the computer drawing process and their exploration of the computer as a tool for making images. My research questions reflect this interest in the relationship between the computer, drawing, animation and the creative process. Animation played a significant role in addressing all three aspects of my research problem.

Firstly, the exploration of animation led to significant changes in my making process. Drawing digitally afforded me the opportunity to explore movement, change, and uncertainty. The ease with which I was able to copy and alter drawings introduced a higher degree of improvisation into my process. The realization that I could animate my drawings meant that I could react or respond to each drawing in much the same way that jazz musicians respond to each other during improvised 'jam sessions'. Through this process of improvisation new images and new ideas began to emerge.

Secondly, animation facilitated *praxis* by providing a means of reflecting on my creative process. The animated sequences I produced provided a visual record of creative decisions made while in the process of drawing. As a result I was able to gain insights into the relationship between drawing and creative thinking.

Thirdly, the insights revealed through the 'animation-inspired' reflexive process allowed for theorizing about the nature of art and design thinking. Therefore it could be argued that the animation process led to knowing.

⁷ 'Doug Engelbart invented the mouse in 1963 in his research lab at SRI International (then Stanford Research Institute), for which the patent was issued in 1970'. Doug Engelbart Institute. 2008. *Father of the Mouse* [Online]. Available: <http://www.doungengelbart.org/> [Accessed 21 November 2012].

2.8 Reflexive Doing: Interpreting Making

2.8.1 The Role of the Artefacts as Knowledge

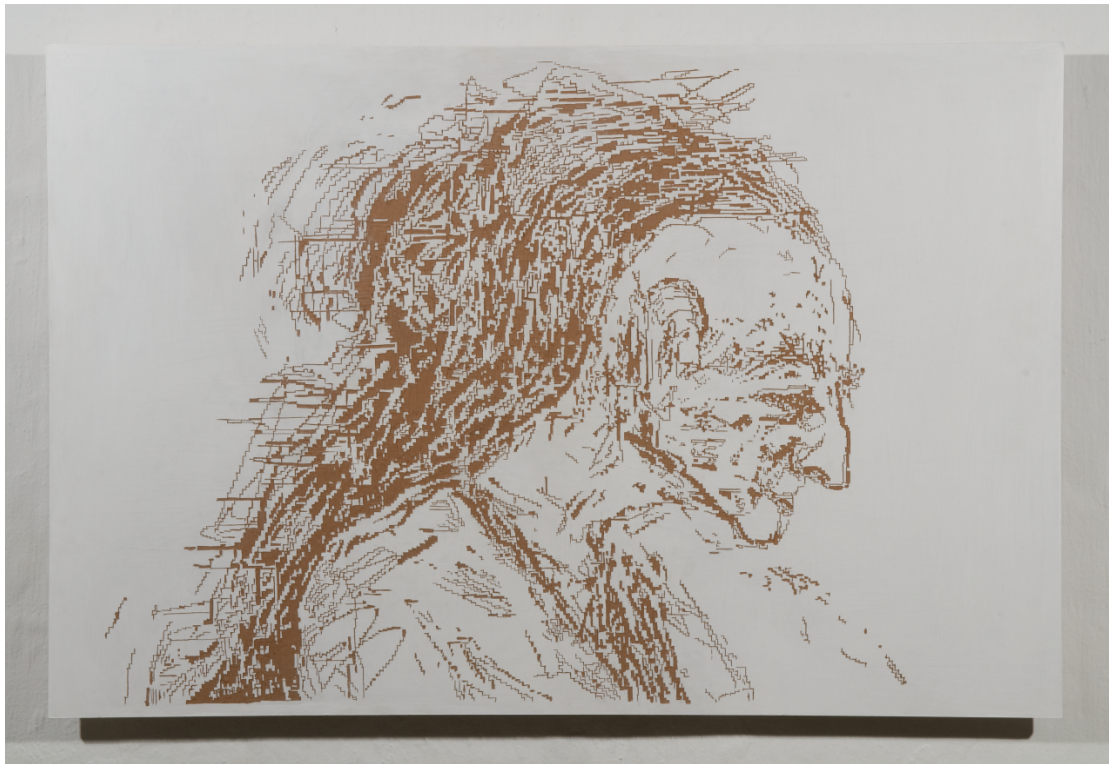


Figure 2.18: John Roome, 2009. *Aging Head (From Journey into the Ineffable)*, Woodcut Panel, 92.5 x 138.5 cm

Computer drawing and digital animation led to the making of physical artworks.

The woodcut panel *Aging Head* (Figure 2.18) can be viewed not only as an artwork but can also be regarded as a research document. The work represents a culmination of four years of investigation into digital drawing, animation, and its translation into physical artefacts. *Aging Head* is executed in the traditional medium of woodcut but references its digital origins through the character of the marks. The dynamic quality of the rendering hints to its evolution out of a series of drawings that make up an animated sequence. The image contains within it the history of its own creation. Thus the work itself and the processes involved in its making, provide answers to the research questions stated in Chapter One.

The work also functioned as a springboard to further investigations into the role of digital drawing and animation in my creative process, leading to the questions:

- *What is the relationship between thinking and drawing in the visual art and design process?*
- *What role can digital drawing play in the art and design thinking process?*

2.8.2 Creative Practice and the Production of Knowledge

My research question concerning the relationship between making, doing, and knowing, implies an investigation into how knowledge is generated in visual arts practice. In attempting to provide answers to the apparently controversial question of whether creative outputs can be considered as research or can only serve as data for research, much of the literature on practice-based research examines the relationship between creative practice, research and knowledge.

The Cambridge Dictionary defines research as ‘a detailed study of a subject, especially in order to discover (new) information or reach a (new) understanding.’ According to the Oxford Dictionary it is ‘the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions.’ Experiment-Resources.com gives a broader definition: ‘In the broadest sense of the word, the definition of research includes any gathering of data, information and facts for the advancement of knowledge.’ For the purposes of the debate concerning art practice and research it is important to make the connection between research and the advancement of knowledge.

Candy explains the relationship between PhD research and knowledge as follows:

The PhD is defined in terms of knowledge, e.g. “The degree is awarded to candidates who, through original investigation, make a distinct and significant contribution to knowledge.” (UTS, 2006). That new knowledge is expected to have two characteristics: it is shared and it can be verified or challenged. So a PhD describes knowledge that is new (in the world), can be shared with others and can be tested in some way. Accepting that much of what we know is known tentatively rather than absolutely, the properties of being sharable and challengeable are more important than the absolute certain truth of the new knowledge. (Candy, 2006)

Smith and Dean (2009) highlight the problematic nature of conventional definitions of research in the humanities that prioritize theory, criticism and historical investigation over arts practice. The question of what constitutes ‘knowledge’ underpins this problem. Research is traditionally seen as a process that generates knowledge. However knowledge is often understood as a given and is also normally limited to verbal or numerical knowledge. Non-verbal forms of knowledge transmission are frequently not acknowledged as research. Smith and Dean point out that the often unstable, ambiguous and multidimensional nature of knowledge, fundamental to a post-modernist view, needs to be acknowledged.

There are different interpretations and understandings of knowledge. Schmahmann points out that there is an historic antithesis dating back to the middle ages between ‘liberal knowledge’ and ‘practical or mechanical knowledge’ and that in contemporary academia ‘hard’ knowledge is still favoured over ‘soft’ forms of cognitive knowledge. Schmahmann’s observations are made in the context of current funding criteria at South African universities, which ‘clearly favour the natural sciences over the humanities’. There is more than a suggestion here that some forms of knowledge are considered to be more valuable than others and that this bias is deeply rooted in the history of the academy (2011).

The challenges facing creative practitioners working in the academic environment are connected to what Smith and Dean refer to as the 'conundrum of knowledge and research'. Conventional definitions of research can be problematic for creative practitioners, as they do not address the 'fundamental philosophical quandary as to what constitutes knowledge.' They cite the OECD (Organisation for Economic Cooperation and Development) definition for research in the creative arts as an example:

Creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humanity, culture and society, and the use of this stock of knowledge to devise new applications. (Smith and Dean, 2009)

As they observe, in the above definition knowledge is understood as a given and is seen as generalisable and transferable. As artworks often embody these qualities, this does not pose a problem. However what most definitions used in higher education do not state but imply, is that knowledge is normally verbal or numerical. Many artworks transmit knowledge in non-verbal and non-numerical terms. Smith and Dean recommend 'that any definition of knowledge needs to acknowledge these non-verbal forms of transmission.' They further advise that such definitions need to recognize that knowledge is often unstable, ambiguous and multi-dimensional. The fact that knowledge can take many forms creates a fundamental problem for the integration of creative work and traditional academic research.

Attempts at definitions of research, creative work and innovation are all encircled by these fundamental problems – that knowledge can take many different forms and occur at different levels of precision and stability, and that research carried out in conjunction with the creation of an artwork can be both similar to, and dissimilar from, basic research. (Smith and Dean, 2009: 4)

Writers on practice-based arts research tend to agree that knowledge can be generated through the creative process (Barrett and Bolt; Duxbury and Grierson; Smith and Dean, Sullivan). As stated above, knowledge takes many forms and can be defined in different ways. In attempting to provide insights into how knowledge is produced through practice it is essential to examine the various forms of knowledge associated with creative work. In addition it is important to understand the processes and methodologies of artistic research in the production of knowledge.

We propose that artistic practice be viewed as the production of knowledge or philosophy in action. Drawing on materialist perspectives, including Martin Heidegger's notion of "handlability", our exploration of artistic research demonstrates that knowledge is derived from doing and from the senses. (Barrett and Bolt, 2007: 1)

Barrett notes that the creative arts make use of subjective, interdisciplinary, and emergent methodologies. From a traditional research perspective these characteristics are regarded as weaknesses. However Barrett maintains that these features are the strengths of creative research and should be fore-grounded as such. The methods used in studio-based research often

correspond to the pedagogical approaches known as experiential learning and action, or problem-based learning. These provide artistic researchers with the potential to generate personally situated knowledge and new ways of modelling and externalising that knowledge. Studio-based research offers alternative approaches to research that have innovative and critical potential. Unlike traditional academic research, the methods employed cannot be pre-determined and the outcomes are by necessity unpredictable and not always quantifiable (2007).

The subjective and personal processes of creative arts research generate what Barrett refers to as “situated knowledge” (2007). She makes reference to the work of the philosophers Polanyi (1969) and Bourdieu (1990) in order to provide an understanding of the kinds of knowledge associated with practice-based research.

In *Personal Knowledge, Towards a Post Critical Epistemology* (1958), Hungarian born scientist turned philosopher, Michael Polanyi (1891-1976) published his lectures where he made the point that ineffable or tacit knowledge is always implicated in human activity and learning. He emphasised that a ‘passionate’ or emotional contribution by the researcher is always part of the knowledge production process, even in science. According to Karl E. Sveiby:

Polanyi’s concept of knowledge is based on three main theses: First, true discovery, cannot be accounted for by a set of articulated rules or algorithms. Second, knowledge is public and also to a very great extent personal (i.e. it is constructed by humans and therefore contains emotions, “passion”). Third, the knowledge that underlies the explicit knowledge is more fundamental; all knowledge is either tacit or rooted in tacit knowledge. (Sveiby, 1997)

As Barrett and Bolt observe, the creative process is associated with tacit knowledge rather than explicit or exact knowledge

(Tacit knowledge) refers to embodied knowledge or “skill” developed and applied in practice and apprehended intuitively – a process that is readily understood by artistic researchers who recognize that the opposition between explicit and tacit knowledge is a false one. (Bolt, 2004, in Barrett and Bolt 2007: 4)

Bolt’s concept of ‘embodied knowledge’ resonates with Polanyi’s ‘knowing’. By using the verb form, ‘tacit knowing’ as opposed to the noun ‘knowledge’, Polanyi emphasises the dynamic or active properties of the process of knowing (Sveiby, 1997).

Similarly, Sullivan uses the term ‘visual knowing’ to describe the process whereby artist researchers arrive at and engage with knowledge through their practice. Sullivan stresses the role of the active process of making, combined with a questioning approach, in visual research. Unlike the explicit, exact and complete knowledge associated with traditional academic research, artist researchers are more interested in open-ended questions and incompleteness.

The creative imagination is stimulated by a sense of 'unknowing' which provokes inquiry and leads to 'knowing'. Sullivan states:

It is from this sense of knowing and unknowing, and how we deal with it, that visual arts practice can be described as a form of research. (Sullivan, 2010)

Sullivan draws our attention to the kind of knowledge that results directly from practical, visual experience. Using David Hockney's insights into the use of optical devices and mechanical aids by artists during the Renaissance as an example, he provides a convincing argument for the benefits of insights gained through practice in the generation of new knowledge. Art historians did not notice what Hockney had noticed because they were not practicing artists. As an experienced draftsman Hockney knew what to look for. His visual experience enabled him to ask questions that led to new understandings. By seeing in a particular way, Hockney was able to sense the discrepancy between what was presumed to be the 'truth' and his own visual experience, leading to the construction of new knowledge (2010).

The link between knowledge and visual perception, as Sullivan points out, has stimulated the interest of cognitive scientists. The question of how reliable the senses are has been debated since ancient Greek times. It is now known that perception is not simply mindless sensation and that there is a clear relationship between perception and conceptualisation. Modern science has shown that the brain is actively involved in the process of seeing. This leads to the question as to whether knowledge resides in the artwork and is objective, or in the mind of the viewer and is therefore subjective.

Recent research indicates that it is not possible to separate seeing from understanding. It is suggested that the process of seeing and understanding involves both the mind and the senses. In addition there has also been a reassessment of the role that emotions and feelings play in gaining knowledge about the world. New research indicates that emotional responses precede rationale reasoning. We respond to things emotionally before we think them through (Sullivan, 2010).

Sullivan's notion of 'visual knowing' corresponds to Barrett's 'situated knowledge' and Bolt's 'embedded knowledge' and also resonates with Smith and Dean's assertion that knowledge can take many forms and is often unstable, ambiguous and multi-dimensional. Artist researchers investigate the potential of alternative, and tacit forms of knowledge and in this way provide insights into the very nature of human understanding and how knowledge is generated.

In examining the relationship between creative practice, research and knowledge, the literature reveals that 'knowledge' is a contested area and can be defined in many different ways. In relation to art practice as research, the bias towards verbal and numerical forms of knowledge is

brought into question. Non-verbal forms of knowledge, often not recognised as academically sound, form the core of visual arts research (Smith and Dean, 2009).

There is a call for the acceptance and recognition of unstable, ambiguous and multi-dimensional forms of knowledge (Smith and Dean, 2009). From this it follows that subjective, interdisciplinary and emergent methodologies are required (Barrett and Bolt, 2007). The concepts of 'personally situated knowledge' (Barrett and Bolt, 2007), 'embodied knowledge' (Bolt, 2005), 'tacit knowing' (Polanyi, in Barrett and Bolt, 2007), and 'visual knowing' (Sullivan, 2010), are introduced as alternative ways of thinking about knowledge. In all of these, intuition, emotional response, and the imagination, are factors that need to be taken into account when considering the production of knowledge in visual arts research.

A broader, alternative understanding of knowledge is required in order for practice-based visual arts and design practice to be accepted as research. The literature consulted implies that by challenging traditional definitions and understandings of knowledge, practice-based visual arts research can contribute to a broader understanding of knowledge and research in academia.

Therefore in order to establish the relationship between *making*, *doing*, and *knowing*, I challenge traditional academic (particularly scientific) interpretations of knowledge and explore the alternative concepts introduced above.

2.8.3 The Dual Role of the Literature

As mentioned in chapter one of this thesis, the literature plays a dual role in this study. It provides context and resonance, and also functions as data.

The research problem and questions examined in this thesis arose out of my visual art practice. By conducting an inquiry into my own art making process and development through reflection I began to formulate research questions. This led to theoretical (literature based) research in order to contextualize my work. The process of conducting the theoretical research prompted further questioning about my creative process and also influenced the direction that my work began to take. Thus a reciprocal relationship between theory and practice began to emerge.

I introduced the work and ideas of selected artists to establish resonance with my own concerns as a visual arts practitioner. Concepts concerning new media and traditional media, digital aesthetics, the virtual and the physical, and drawing and animation, were discussed. Here the literature (including images or 'visual texts') functioned not only to provide resonance, but it also served to identify key concepts and raised questions concerning the body of work that the study is based on. Issues raised by the practical work led to further practical and theoretical investigations.

The conclusions drawn by selected writers and practitioners in the field were treated as data in support of the findings based on my own creative work. Thus my findings were based on both the practical work (*making*) as well as the literature (*knowing*).

2.9 Summary

In order to address the question concerning *the relationship between making, doing, and knowing in visual art and design thinking* I located the practice that the research is based on, in relation to other relevant practice.

To place the research within the framework of practice-based research,⁸ I provided an overview of literature concerning the interpretation of knowledge. In this way I established the contexts in which *making* will be interrogated.

Chapter three of this thesis will provide the methodological framework (*reflexive doing*) for this interrogation.

⁸ A more detailed overview of the history and development of practice-based research is provided in Appendix A, *Research and the Visual Arts*.

CHAPTER THREE

PRAXIS- A REFLECTIVE METHODOLOGY

The turn to creative practice is one of the most exciting and revolutionary developments to occur in the university within the last two decades and is currently accelerating in influence. It is bringing with it dynamic new ways of thinking about research and new methodologies for conducting it, a raised awareness of the different kinds of knowledge that creative practice can convey and an illuminating body of information about the creative process.

- Smith and Dean, 2009.

3.1 Introduction

If I had to use one word to describe this project it would be *reflection*. What started out as an attempt to convert an aspect of individual art practice into a doctoral study, evolved into an intensely reflective journey - a journey that not only revealed insights concerning my own practice, but also brought about a deeper understanding of what it means to be a creative-reflective researcher.

This study is practice-based, therefore my methodological approach consists of reflection on, and analysis of, the process of creating a body of practical work. Complementary to the practical research I have conducted theoretical research to establish the context in which my work may be viewed. An investigation into relevant theories pertaining to creative practice, particularly drawing and cognition, provides a way of interpreting and understanding the creative process. In this way the research aims to make an original and unique contribution to knowledge in the field of visual arts.

The enquiry into the roles of *making*, *doing*, and *knowing* in the creative process required a methodology that would accommodate the making, doing, and knowing of creative practice. Donald Schön's idea of reflecting while 'making' as well as 'doing' in response to making, which leads to 'knowing' (theorising about action), promised to provide a suitable methodological approach to this study (1983). In this chapter I will explain how *making*, *doing*, and *knowing* are interrelated in the research methodology.

An account of the history and development of practice-based research in visual art and design is provided in Appendix A, which introduces methodological paradigms in visual arts research by providing an overview of current literature, including a definition of terms, a brief historical background, and an introduction to a range of different approaches.

This chapter introduces the field of reflective research methodology in general terms. Schön's ideas concerning reflective practice, particularly reflection-in and -on action, are discussed. His theories are examined in relation to how they can be adapted for creative visual research. Secondly I explain how 'projective reflective practice', a methodology derived from Schön's 'reflective practice', forms the basis of my own research methodology. Then I introduce the particular research models adopted for this study, as well as the notion of drawing as projective reflective practice and explain how it has been used in this study. Finally I outline the mechanisms used to ensure 'trustworthiness'.

3.2 Knowing: An 'Alternative Epistemology of Practice'

In the beginning of his book *The Reflective Practitioner*, Schön refers to 'the crisis of confidence in professional knowledge' in various professions in the 20th century. He attributed this to the huge changes and new demands that society placed on professionals, demands that lead to an unprecedented requirement for adaptability. Professional practitioners were not sure how to deal with this uncertainty and faced the problem that they could not account for the processes that were central to their professions. There appeared to be a lack of understanding as to how professional knowledge is gained and how it can be adapted to changing social conditions and demands (Schön, 1983).

In addressing this crisis, Schön examines examples of reflective practice in a variety of professions including design (specifically architecture), psychotherapy, the science-based professions (medicine, agronomy, engineering and others that have a basis in scientific knowledge), town planning, and management. These case studies include both the "major" and "minor" professions.

Schön refers to Nathan Glazer's classification of the professions: The 'major professions' (law and medicine) are grounded in systematic, fundamental, scientific knowledge, whilst the 'minor professions' (social work, librarianship, art, etc.) are seen as having "shifting ambiguous ends and unstable institutional contexts of practice" which make them less able to develop a systematic and scientific knowledge base (Schön, 1983).

As Schön points out, this classification implies a 'hierarchy of knowledge'. Glazer's classification is based on the concept of standardised knowledge, consisting of general principles, at the top of the hierarchy, with applied knowledge and concrete problem- solving at the bottom. This perceived hierarchy has its basis in what Schön refers to as 'Technical Rationality' (Schön, 1983).

Schön states: "Technical Rationality is the Positivist epistemology of practice" (1983: 31). He provides a brief history of the rise of Positivism as the dominant paradigm in Western thinking, and in particular at Western universities. Positivism emphasises the dominance of empirical

observation and relies on observable facts. In the Positivist paradigm 'Practical knowledge exists, but it does not fit neatly into Positivist categories' (1983: 33). This 'problem' of practical knowledge was dealt with by investigating the means best suited to a particular end. This led to the tradition of scientific experimentation with its emphasis on cause and effect. The development of the modern university reinforced 'Technical Rationality' and established hierarchies of knowledge thus introducing the concept of institutions of *higher* learning (Schön, 1983).

In the previous chapter I introduced a discussion on alternative understandings of what constitutes knowledge, and how these understandings impact on the relationship between theory and practice in practice-based research. I further alluded to the division between theory and practice that tends to be perpetuated by the Positivist bias in academia.

Schön believes that in the model of professional knowledge followed by 'Technical Rationality', research becomes '*institutionally separate from practice*'. In that model practitioners can provide data for researchers, but researchers are seen as superior because they produce 'higher' knowledge that is purely theoretical (Schön, 1983).

Today, in a Post-Modern world, there is an increasing awareness of the limitations of the Positivist paradigm although in some areas of academia the hierarchies of knowledge still hold sway. This is a particular problem when it comes to the recognition of creative practice outputs as research. Schön traces the awareness of the limits of 'Technical Rationality' to the rise in scientific and technical research after World War 2.

This eventually led to a situation between 1963 and 1982 where professionals became increasingly aware of the flaws and limitations of their professions. There was a growing recognition of phenomena characterised by complexity, uncertainty, instability, uniqueness, and value conflict that does not fit the model of 'Technical Rationality' that sees professional practice as a process of problem solving.

Problems of choice or decision are solved through the selection, from available means, of the one best suited to established ends. (Schön, 1983)

Schön postulates that the 'Technical Rationality' model with its emphasis on problem solving tends to neglect what he calls 'problem setting'.

Problem setting is a process in which, interactively, we *name* the things to which we will attend and *frame* the context in which we will attend to them. (Schön, 1983)

Schön refers to the difficulties that arise in practice when problems fall outside of the established categories of applied theory. 'Technical Rationality' requires an agreement about 'ends'. What happens when the 'ends' are not clear and there is no obvious problem to solve? In such cases Schön proposes that what is needed is a framing of the problematic situation that will

help to clarify what the ends are and identify the possible means of achieving those ends. However, this 'naming and framing' technique does not fall in line with 'Technical Rationality', which creates a problem for Positivist thinkers.

We can readily understand, therefore, not only why uncertainty, uniqueness, instability, and value conflict are so troublesome to the Positivist epistemology of practice, but also why practitioners bound by this epistemology find themselves caught in a dilemma. Their definition of rigorous professional knowledge excludes phenomena they have learned to see as central to their practice. And artistic ways of coping with these phenomena do not qualify, for them, as rigorous professional knowledge. (1983: 42)

It is interesting that Schön should use the term 'artistic' when referring to ways of coping with uncertainty, uniqueness, instability, and value conflict. In creative practice these are the core issues that practitioners deal with. It is not surprising therefore that in academia, which has for so long been dominated by the Positivist paradigm, creative practice has struggled to gain a foothold in the knowledge hierarchy.

Schön discusses a number of alternative interpretations and understandings concerning professional practice that have arisen in recognition of the limitations of 'Technical Rationality'. Edgar Schein (1973, in Schön, 1983) put forward the idea that the basic sciences are 'convergent' and the applied sciences are 'divergent' which implies a gap between the two. His idea was that professionals, in response to unique and unpredictable elements, take a convergent knowledge base and apply 'divergent thinking skills'. These skills are almost impossible to define. They are neither a theory nor a technique yet remain a kind of knowledge. These skills cannot be described and therefore, 'they must remain a mysterious, residual category'. The 'mystery' of these divergent thinking skills is one that Schön sets out to penetrate through his theory of 'reflection-in-action' (1983).

It is precisely this 'mystery' of divergent thinking skills that I wish to unravel through my reflective investigation into my own art practice.

Schön notes that for Nathan Glazer (1974, in Schön, 1983) there is a critical distinction between professions that have fixed, unambiguous ends, stable institutional contexts, and fixed contents of professional knowledge, and those with ambiguous ends, shifting contexts of practice, and no fixed contents of professional knowledge.

Glazer does not seem to offer much of an alternative to Technical Rationalism. By making a distinction between so-called 'higher' and 'lower' professions Glazer reinforces the hierarchy of knowledge and therefore does not seem to provide any real alternative view. As Schön wryly observes, Glazer 'despairs' of professions such as divinity and social work to which he attributes 'ambiguous ends, shifting contexts of practice, and no fixed contents of professional knowledge'

(1983). One is left to imagine what Glazer would make of the creative professions. Quite possibly he would not rate them as professions at all.

In his attempts to address the dilemmas faced by professions dealing with uncertainty and ambiguity, Herbert Simon (1972, in Schön, 1983: 46) introduces the concept of 'design'. For Simon 'design' or the process of 'changing existing situations into preferred ones' is central to all professions. Simon observed that older professional schools had an 'intellectually soft, intuitive, informal and cookbooky' knowledge of 'design', and that newer schools had become schools of natural science. The problem he identified was that both the older and newer schools had almost 'abdicated responsibility for training in the core professional skills' (In Schön, 1983: 46). Simon wanted to develop a 'science of design' that could be used to help professionals solve problems in the workplace. Schön is critical of Simon's 'science of design' because it 'can only be applied to well-formed problems already extracted from situations of practice' (1983: 46). Therefore it does not take into account Schön's observation that 'well formed problems are not a given but must be constructed from messy problematic situations' (Schön, 1983).

Creative practice is not only often messy in the literal or physical sense of the word, but it also requires the practitioner to find 'solutions' to 'messy problematic situations'. I use the words 'solutions' and 'problems' guardedly when talking about creative practice. Creative practitioners often begin working without any clearly formed 'problem' in mind. It is through a messy, intuitive process that the unknown is made known. The 'solution' usually takes the form of an artefact, production, or performance of some kind. Simon's 'science of design' would not suit this way of working.

Schön concludes that Schein, Glazer and Simon all "...try to fill the gap between the scientific basis of professional knowledge and the demands of real-world practice in such a way as to preserve the model of Technical Rationality". Schön argues that at the time he was writing the Positivist epistemology of practice had fallen into disrepute:

Among philosophers of science no one wants any longer to be a Positivist, and there is a rebirth of interest in the ancient topics of craft, artistry, and myth – topics whose fate Positivism once claimed to have sealed. (Schön, 1983)

Despite this assertion, creative practitioners undertaking research in academic institutions still face obstacles in terms of recognition for creative research. Many of these obstacles are brought about by a lack of understanding by research committees largely dominated by Positivist thinkers who do not see any value in creative outputs.⁹

⁹ This issue is discussed in more detail in Appendix A.

It would be a gross oversimplification to say that Schön is opposed to science. What he questions is the Positivist tendency to view science “as a body of *established positions* [my italics] derived from research”(1983: 48). When such positions are recognised as having limited use in practice, the practitioner experiences the “dilemma of rigor or relevance” (1983: 49). As previously stated, my study does not make claims of validity and reliability but rather seeks to establish credibility. In my view this does not mean that the research is not rigorous or relevant. Creative practice brings with it an alternative to positive rationalism that is rigorous and relevant in its own way.

Having established that the professions face “a crisis of confidence in professional knowledge” and that ‘Technical Rationality’ or the ‘Positivist epistemology of practice’ has failed to provide answers to the dilemma of generating and understanding knowledge in practice, Schön sets about establishing an alternative model:

Let us search, instead, for an epistemology of practice implicit in the *artistic, intuitive processes* [my italics], which some practitioners do bring to situations of uncertainty, instability, uniqueness, and value conflict. (Schön, 1983)

Although Schön is concerned with a broad range of professional practices, his ideas have been applied most extensively in education and organisational learning. His ideas have recently begun to have an impact on creative practice based research (Candy and Edmonds, 2011). I will now examine his theories of reflective practice in the light of my own experiences as a creative researcher. I will also refer to the observations and opinions of other writers and researchers in the creative disciplines.

3.3 Making

3.3.1 Making leads to reflection

The initial motive for undertaking this project was to find a way of conducting research while making art. I naively thought that a doctoral study would provide an opportunity to produce a body of new work that I could present as research. However, to contextualise my project in the field of practice-based research, I began to conduct research about research. I realised that *poiesis* on its own would not satisfy all the requirements of ‘research’. Questions arose concerning the nature of creative art production and its relationship to traditional notions of research. The project developed into a reflective study on the art-making process that is in itself an essentially reflective process. Thus, to use Donald Schön’s terminology, the project became one of ‘reflection-in- and on-action’ (Schön, 1983).

Linda Candy points out that although Schön was the first person to use the term ‘reflection-in- and on-action’ in his accounts concerning practitioner knowledge, the concept of exploring thinking and action through experience can be traced back to John Dewey in 1933. She further notes that Kurt Lewin coined the term ‘action research’ as early as 1946 to describe a spiral-like

process of research consisting of ‘a circle of planning, action, and fact-finding about the result of the action’ (Lewin 1946). Candy further notes that what she calls ‘the new thinking about the nature of research’ was developed in the fields of education and psychology and was applied to organisational learning and professional practice by Donald Schön and Chris Argyris (1978). It was also used to ‘underpin a stream of research dedicated to improving practice’ (Elliot, 1991). Candy states that action research in combination with Schön’s concept of reflective practice has ‘become an invaluable feature of practitioner research’ (Candy and Edmonds, 2011).

The relationship between reflection-in- and -on-action and practitioner or practice-based research fascinates me. I am interested in the particular way that Schön’s reflection-in and on-action can be used as the basis for a methodological framework for research in the creative visual arts. My reading of Schön has convinced me that there is a strong correlation between his findings concerning reflective practice and my experience as a creative practitioner trying to understand my own process of art making. What follows is an account of how certain concepts presented by Schön resonate with my experience. Schön’s theories (as previously noted) acknowledge the inter-relatedness of *poiesis*, *praxis*, and *theoria* in creative practice.

3.3.2 Making as Tacit Knowing-in-Action

Donald Schön’s term ‘tacit knowing-in-action’ is closely linked to the concept of *poiesis*. *Poiesis* describes the action of making in creative practice. My exploration of *poiesis*/making therefore seeks to reveal insights concerning this action, and the nature of the *theoria*/knowing, generated through *praxis*/doing.

Tacit knowing is an integral part of *poiesis*/making in creative practice. In my own art practice I have come to recognize this kind of ‘tacit knowing’. One of my animated films is titled *Journey into the Ineffable* in recognition of the tacit nature of my creative journey. By undertaking this research I have tried to make sense of how this kind of knowledge contributes to my creative process.

As has already been established, Schön is interested in the way professional practitioners deal with situations of uncertainty, instability, uniqueness, and value conflict. [Creative practitioners often consciously seek such situations out]. He introduces the term ‘reflection-in- and -on-action’ to describe the process of thinking about what one is doing while doing it. And he is also interested in the kind of knowledge required for this process. He draws attention to the role of tacit knowledge, or what he calls ‘tacit knowing-in-action’. In 3.1.5 above, I refer to the introduction of the concept of ‘tacit knowledge’ by Michael Polanyi (Sveiby, 1997). This is the kind of knowledge that most of us find difficult to articulate verbally but clearly demonstrate through our actions. As Schön puts it, one is in a position of ‘knowing more than we can say’.

With 'knowing-in-action' the know-how is in the action. There are no rules or plans connected with it (1983).

Schön attributes the following properties to 'tacit knowing':

- There are actions, recognitions, and judgements which we know how to carry out spontaneously; we do not have to think about them prior to or during their performance.
- We are often unaware of having learned to do these things; we simply find ourselves doing them.
- In some cases, we were once aware of the understandings which were subsequently internalized in our feeling for the stuff of action. In other cases, we may never have been aware of them. In both cases, however, we are usually unable to describe the knowing which our action reveals. (1983: 54)

Schön supplies a number of examples of how 'tacit knowing' functions in our daily lives, such as the ability to judge distance when throwing a ball. This kind of knowing is linked to the use of skills developed over time that are practiced spontaneously without prior planning or intellectual engagement.

An example of 'tacit knowing' that Schön quotes from Chris Alexander's *Notes Toward a Synthesis of Form* (1968, in Schön, 1983: 52) concerns the design and manufacture of shawls by Slovakian peasants. The yarns used for generations were coloured using homemade dyes. Alexander observed that when artificial dyes were substituted the "beauty" of the shawls was compromised. He maintained that these crafters had been making beautiful shawls by following a tradition. They were able to recognise "bad" shawls or mistakes, and did not repeat these. However, Alexander maintains that they could not adapt to the new dyes because they had 'no innate ability to make good shawls'.

I am interested in this particular example not only because it involves craft and design, but also because the conclusion drawn indicates that the weavers' tacit knowing was helpful only under certain conditions. When the conditions changed the tacit knowing was no longer helpful. This seems to imply that tacit knowing has its limitations. My sense is that it is not the tacit knowing per se that was the problem, but rather it was the inability of the weavers to respond to changes.

'Tacit knowing' need not necessarily be a limitation. In chapter two of this thesis, section 2.1.1.5 *Creative Practice and the Production of Knowledge*, I discussed a number of alternative forms of knowledge, among them 'tacit knowing'. The concept of 'tacit knowing' has been recognised by many writers on creative practice as pivotal to the understanding of what creative practitioners do (Barrett and Bolt 2007, Sullivan 2010).

3.4 Doing

3.4.1 Making Leads to Doing: Reflection While Making

In addition to 'tacit knowing-in-action' Schön notes that 'both ordinary people and professional practitioners often think about what they are doing, sometimes even *while they are doing it*' [my italics]. This questioning of what one is doing *while one is doing it* is a form of reflection that inevitably leads to conscious understandings of the knowledge implicit in action. The practitioner uses these understandings to criticise past actions and restructure future actions. Hence the concept of 'reflection-in and on-action' (1983).

This idea resonates with Barrett's reference to Heidegger's notion of "handlability" as discussed in chapter two, section 2.1.1.4: "We propose that artistic practice be viewed as the production of knowledge or philosophy *in action*" [my italics] (Barrett and Bolt, 2007: 1).

Reflection-in action does not normally involve verbalisation. In many instances verbalisation may get in the way. Schön uses the example of jazz musicians when 'jamming': "When good jazz musicians improvise together, they also manifest a 'feel for' their material and they make on-the-spot adjustments to the sounds they hear". As Schön points out, this means that the musicians express their reflection-in-action through the music itself rather than verbally (1983: 55).

In my own practice I developed an approach that I call 'drawing/writing', through which I attempt to combine the tacit process of making drawings with a more conscious verbal account of my thoughts *while drawing*. Obviously it is impossible to draw and write simultaneously and the writing took place in small gaps during the drawing process.

When I first began drawing digitally, although the medium was new to me, my basic approach did not change significantly. I was able to rely on my traditional drawing skills and rely on intuitive knowing-in-action. Using computer technology I set about making a series of static drawings that resembled the drawings I had been making using traditional materials. However at a certain point, when using the computer copy and paste tools to record the stages of my drawing, I was *surprised* to recognise that, when these were viewed at speed, the drawing appeared to come to life.

My response to this was: "I can make movies like this!" And I proceeded to do so. In this case a pleasing and promising surprise, followed by reflection, led to a new and unexpected direction in my work. This experience of responding to a surprise element while in the process of *poesis*/making, led to a form of *praxis*/doing that ultimately resulted in *theoria*/knowing concerning the creative process. Not only did this realisation lead to the making of animated movies, but it also allowed for the development of a reflective method for interrogating the relationship between thinking and drawing.

Schön identifies the '*experience of surprise*' as a catalyst for reflection-in-action:

When intuitive, spontaneous performance yields nothing more than the results expected for it, then we tend not to think about it. But when intuitive performance leads to surprises, pleasing and promising or unwanted, we may respond by reflecting-in-action. (1983: 56)

3.4.2 Doing Leads to Knowing

In order to convert 'tacit-knowing' into 'tacit knowledge' Schön states that some form of theorising is required. The theorising might not necessarily be done consciously by the person performing the action and may be done by an outside observer. Schön quotes an example of an experiment carried out by Inhelder and Karmiloff-Smith (In Schön 1983: 56 -59). A group of children were asked to balance wooden blocks on a metal bar. Some of the blocks had been weighted on one end. This caused an unexpected result when the children tried to balance them. It was found that the younger children were unable to balance the weighted blocks and eventually gave up. The older children figured out what was going on and were able to make allowance for the weighted blocks.

According to Inhelder and Karmiloff-Smith, the older children had developed a new theory that replaced the common-sense one that the blocks should balance at their geometric centre. The children had converted their knowing-in-action to knowledge-in-action via a form of theorising. The children did not verbalise their 'feel for the blocks' but the observers of the experiment were able to express their response in terms of 'theories'. Thus, as Schön states, they were able to 'convert the child's *knowing-in-action* to *knowledge-in-action*' (1983: 59).

Schön concludes that this kind of conversion is 'inevitable in any attempt to talk about reflection-in-action' (Ibid). The observers of the experiment with the children and the blocks made verbal descriptions of the children's intuitive understandings which represent their theories about the children's knowing-in-action.

In my case, by reflecting on my *poeisis*/making through a process of *praxis*/doing, I was able to theorise and convert my experience into *theoria*/knowing. Through a process of reflection-in-action, followed by reflection-on-action culminating in the writing of this thesis, I have attempted to 'convert' my tacit-knowing-in-action' to 'knowledge-in action' as well as theoretical knowledge that will have applications for creative practitioners beyond the limits of my individual case.

3.5 Reflexive Doing while Making: Research Methods and Practice

3.5.1 Research in the Context of Practice

The example referred to above is typical of 'everyday reflective practice', but as Schön notes, 'very far removed from our usual images of professional practice':

If we are to relate the idea of reflection-in-action to professional practice, we must consider what a practice is and how it is like and unlike the kinds of action we have been discussing. (1983: 60)

Schön draws our attention to the ambiguity of the word 'practice'. He notes that the word can be used in the sense of 'practicing the piano' to mean the repetitive or experimental activity used in order to increase proficiency. On the other hand it can be used to describe a range of professional situations as in 'a lawyer's practice'. Although the two meanings of the word are different in the above examples, it is true that 'professional practice also includes an element of repetition'. He goes on to explain how practitioners who specialise encounter similar situations repeatedly. By 'practicing his practice' the professional 'develops a repertoire of expectations, images, and techniques'. As a result the practitioner becomes more and more familiar with his area of specialisation and becomes 'less subject to surprise'. This can have beneficial results, yet over-specialisation can have negative effects. Specialisation can lead to 'narrowness and rigidity' preventing the practitioner from noticing the bigger picture. Schön promotes reflection as a means of correcting this. It is also a way to cope with "troublesome, 'divergent' situations of practice" (1983: 60-64).

Schön describes several modes of reflection-in-action. In some cases it may take place 'in the relative tranquillity of a post-mortem' whilst in others it may take place 'in the midst of it'. Thus reflection may happen on the spot during action, or it may take place over a longer period of time or even in gaps between practice. In most cases reflection-in-action is a response to problematic situations that arise in practice (1983:65-68).

Schön provides a number of examples, from a wide range of professions, of how practitioners have reacted to difficult situations in their practices. He identifies certain steps in the reflective process. Firstly there is an experience of surprise, puzzlement or confusion in response to an unexpected occurrence. Secondly, reflection takes place on the new phenomena as well as on prior understandings that have been implicit in the practitioner's behaviour. Next, the practitioner carries out an experiment in order to generate a new understanding of the troublesome phenomena and to bring about a change in the situation. He sums up the characteristics of this process as follows:

When someone reflects-in-action, he becomes a *researcher in the practice context* [My italics]. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case. His inquiry is not limited to a deliberation about means which depends on a prior agreement about ends. He does not keep means and ends separate, but defines them interactively as he frames a problematic situation. He does not separate thinking from doing, ratiocinating his way to a decision which he must later convert to action. Because his experimenting is a kind of action, implementation is built into his inquiry. Thus reflection-in-action can proceed, even in situations of uncertainty or uniqueness, because it is not bound by the dichotomies of 'Technical Rationality'. (1983: 68-69)

I have found that in my creative practice means and ends are often indistinguishable. My experimentation with digital drawing and animation was not undertaken to solve a clearly defined problem or achieve a specific end. I wanted to undertake a journey of visual enquiry using digital software and in a sense the means became an end in itself. Various *possibilities*, as opposed to *problems*, presented themselves while I was drawing. The actions I took while drawing were inseparable from my thoughts while drawing. One could say that my drawing was a form of thinking and that my thinking took the form of drawing. The end result was inevitably unpredictable and surprising.

3.5.2 Reflection-in-Action and Creative Practice-based Research

I would now like to examine the concept of reflection-in-action in the specific context of creative practice-based research. Picking up on the above notion of a reflective practitioner becoming a *researcher in the practice context*, it is not difficult to understand why many practice-based researchers are drawn to Schön's ideas. Schön makes a strong argument for not viewing research and practice as separate activities. This integration of practice and research is something that is deeply ingrained in the thoughts and actions of creative practice-based researchers.

It is not surprising that 'reflective practice' as a concept has significantly influenced 'the methodological foundations of practice-based research (Candy and Edmonds, 2011). In the context of a discussion concerning reflective practice and creative practice-based research, Candy writes:

Donald Schön's ideas on reflective practice have been influential because he located research enquiry within practice itself and asserted the value of practitioner knowledge as having distinct contributions to make to professional capabilities. He recognized that what he referred to as 'technical rationality' was inadequate for improving professional development and thereby challenged the existing orthodoxies in research traditions...The notion that practitioners themselves are capable of bringing tacit understandings to solving problems in hand, which can then be used to produce well-founded insights, rather than drawing upon the lessons from external sources of knowledge, was a radical idea at the time. (Candy and Edmonds, 2011: 43)

The concept that creative practitioners actively enter into the reciprocal dialogue between theory and practice is a common thread running through the literature on practice-based research in the visual arts and design.¹⁰ This is concurrent with Schön's notion of research enquiry being located within practice itself.

The idea of the creative practitioner entering into a dialogue between theory and practice resonates with a number of Schön's ideas concerning reflection-in-action. In his case study titled *Design as a Reflective Conversation with the Situation* (1983: 76 -104) Schön describes the

¹⁰ See Appendix A: *Practice-based Research in Visual Arts and Design*.

interaction between an architecture professor and a student in the process of designing a school. He presents this as 'An Example of Reflective Designing'. It is interesting to note that Schön adopts a broad interpretation of 'design':

In the last twenty years or so, the concept of design has broadened. We have begun to see cultural evolution as informal, collective, generational processes of design, as in Chris Alexander's story of the Slovakian peasant shawls. Herbert Simon and others have suggested that all occupations engaged in converting actual to preferred situations are concerned with design. Increasingly there has been a tendency to think of policies, institutions, and behaviour itself, as objects of design. (Schön 1983: 77)

Taking such a broad view of design would enable creative practitioners to approach their practice as a 'reflective conversation'. In my practice I engage in such conversations both intuitively and consciously at different stages of the creative process. A 'conversation' implies at least a two-way communication in which the design object or artefact 'talks back' to the practitioner. In this sense the practitioner opens up to the possibilities suggested by the creative outcome.

Schön describes this design process:

A designer makes things...He works in particular situations, uses particular materials, and employs a distinctive medium and language. Typically, his making process is complex. There are more variables – kinds of possible moves, norms, and interrelationships of these – than can be represented in a finite model. Because of this complexity, the designer's moves tend, happily or unhappily, to produce consequences other than those intended. When this happens, the designer may take account of the unintended changes he has made in the situation by forming new appreciations and understandings and by making new moves. He shapes the situation, in accordance with his initial appreciation of it, the situation 'talks back', and he responds to the situation's back-talk. (Schön, 1983)

I have found the above description applies to my intuitive approach to art making. My drawing/writing experiments in which I attempted to set up a conversation with my own drawings began before reading Schön, yet I find that his concepts of 'reflective design' and 'talk-back' provide a useful description and explanation of what transpired. As Candy points out:

Schön describes the design process in terms of 'seeing-> drawing -> seeing'. The act of drawing enables the designer to recognise or appreciate the meaning of what he or she 'sees' and, through the identification of patterns, construct meaning beyond the patterns themselves. Thus, by creating something, it becomes possible to design "as a reflective conversation with the materials of the situation". (Schön, 1992: 5, in Candy and Edwards 2011: 45)

Reflective practice in creativity is an iterative process.

Reflective practice in creativity involves multiple iterations, which can be summed up as: creating -> reflecting -> creating again -> reflecting again. (Candy and Edwards 2011: 45)

The 'Iterative Cyclic Web' of Smith and Dean (2009), described in Appendix A, is a perfect example of how creative practice-based researchers apply Schön's original ideas.¹¹

Judging from these observations it would appear that Schön's ideas concerning reflection-in-action are highly suited to creative practice-based research. However, creative researcher Stephen Scrivener (In Candy and Edwards, 2011) has identified some significant differences between Schön's conception of professional practice, and his conception of creative practice, particularly in relation to creative practice-based research.

Although Schön's ideas have had considerable influence on the development of practice-based research methods in the creative fields, there are also some instances where his theories do not fit neatly into the creative research paradigm. Schön was writing for a fairly broad range of professions, taking his examples from the science-based professions such as medicine and engineering, and from the field of organizational practices such as management. Yet he does include an architectural design case study that has a closer bearing on creative practice. Most of his examples involve professions with an established mode of operation as well as a clearly defined practitioner-client relationship. However, in creative practice these modes and relationships are not always as cut and dried.

How does creative practice differ from most other forms of professional practice? An important distinction is that creative practice involves the making of artefacts or artworks for exhibition that can stand alone as independent entities. This impacts on the way reflection-in-action functions. Candy states:

There are notable differences to the way reflection-in-action has been incorporated into creative practice compared to professional practice more generally. This is because a major part of the creative process involves taking actions towards creating an entity that stands separate from the insights gained from the reflections themselves. This entity or artefact has its own integrity and value quite apart from the insights. The development of an artefact may draw upon, even embody, the insights gained from the reflections but it is, nevertheless, part of an externalised reality that invites a different kind of response. (2011: 44- 45)

Like Schön, Stephen Scrivener interrogates the meaning of 'practice'. In his case he questions the usefulness of the word 'practice' in 'practice-based research'. Not only does he find the word ambiguous, but he finds that it can mean so many different things that it becomes 'unhelpful'. 'Practice' can be used to 'mean a habitual action; a habit or custom; a repeated exercise in the development of a skill; an action as opposed to theory; procedure generally; the professional work or business of an artist or the art world' (Scrivener, 2011).

¹¹ See Appendix A: *Practice-based Research in Visual Arts and Design (Frameworks for Visual Arts research)*

Scrivener further points to the ambiguous relationship between 'practice' and 'research'. He argues that he could think of himself as a 'practitioner of research' and that his 'research practice *resembles* design practice'. He further suggests that there are no 'impermeable' boundaries between design or art practice and design or art research. Viewed in this light Scrivener claims 'at best these qualifiers' (research and practice) 'are ambiguous and confusing'. For this reason he prefers the terms 'artistic research' and 'design research' to the terms 'practice-based' or 'practice-led' (2011: 61).

Scrivener's argument goes further than pure semantics. He is concerned with finding a way to accurately express the nature of the activity of art and design and their relationship with research. He refers to the 'artness' of art research and the 'designness' of design research:

One way of thinking about the artness of artistic research (or the designness of design research) is to associate it with *the work of*, meaning the labour of art, and *the works of*, meaning the publically exchanged results of the labour. In other words, artistic research might be said to be artistic because it incorporates the work of and the works of art in the generation and exchange of new knowledge and understanding. (2011: 61)

Scrivener proposes "the words 'practice-based' can be substituted by the words 'the work of' and 'works of' something and the word 'research' can be substituted by the words 'new knowledge and understanding' " (2011: 61). In this way he hopes to clarify the ambiguity around the term 'practice-based research' in art and design.

Scrivener's insight into this relationship is helpful in relation to generating an understanding of the creative process in art and design. Yet for the purposes of this thesis I will continue to use the phrase 'practice-based research' because, in spite of its flaws, the term has come into common and accepted usage.

It must be noted that Schön also acknowledged the ambiguous relationship between research and practice. When discussing the dialogues that occur between researchers and practitioners he notes that these roles and boundaries can be interchangeable within one individual practitioner:

The roles of practitioner and researcher will have permeable boundaries, and research and practice careers will intertwine as a matter of course. While relative weight given to reflective research or to practice might vary considerably in the course of a career, one would normally expect practitioners to function on occasion as reflective researchers, and vice versa. (Schön, 1983)

While Schön indicates that in most professions this intertwining of researcher and practitioner can happen 'on occasion', Scrivener claims that in art and design this is *always* the case. Art and design *practice* and art and design *research* 'resemble each other' in the sense that the two activities are so closely intertwined.

What Scrivener also highlights is the distinctive relationship between the activities of art and design (work of) and the artefacts or products produced (works of) when conducting 'artistic research', which is not the case in most other professions. Similarly Candy notes:

There are notable differences to the way reflection in action has been incorporated into creative practice compared to professional practice more generally. This is because a major part of the creative process involves taking actions towards creating an entity that stands separate from the insights gained from the reflections themselves. This entity or artefact has its own integrity and value quite apart from the insights. The development of an artefact may draw upon, even embody, the insights gleaned from the reflections but it is, nevertheless, part of an externalised reality that invites a different kind of response. (Candy and Edmonds, 2011:44-45)

Thus, Candy and Scrivener make the point that although many aspects of Schön's reflective practice are useful for creative practice-based research (or artistic research, to use Scrivener's term), there are certain characteristics that might not always fit.

3.5.3 Art and Design Research Requirements

A distinguishing characteristic of art and design is that it is *exploratory* in the sense that at the outset there is often no well-defined problem to be solved. (I mention this repeatedly throughout the thesis because I have found that this concept is crucial to an understanding of the kind of creative process I am involved in). Steve Garner states: "Drawing offers the potential for a deliberate vagueness or incompleteness and this has been shown to support creative thinking" (2008). Scrivener also repeatedly states 'that exploratory art and design production is frequently initiated without a clear sense of what is to be known' (In Candy and Edmonds, 2011: 68). Sullivan notes that artists often start with the unknown and make it known through their practice (Sullivan, 2010).

In contrast to the above approach, in most of the examples given by Schön there is a clearly defined problem to be solved. According to Schön 'reflecting in practice' is a way of coping with 'divergent' situations of practice and of coming up with solutions to particular problems as they happen. The 'problem' usually presents itself as an element of 'surprise' which stimulates 'reflection-in-action' (Schön, 1983). These moments of 'surprise' are out of the ordinary. As Scrivener states:

What Schön describes is the art of the practitioner, which he calls reflective practice. However, in Schön's account of it, reflective practice is essentially reactive. Typically, although unique, new tasks are mundane and can be satisfied without recourse to new knowledge and understanding; the knowledge and experience acquired over perhaps years of practice is good enough. Only occasionally will the practitioner be presented with a situation that perplexes. (Candy and Edmonds, 2011: 70)

Scrivener highlights a fundamental difference between reflective practice in the majority of professions and reflective practice in the creative arts and design professions. Scrivener argues

that, as opposed to the 'essentially reactive' nature of reflective practice, creative reflective practice is 'proactive'.

What Schön doesn't address is the fact that artists and designers are often proactive; they often set out to surprise themselves; they often wilfully disrupt their habits to see what happens. If, in reflective practice, the situation presents the surprise that perplexes the maker into surfacing and extending existing understanding to satisfy the new situation, then, in what I shall call projective reflective practice the maker must invent ways of making a situation that perplexes. In the first case, the perplexing situation presents itself; in the second, a perplexing situation is made to be. (2011: 70).

Scrivener examines Schön's example of the experiment with the children and the blocks. As Scrivener puts it: 'In the children's world everything appears as it should be and it is only when they (the conductors of the experiment) start to operate on it that it becomes surprising'. He likens the experience recorded in this experiment to what he calls the 'everyday practice of art', which 'proceeds in the absence of surprise and the unexpected'. According to Scrivener this kind of art is 'unlikely to be of productive interest to other artists and the art world'. But he suggests that there are artists who seek to go beyond 'given and familiar habits of practice' (2011: 71).

Here, in my interpretation, Scrivener is making a distinction between straight forward professional art practice, such as working towards a public exhibition (the everyday practice of art) and creative art research where "artists develop... strategies of production designed to disturb or interrupt their own and the viewer's appreciation of what constitutes art" (2011: 71).

As I noted earlier, in the experiment with children referred to above, the scientists were able to "convert the child's *knowing-in-action* to *knowledge-in-action*" (Schön, 1983). The children who were able to solve the problem developed a theory based on their experience that remained 'tacit'. The scientists observing the children articulated that theory to explain what happened. In other words they were able to *convert* the children's 'tacit knowing' into a conscious theory or knowledge. In a similar way, Scrivener suggests, the creative art or design practitioner who seeks to disrupt habits of practice 'will probably be forced to come up with a theory to account for his or her experience in order to cancel out the surprise'. He adds: 'We might say that such a conversion is necessary in order to conceptualise and talk about surprise and the unexpected' (Candy and Edwards, 2011: 71).

3.6 Applying Praxis: The Methodological Models Adopted for this Study

3.6.1 Projective Reflective Practice

Scrivener's *Projective Reflective Practice* is a term that describes my own creative process. The investigation of digital technology as a creative tool was a deliberate attempt to find a new direction for my creative work. This was a way of 'making a situation that perplexes'. By taking on a technology and a way of working that was foreign, I put myself into a position where I was

bound to be surprised. Digital drawing led to the 'surprise' discovery of the potential for animation, which in itself led to further 'surprises' concerning my approach to traditional media.

In assessing the texts of a variety of creative art researchers Scrivener poses the following three questions:

1. Does it provide evidence of a mode of production, where making proceeds without clear knowledge of what is being sought?
2. Does the text provide evidence of artefacts that register or registered surprise and the unexpected?
3. If concepts or theories are described, can these be understood as the conversion of surprise and the unexpected into something that can be discussed? (2011: 72).

I find this an appropriate way of interrogating my own project. At this point it will be useful to re-state my research questions and examine them in the light of Scrivener's 'Projective Reflective Practice':

Making

How does the use of basic computer programmes as a tool for drawing and animation influence and facilitate 'making' in my visual art practice?

Doing

How is the 'doing' of visual art and design influenced and enhanced by the use of basic computer programmes?

What is the relationship between thinking and drawing in the visual art and design process?

What role can digital drawing play in the art and design thinking process?

Knowing

What insights and knowledge does a reflexive approach to visual art practice reveal about the nature of art and design thinking?

Scrivener's first question relates to the mode of production or making and corresponds directly to my question concerning *making*. In my case the making certainly proceeded without a clear knowledge of what was being sought. In looking for something new I had no idea what form it would eventually take.

The second question corresponds to *reflexive doing*. The 'surprise' element in my work led me to begin asking questions about the 'doing' of art. I had not expected to enter into the field of animation and I had no preconceived ideas concerning how this would impact on my creative output.

The third question addresses *knowing*. This is where through the writing of this thesis I set out to ‘convert’ the element of surprise and the unexpected into ‘something that can be discussed’.

The methodology for this project can be described as one of ‘Projective Reflective Practice’. I arrived at this methodological approach by interrogating my art practice. Theories developed by Schön, Scrivener, and other writers on reflective practice have helped me to articulate what started as a personal approach, developed *out of practice*, into a theoretical form that can be applied to creative art and design practice in a broader sense. Thus *poiesis* has been converted through *praxis* into *theoria*.

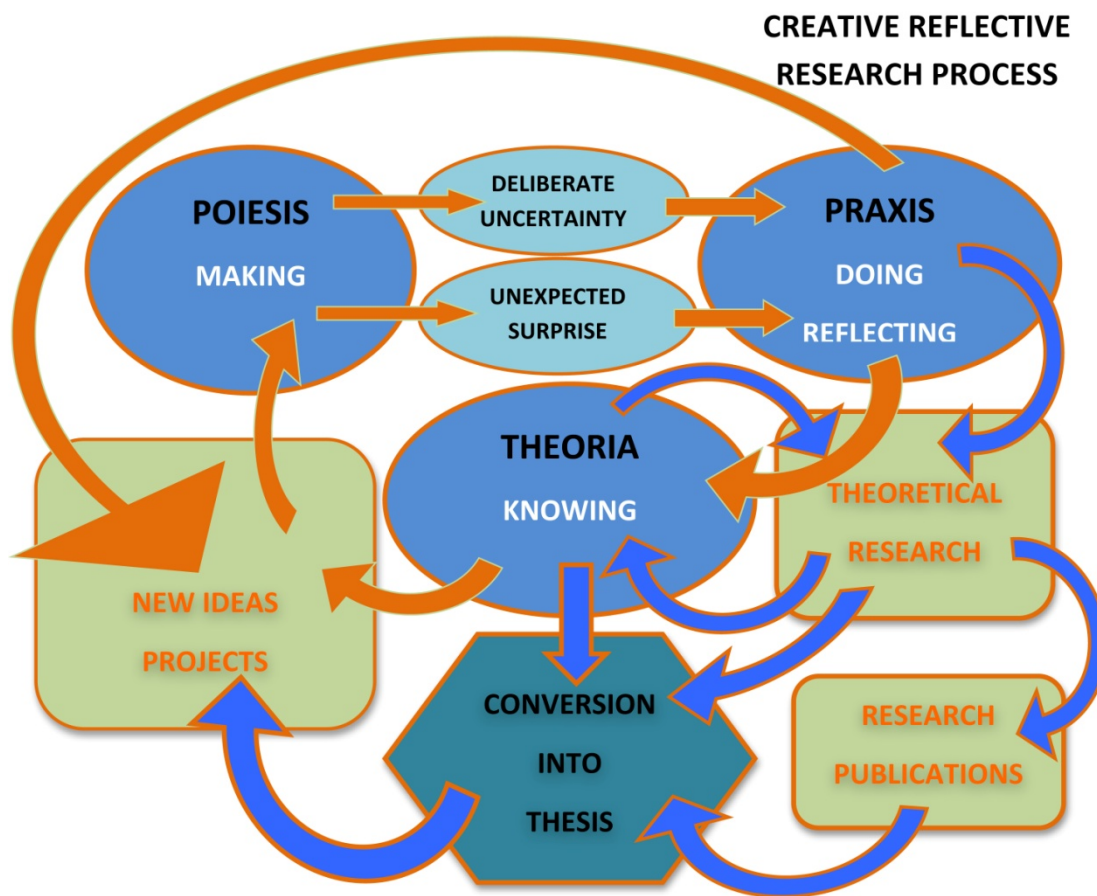


Figure 3.9: The Creative Reflective Research Process

The above diagram (Figure 3.9) illustrates my creative path leading to the writing of this thesis:

- **Making:** My process started with making. Driven by the need to break out of old habits in respect of art making, I began making a series of drawings using the computer as a tool. I had no preconceived ideas about what I wanted to achieve. The approach was playful and exploratory. As Scrivener puts it, I had “no clear knowledge of what was being sought” (2011, 72).

- This decision could be seen as a deliberate introduction of uncertainty. I was not familiar with computer drawing and was curious to see how it would work for me. In this sense I was engaging in 'projective-reflective' practice.
- The situation I found myself in (working digitally) resulted in unexpected 'surprises'. I discovered that I could make animated films and I also discovered that the 'digital aesthetic' held interesting possibilities that I could explore in other mediums.
- **Doing:** The 'doing' of the digital drawings involved a process of reflection-in-action as well as reflection-on-action. The unexpected surprise elements that cropped up while I was drawing, (reflection-in-action), led to creative decisions that affected the way I began to work. Analysis of the of the drawings, (reflection-on-action), resulted in the start of a new series of wood-cut panels that incorporated the digital aesthetic as well as the idea of visual narrative.
- **Knowing:** By means of reflective writing and theorising, these elements of surprise and the unexpected were "converted into something that could be discussed" (Scrivener, 2011).
 - I began to conduct theoretical research in order to place my unexpected discoveries into context. I looked for resonance with other practitioners and creative researchers. I also conducted research into practice-based methodologies in order to contextualise and articulate my own creative process.
 - Thus the knowing-in-action or tacit knowing of creative practice was converted into transferable knowledge expressed in the form of research publications and this thesis itself.
 - The knowledge gained through reflection-on-action and theoretical research resulted in the development of new ideas and new creative projects resulting in more making.

• **Creative Reflective Research Spiral:**

A creative research spiral of *making* > *doing* > *knowing* > *making* > emerged.

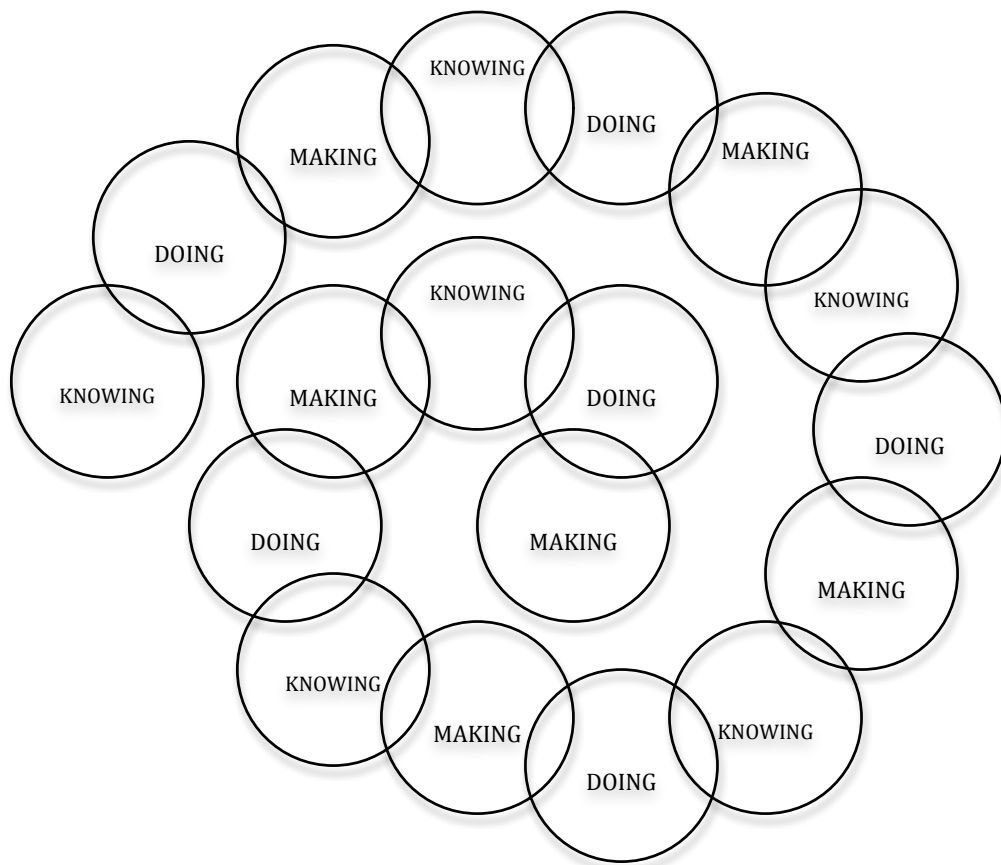


Figure 3.10: Creative Reflective Research Spiral

3.6.2 Drawing as Projective Reflective Practice

The starting point for this research was the making of digital drawings. Although other forms of expression such as animation and woodcut panels emerged, drawing was the primary method of investigation. My research focuses on how the introduction of a basic computer programme for drawing influenced the creative process.

It is not uncommon for artists and designers to use drawing as a means of generating and exploring ideas.

Contemporary artists often report that they draw to generate and explore new ideas and test established ones. An open-ended process often utilizes deliberate ambiguity to promote discovery. Indeterminacy allows the drawing to take on a life of its own, which is often experienced by the artist as separate from his or her conscious will. A kind of dialog between drawer and drawing ensues. Nurturing the relationship between drawing and drawer and allowing the drawing to find its own independent voice seems to be key in promoting discovery. (Kantrowitz, 2012)

Andrea Kantrowitz is one of an increasing number of drawing researchers who investigate the cognitive aspects of drawing. In her paper titled *Drawn to Discover: A Cognitive Perspective* (2012), she draws attention to the reflective nature of drawing. More specifically, she sees drawing as a form of *projective* reflective practice. Her observations resonate strongly with my own experiences when drawing.

The drawings that led to this research project were not meant to solve a clearly articulated 'problem'. They were rather the beginning of an open-ended journey of discovery or, as Kantrowitz puts it, "a journey without a known destination". Kantrowitz notes:

Drawers of all sorts, ranging from artists to designers, architects and engineers, often report that they draw to generate and investigate new and established concepts and percepts. Artists may differ from others who draw as part of their professional practice, because the process of discovery can be an end in itself, rather than simply the means of solving a pre-defined problem. (Kantrowitz, 2012)

My digital drawing process was by necessity highly experimental because the medium was completely new to me. As I worked I found myself responding to accidental and unforeseen elements that occurred. These led to new ways of working and new ideas began to emerge. The combination of my existing drawing skills with the introduction of technology, that was foreign to me, set up a dialogue with the computer.

As Kantrowitz observes, this form of dialogue between the artist and what she calls "the material traces his own hand has inscribed on the drawing surface" (2012:2) is a distinguishing feature of artistic creative drawing. In my case the dialogue included the virtual world of the digital medium. This dialogue represents a form of *problem finding* rather than *problem solving* (Csikszentmihalyi, 1996b) or as Sullivan would put it 'beginning with the unknown and making it known through practice' (Sullivan, 2010). The dialogue results in what Kantrowitz calls a "back and forth, in and out...kind of rhythm that experienced drawers use to promote discovery..."(2012: 2).

I have already mentioned that Schön introduced the notion of 'talk-back' as a characteristic of reflective practice. He also emphasised that reflection is usually triggered by elements of divergence or surprise. Scrivener introduces the notion of projective reflection saying that creative practitioners deliberately introduce surprise elements. Kantrowitz observes that 'Artists and designers often introduce uncertainty deliberately into their sketches, to afford opportunities of discovery' (2012: 3). In this sense drawing becomes a *projective reflective* activity.

As indicated earlier, this research project was initiated by the deliberate introduction of 'divergence' or uncertainty in the form of basic computer software. In exploring the potential of basic software I responded to the 'talk-back' of the digital drawing process, exploiting the unexpected elements or surprises that the process delivered. Therefore, I argue that my investigation into the creative applications of basic computer software followed a *projective reflective methodology*.

3.7 Trustworthiness of Praxis

As noted in chapter two of this thesis, creative practice based research falls within a new and emerging research paradigm. Visual researchers not only question the limitations of the Positivist paradigm but they also claim to contribute to research by acknowledging the intuitive, subjective, and critical characteristics of creative practice. The creative paradigm does not simply reject the values and methods of traditional research but seeks to build on them. Values associated with traditional scientific research such as objectivity, probability, repeatability, reliability, and validity may be of less relevance than inter-subjectivity, possibility, criticality, creativity, and credibility.

Mechanisms to ensure rigour and trustworthiness are equally necessary in practice-based research, but they will differ from those of scientific research. Because of its 'distinct nature' the traditional concept of a 'qualitative-quantitative divide' does not apply to visual arts research (Baldacchino 2009, in Sullivan, 2010). Yet creative practice based research has strong affinities with qualitative methodologies. For this reason I have turned to qualitative research in order to develop suitable mechanisms for ensuring 'trustworthiness' in this study.

In *Redefining Qualitative Methods: Believability in the Fifth Moment*, John Lewis (2009) outlines the evolution of alternative attitudes towards validity and reliability in qualitative research during the twentieth century. Starting from a position that was close to the quantitative approach there was a gradual shift away from validity and reliability towards credibility. Constructionists and Naturalists in the social sciences introduced "credibility, which also focuses on internal validity, (and) emphasizes the truthfulness of what the researcher reports" (Lewis, 2009). Lewis notes that towards the end of the twentieth century with the advent of post modernism, the entire notion of objectivity, truth, and validity, was questioned in certain circles, notably by Orientationalists and Critical Researchers. Despite the differences between Positivists, Constructivists, and Critical Researchers, they still agree on the need for trustworthiness, accuracy and dependability of research findings. Measures to ensure credibility in qualitative research include an awareness of bias or researcher reflexivity, awareness of discrepancy or disconfirming data, prolonged engagement in the field, and the use of triangulation, collaboration, audit trails, thick and rich description, and feedback or peer debriefing.

Andrew K. Shenton, in *Strategies for ensuring trustworthiness in qualitative research projects* (2004) provides a framework for ensuring rigour in qualitative research, largely based on the constructs developed by Guba. Rather than trying to incorporate the mechanisms for validity and reliability favoured by Positivists, Guba introduces different terminology. He identifies four criteria, which qualitative researchers seek to satisfy: credibility (internal validity),

transferability (external validity/generalizability), dependability (reliability), and confirmability (objectivity).

Table 3.1: Provisions that may be Made by a Qualitative Researcher Wishing to Address Guba's Four Criteria for Trustworthiness (Shenton, 2004)

Provisions that may be Made by a Qualitative Researcher Wishing to Address Guba's Four Criteria for Trustworthiness	
Quality criterion	Possible provision made by researcher
Credibility	• Adoption of appropriate, well recognised research methods • Development of early familiarity with culture of participating organisations • Random sampling of individuals serving as informants • Triangulation via use of different methods, different types of informants and different sites • Tactics to help ensure honesty in informants • Iterative questioning in data collection dialogues • Negative case analysis • Debriefing sessions between researcher and superiors • Peer scrutiny of project • Use of "reflective commentary" • Description of background, qualifications and experience of the researcher • Member checks of data collected and interpretations/theories formed • Thick description of phenomenon under scrutiny • Examination of previous research to frame findings
Transferability	• Provision of background data to establish context of study and detailed description of phenomenon in question to allow comparisons to be made
Dependability	• Employment of "overlapping methods" • In-depth methodological description to allow study to be repeated
Confirmability	• Triangulation to reduce effect of investigator bias • Admission of researcher's beliefs and assumptions • Recognition of shortcomings in study's methods and their potential effects • In-depth methodological description to allow integrity of research results to be scrutinised • Use of diagrams to demonstrate "audit trail"

Using Shenton's framework as a guide, I examine each of these criteria in relation to my own research in order to establish how trustworthiness can be ensured. I adapted those mechanisms that apply to the specific needs of my practice based creative research.

3.7.1 Credibility

In order to ensure credibility Shenton proposes that researchers pose the question "How congruent are the findings with reality?" (Merriam in Shenton, 2004: 64).

The adoption of well-established research methods and alignment with previously comparable projects is one way of ensuring credibility (2004). In my study I carried out an extensive review of practice based methods in order to help formulate and contextualize my own methods.¹² In addition I studied the publications and artefacts of other creative practitioners in the field to establish resonance.

Triangulation is another mechanism employed to ensure credibility. This involves the combination of different methods, the use of supporting data as background, and a range of documents as source material (2004). In my study I draw from reflective practice methods as well as creative visual arts research and design theory. Supporting data as background was gathered through an extensive literature review on practice based research. I used a wide range of documents including books, research papers and examples of artwork (in addition to my own creative work) as source material.

Peer scrutiny is recommended by Shenton to ensure credibility. Evidence of this is provided in the form of papers accepted for publication by peer review, and peer reviews of creative work.

The researcher's reflective commentary, including a record of initial impressions of data, and the monitoring of the researcher's own developing constructions, contributes to credibility. My use of reflective journaling and the adoption of a 'projective reflective' methodology accommodates this.

The background, qualifications and experience of the investigator, as well as the length of involvement in the field are further factors. In my case I have a record of 35 years of experience in the field as a creative practitioner.

Thick description of the phenomenon under scrutiny helps provide credibility. I have attempted to convey an accurate description of the creative process under investigation by providing visual examples, reflective writing, and descriptions of the surrounding context. The examination of previous research findings can show that the results are congruent with past studies. My

¹² See Appendix A, *Practice-based research in Visual Arts and Design*

reference to the studies of other relevant researchers in the field of creative practice based research provides evidence of this.

3.7.2 Transferability

Transferability, or the applicability of the research to other situations, in qualitative research is associated with a smaller range of particular environments and individuals, than the wide populations associated with Positivist research. There are opposing views concerning transferability in qualitative research. One is that wide transferability is never really possible, and the other is that it is possible even in unique studies. The amount of information supplied (thick description) influences transferability. Shenton advises qualitative researchers to be wary of preoccupation with transferability. Context is a key factor in assessing transferability in qualitative research. The context of the particular characteristics of what is being studied need to be taken into account (2004: 69).

Due to its focus on the unique case of an individual creative experience, my study does not preoccupy itself with transferability. However there are aspects of the study that are arguably transferable. Although my study takes place within the context of an individual's creative practice, other creative practitioners explore the use of basic computer software for their own creative purposes. The results can never be identical to mine, but the principle of adapting certain software programmes for creative experimentation can be broadly applied. In addition, the methodological framework adapted for this study is readily transferable to other creative practice based research projects.

3.7.3 Dependability

Dependability is an essentially Positivist idea, and according to Shenton, has little applicability in qualitative research. However he points out that there are close ties between credibility and dependability. A demonstration of credibility can ensure dependability. This relies on close attention to 'proper research practices' concerning the research design and its application, provision of operational detail of data gathering, and a reflective appraisal of the project that evaluates the effectiveness of the process of enquiry undertaken (2004: 71-72).

The research design for this study has been carefully adapted from aspects of practice based research and reflective practice. A detailed explanation of the creative practice is provided. Reflection throughout the project, as well as final "meta-reflection" at the end of the study, provides an evaluation of the effectiveness of the process.

3.7.4 Confirmability

In qualitative research confirmability is linked to objectivity wherein the inherent bias of the researcher needs to be avoided. The predisposition of the researcher, and the beliefs underpinning decisions made and methods adopted, must be acknowledged. An ongoing

reflective commentary as well as a detailed methodological description helps to determine the acceptability of the data and the constructs that emerge. An 'audit trail' of how the data leading to recommendations was gathered and processed is usually provided. Alternatively the manner in which concepts inherent in the research question gave rise to the work to follow is described (2004: 72).

As my research is based on a highly subjective creative experience, confirmability may be difficult to establish. However although the data for the research has been generated subjectively, the interpretation of the data required 'stepping back' from the experience in order to provide a more objective reflective evaluation. The methodology adopted is grounded in practice based research approaches that have gained acceptability in the field. I have described how the concepts of making (*poiesis*), doing (*praxis*), and knowing (*theoria*), inherent in the research questions, gave rise to the reflective process that accompanied and followed creative practice.

3.8 Summary

In order to convert *making* into *knowing*, *reflexive doing* is required. This chapter focused on the reflective methodology (*praxis*) adopted for the research. I provided a background to the field of reflective research and presented the methodological models used as a framework for the study. Finally mechanisms for establishing the 'trustworthiness' of the research were introduced.

In the following chapter I present the findings generated by projective reflective practice. I investigate the relationship between drawing and cognition in the context of my own experience of using basic computer software for drawing and animation.

CHAPTER FOUR

FINDINGS: FROM MAKING TO REFLEXIVE DOING TO KNOWING

This chapter presents the findings based on the research questions:

Making

How does the use of basic computer programmes as tools for drawing and animation influence and facilitate poiesis in my visual art practice?

Doing

How does the use of basic computer programmes as tools for drawing and animation influence and facilitate praxis in my visual art practice?

What is the relationship between thinking and drawing in the visual art and design process?

What role can digital drawing play in the art and design thinking process?

Knowing

How does the use of basic computer programmes as tools for drawing and animation influence and facilitate theoria in my visual art practice?

What insights and knowledge does a reflexive approach to visual art practice reveal about the nature of art and design thinking?

In order to provide insights and background to the research questions I examine my creative output through the lens of *poiesis*, *praxis*, and *theoria*. These three concepts, which provide the theoretical frameworks for this study, are often inextricably intertwined and in some instances overlap. *Poiesis* deals with what I made, *praxis* interrogates my creative process, *theoria* initially introduces what the literature says, and finally converts what I learnt, (from both the literature and my practice), into knowledge or theories that can be discussed. As noted in Chapter One, the literature functions not only as background and rationale for this study, but also as data from which questions and findings are drawn.

The dominant theoretical framework identifies each section of this chapter, although all three concepts are interwoven throughout. The diagram below (Figure 4.1) indicates how the chapter is structured.

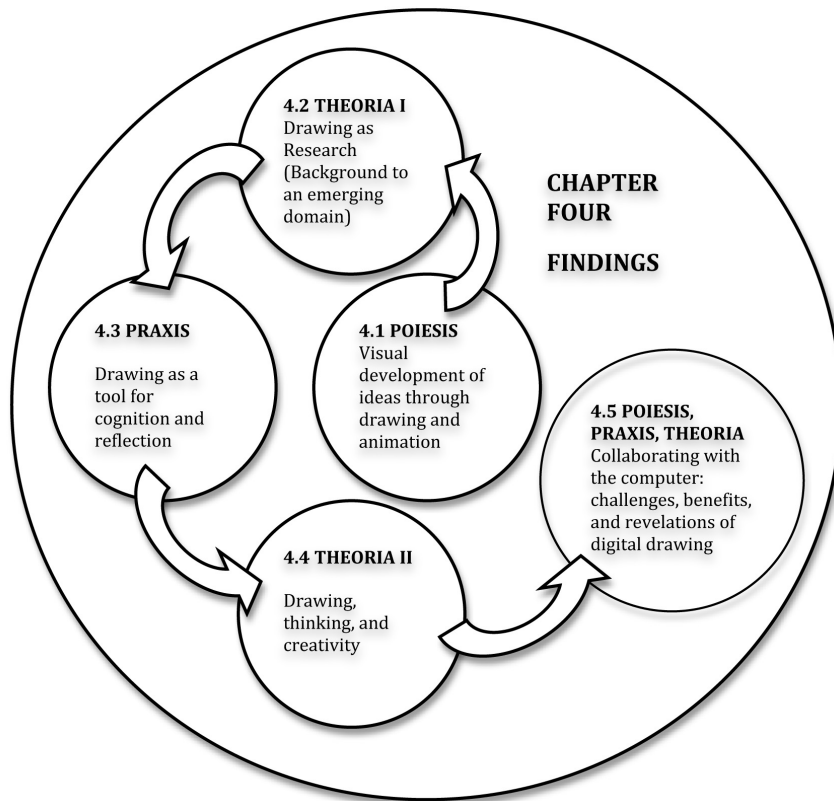


Figure 4.1: The Structure of Chapter Four

4.1 Making: Digital Drawing and Animation

This section provides a visual account of the *poiesis*, or making, that marked the starting point for this study. A selection of work completed during the time period 2007 to 2013 is presented in chronological order. The animated sequences that developed out of these drawings are presented on the accompanying compact disc.

4.1.1 *Press Delete and Start Again*, 2007- 2008

This body of work marked the beginning of the enquiry into creative applications of basic computer software. The work was first exhibited at artSPACEurban in 2007 and at artSPACEberlin in 2008.



Figure 4.2: John Roome, *Press Delete and Start Again*, Exhibition Invitation

Artist's Statement

The title of the exhibition, taken from contemporary 'computer-speak', is a phrase most of us are familiar with. It refers not only to computers though, but also makes a broader reference to the creative process and even to life itself: the circular or cyclical and sometimes repetitive nature of our existence.

The works on show are mainly derived from a series of computer drawings made using *Microsoft Paint*. These were translated into a series of animated sequences, which you will see projected on the gallery wall. The drawings were copied and pasted and then worked on to create a sense of movement when projected as a fast moving slide show. 'Stories' evolved in a playful fashion as the drawings took on their own life.

The computer drawings also formed the basis for the woodcut panels. By projecting computer- drawn images onto *Supawood* and carving them into the surface of the wood their digital quality has been captured while using the woodcut technique. This is another reference to the cyclical or repetitive nature of things. Traditional woodcut tools were used but the cutting is reduced to only horizontal or vertical strokes to mirror the pixelation of computer technology. Paint was applied to the recessed areas and printers ink was rolled onto the raised areas.

The imagery has a generally playful or even comic book feeling about it. This is a result of an experimental and playful approach when doing the computer drawings. Their translation into wood panels was paradoxically labour intensive and time consuming. This same contradiction is echoed in many of the animated sequences themselves that appear playful at first. Careful observation of the animations will reveal that all is not what it seems. (John Roome, Artist's Statement, October 2007)

The First Series of Digital Drawings: *Circling the Island*



Figure 4.3: *Circling the Island*, Stage 1



Figure 4.4: *Circling the Island*, Stage 10

The initial intention behind these drawings was to experiment with the computer as a drawing tool. The ease of 'copy and paste' gave me the idea to document the process of developing the drawing. The drawing started as purely linear, with flat areas of colour being introduced once the composition was established.



Figure 4.5: *Circling the Island*, Stage 20



Figure 4.6: *Circling the Island*, Stage 30

I viewed the series of documented images as a slide show and realised that the images could easily be animated. This led to the idea of developing a visual narrative that took place against

the background of the drawn landscape. I introduced an aeroplane that would circle the island and drop a parachutist into the stream below. A vehicle was shown driving down the road and crashing over the edge of a cliff. I also animated the stream and the leaves of the plants.



Figure 4.7: *Circling the Island*, Stage 32



Figure 4.8: *Circling the Island*, Stage 34



Figure 4.9 *Circling the Island*, Stage 40



Figure 4.10: *Circling the Island*, Stage 60

Minor alterations to each drawing created the illusion of movement. The concept for the resulting animated sequence was developed out of a playful experiment with computer drawing. The narrative developed spontaneously and reflected the playful spirit of the experiment. This child-like playfulness was reinforced by the naïve style of drawing and the use of bright, flat colour.

The Second Series of Digital Drawings: *Once Upon a Time*



Figure 4.11: *Once Upon a Time*, Stage 10



Figure 4.12: *Once Upon a Time*, Stage 20

In *Once Upon a Time* (Figs. 4.11, 4.16) I continued working with the ideas developed in *Circling the Island* (Figs. 4.3, 4.10). Again a series of animated narratives were shown to take place against the background of an imaginary landscape. The playful, child-like aesthetic was emphasised by the drawing style and use of colour. A toy helicopter with two dancing figures connected to it by means of ropes, was introduced to add to the playfulness. I introduced other animated narratives with two figures in the swimming pool on top of one of the buildings, and traffic moving around on the street below.



Figure 4.13: *Once Upon a Time*, Stage 30



Figure 4.14: *Once Upon a Time*, Stage 40



Figure 4.15: *Once Upon a Time*, Stage 50



Figure 4.16: *Once Upon a Time*, Stage 60

Circling the Island and *Once Upon a Time* were combined together with another series of drawings to create the animated video titled *Press Delete and Start Again*.



Figure 4.17: Exhibition *Press Delete and Start Again*, artSPACEdurban, 2007, Installation view



**Figure 4.18: Exhibition “Press Delete and Start Again”, artSPACEurban, 2007,
*Digital Projection***

Woodcut Panels

In response to the images that evolved out of the digital drawings for animation, I embarked on the making of woodcut panels (Figs 4.19 – 4.27). These works echoed the digital aesthetic of the drawings and were exhibited together with the animated sequences.



Figure 4.19: John Roome, 2006. *Helicopter*, Wood panel, printing ink on board, 120 x 92.5 cm



Figure 4.20: John Roome, 2006. *Circling the Island*, Wood panel, printing ink on board, 120 x 92.5 cm



Figure 4.21: John Roome, 2006. *Circling the Island*, Detail



Figure 4.22, 4.23: John Roome, 2006. *Male and Female*, Wood panel, printing ink on board, 120 x 92.5 cm each



Figure 4.24, 4.25: John Roome, 2006. *Flower*, Wood panel, printing ink on board, 120 x 92.5 cm (With detail)



Figure 4.26: John Roome, 2007. *North South*, Wood panel Figure 4.27: *Heads*, Tile-cuts

4.1.2 Journey into the Ineffable

This second body of work continued the exploration into digital animation and the interpretation of digital images into woodcut panels. The work was exhibited on the Durban University of Technology Fine Art and Jewellery Design Department Staff Exhibition *New Connections* at the KZNSA Gallery, Durban, 2009.



Figure 4.28: John Roome, 2009. *Journey into the Ineffable*, Installation View, KZNSA Gallery, Durban

Journey into the Ineffable is exactly that. By means of a series of digital drawings a spontaneous, subconscious, animated narrative was developed. These images in turn lead to carved wood panels which mimic the digital aesthetic. Finally the cycle is completed when the animated digital sequence is projected onto the wood panels, setting up a dialogue between the static and the dynamic. In essence the work interrogates the cyclical nature of existence. (John Roome, *Artist's Statement*, 2009)

Digital Drawings

In this series of work my approach to animation shifted slightly. Instead of creating a static background for a narrative, I animated the drawings from the outset. Here the intention was to work intuitively and develop an unscripted narrative in response to changes made to each drawing.

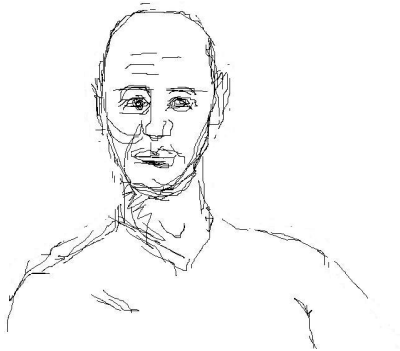


Figure 4.29: *Journey into the Ineffable*, Stage 1

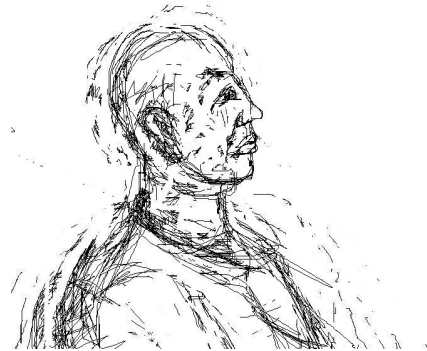


Figure 4.30: Stage 10



Figure 4.31: Stage 15

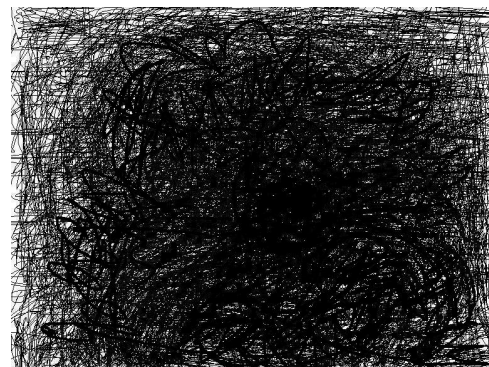


Figure 4.32: Stage 20

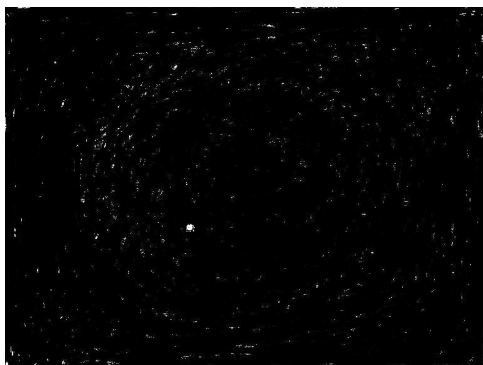


Figure 4.33: *Journey into the Ineffable*, Stage 25

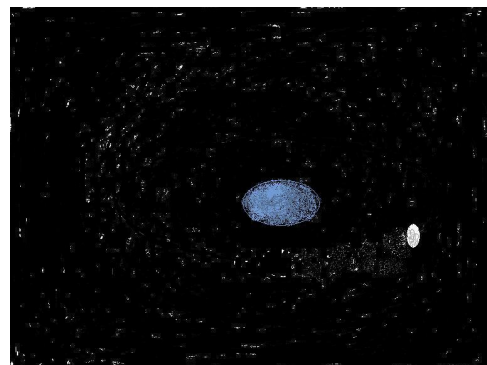


Figure 4.34: Stage 35

The initial drawing was of a head that was altered progressively so that it appeared to move and age at the same time. This was done using a process of erasure and addition, leaving traces of the

previous drawings in each successive drawing. Eventually the head was obliterated as the marks filled the entire frame.

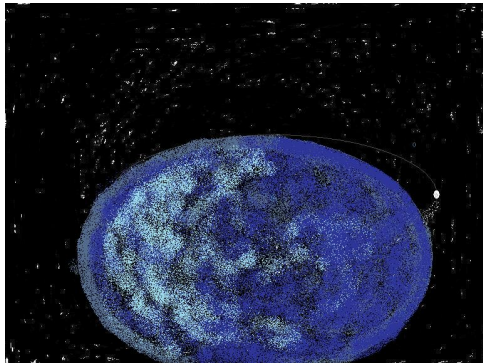


Figure 4.35: Stage 40

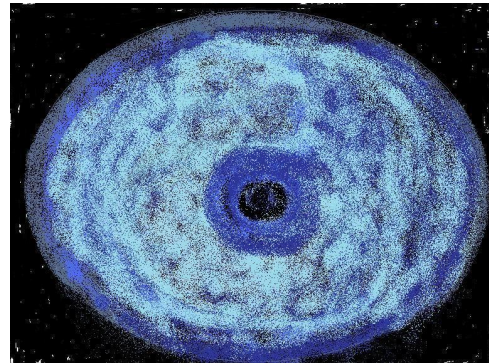


Figure 4.36: Stage 45

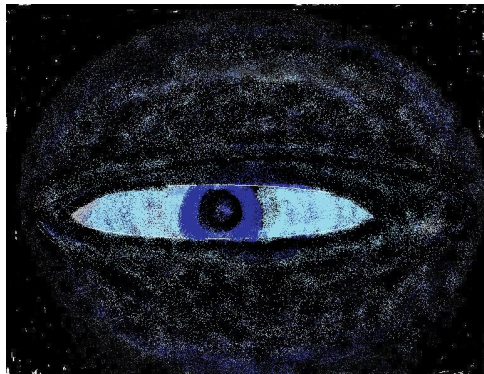


Figure 4.37: Stage 50



Figure 4.38: Stage 53

The drawing became a dark surface punctuated by small pinpricks of light. This image suggested the idea of stars in a black sky. I began to develop this idea and introduced the image of a blue egg-shaped 'planet' with a small 'moon' revolving around it. The image of the blue 'planet' slowly grew. It then suggested an image of an eye.

The eye led to the drawing of another head that was in turn developed into a figure moving through an undefined space. Another figure appeared and walked towards the foreground figure. Simultaneously I gave more definition to the space and it developed into a dark urban landscape.

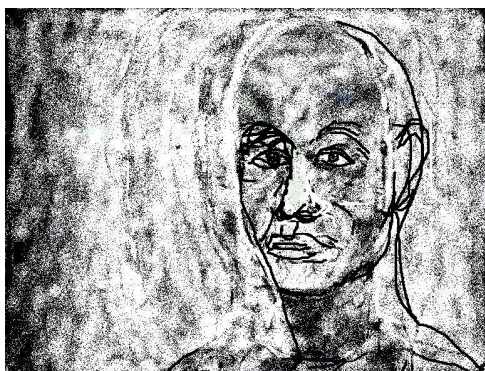


Figure 4.39: *Journey into the Ineffable*, Stage 59



Figure 4.40: Stage 65



Figure 4.41: Stage 68



Figure 4.42: Stage 75

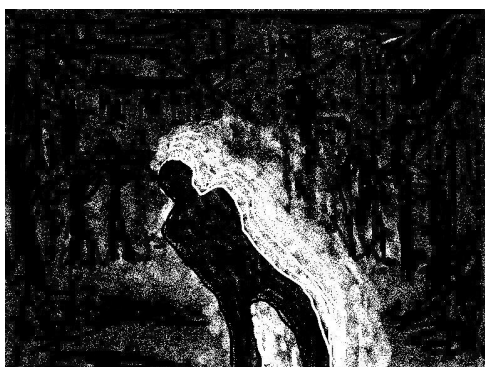


Figure 4.43: *Journey into the Ineffable*, Stage 85



Figure 4.44: Stage 95

After an interaction between the two figures, the foreground figure fell to the ground. As a result of a process of erasure the figure and the surrounding landscape disintegrated.

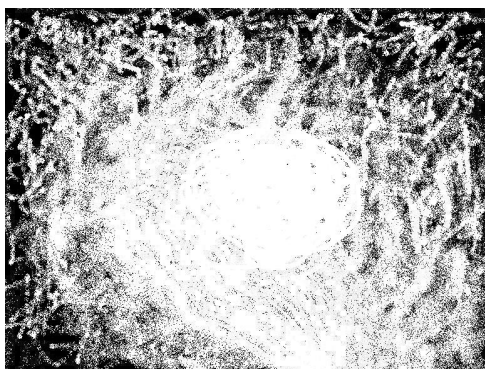


Figure 4.45: *Journey into the Ineffable*, Stage 100



Figure 4.45: Stage 110

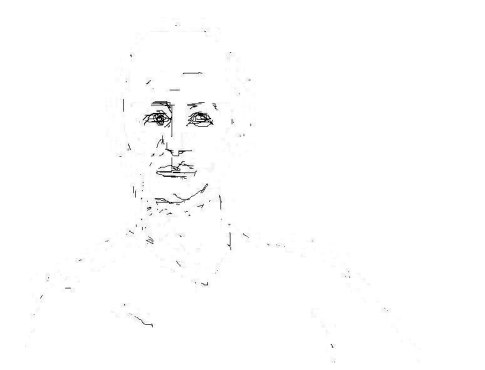


Figure 4.46: Stage 117

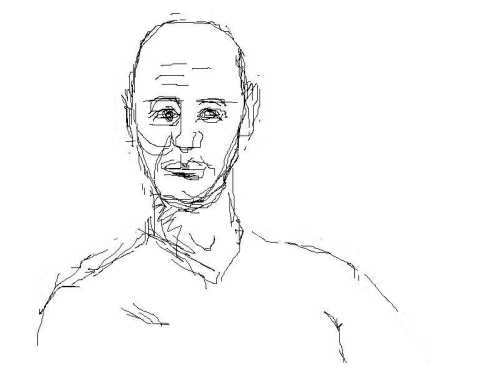


Figure 4.47: Stage 122 /Stage 1

All traces of the previous drawing were eventually erased, returning to an empty space. Out of this space a face emerged that evolved back into the original head. The narrative had come full circle and returned to its starting point. From here I took the narrative in a different direction.



Figure 4.48: *Journey into the Ineffable*, Stage 132



Figure 4.49: Stage 142



Figure 4.50: Stage 162



Figure 4.51: Stage 182



Figure 4.52: Stage 192

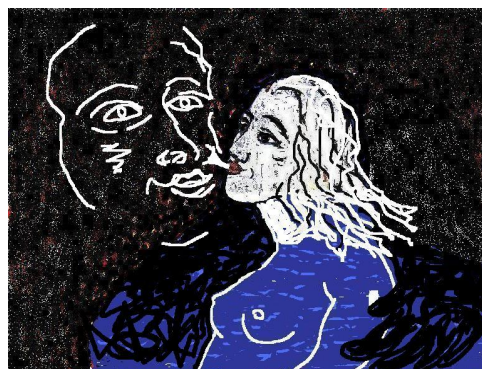


Figure 4.53: Stage 202

A female figure suggested herself and I followed up this idea by creating an interaction between the male and female figures. At this stage I introduced more colour to emphasise the opposition between fire (male) and water (female).

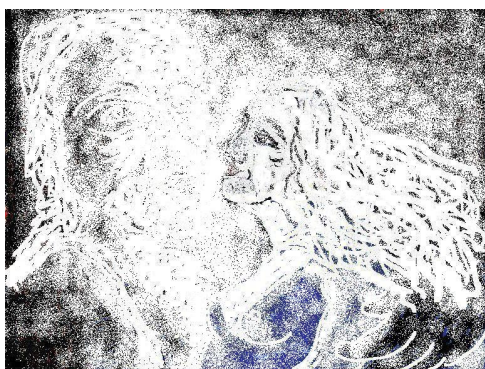


Figure 4.54: *Journey into the Ineffable*, Stage 215

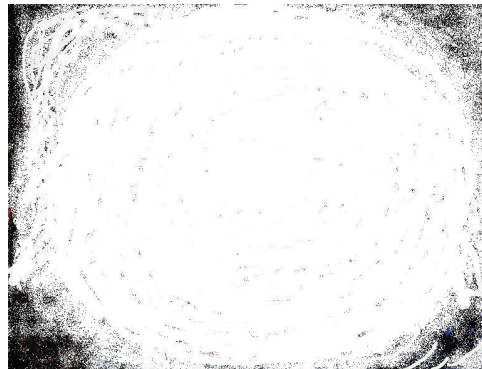


Figure 4.55: Stage 220

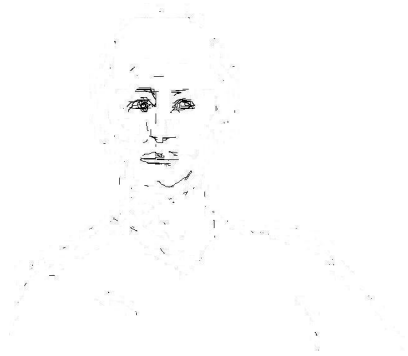


Figure 4.56: Stage 230

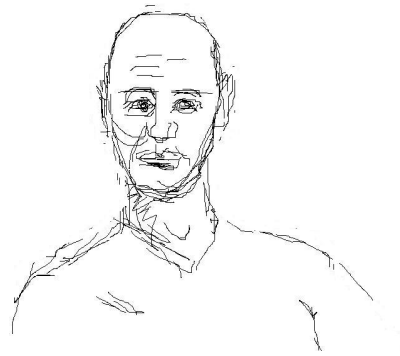


Figure 4.57: Stage 235/ Stage 1

Again, through a process of erasure the two figures disappeared and the original face began to re-emerge. This emphasised the cyclical theme of the narrative.

I chose the title *Journey into the Ineffable* because the narrative that emerged out of this process cannot be put into words. The ideas were developed intuitively as I responded to each successive drawing. I was thinking *through* drawing. 'Indeterminacy' and 'ambiguity' played an important role in the process. The aforementioned characteristics play a significant role in defining the cognitive and creative processes associated with drawing. I discuss these concepts in detail later in this chapter, in section 4.4.2.

Woodcut Panels

I carved two woodcut panels to accompany the video.

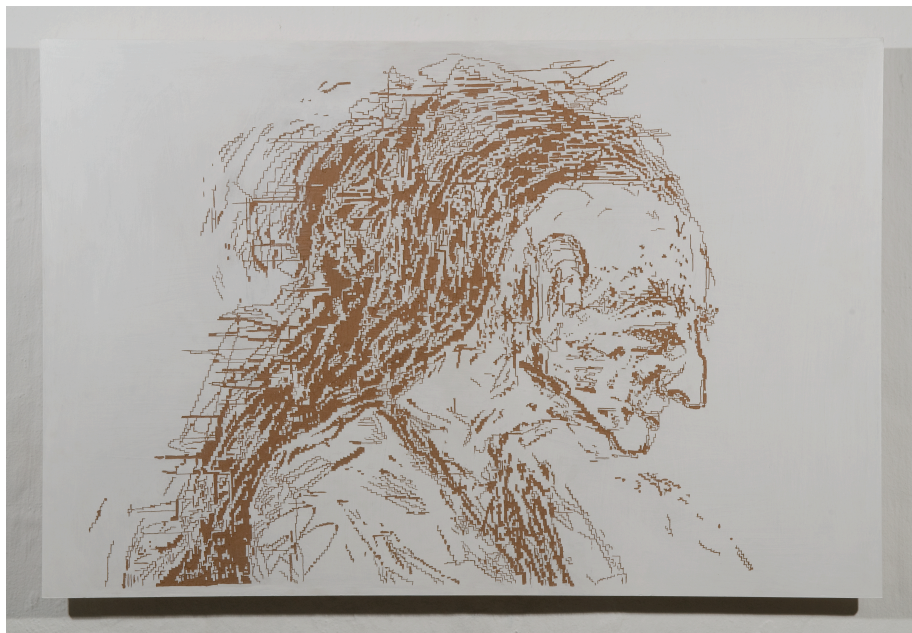


Figure 4.58: John Roome, 2009. *Aging Head (From Journey into the Ineffable)*, Wood-cut Panel, 92.5x138.5 cm

I selected two of the digital drawings and projected and traced the images onto boards primed with a white gesso ground. The resulting enlarging of the drawings emphasised the digital character of the marks. The lines were then incised into the wood using a woodcut chisel.



Figure 4.59: John Roome, 2009. *Journey into the Ineffable*, Wood-cut Panel, 92.5 x 138.5 cm

Digital Projection

I chose the woodcut panel illustrated above as a backdrop for the projection of the video. The intention was to emphasise the relationship between the physicality of the woodcut panel and the virtual quality of the projected images.



Figure 4.60: John Roome, 2009. *Journey into the Ineffable*, Wood-cut Panel with Digital Projection, 92.5 x 138.5 cm



Figure 4.61: John Roome, 2009. *Journey into the Ineffable*, Installation view of digital projection onto woodcut panel

4.1.3 Exploring the Digital Look through Traditional Drawing Media

In order to further explore the 'digital look' I made drawings using traditional materials that evoked the look of my digital work.

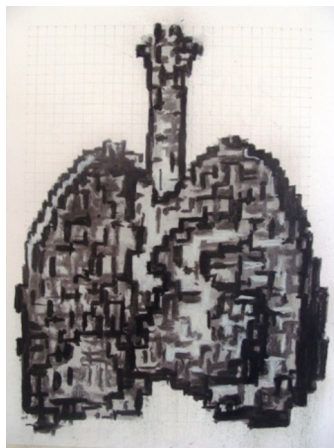


Figure 4.62: *Black Lung*, Charcoal on paper

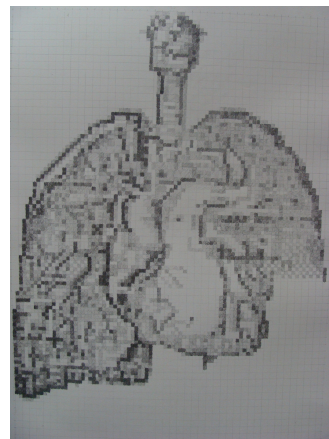


Figure 4.63: *Lung*, Pencil on paper

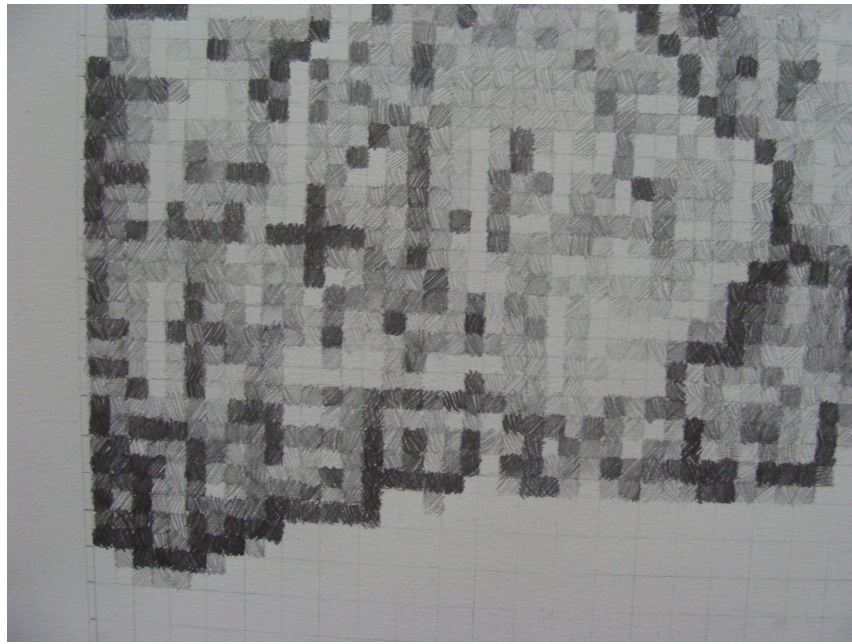


Figure 4.64: *Lung*. Pencil on paper, Detail

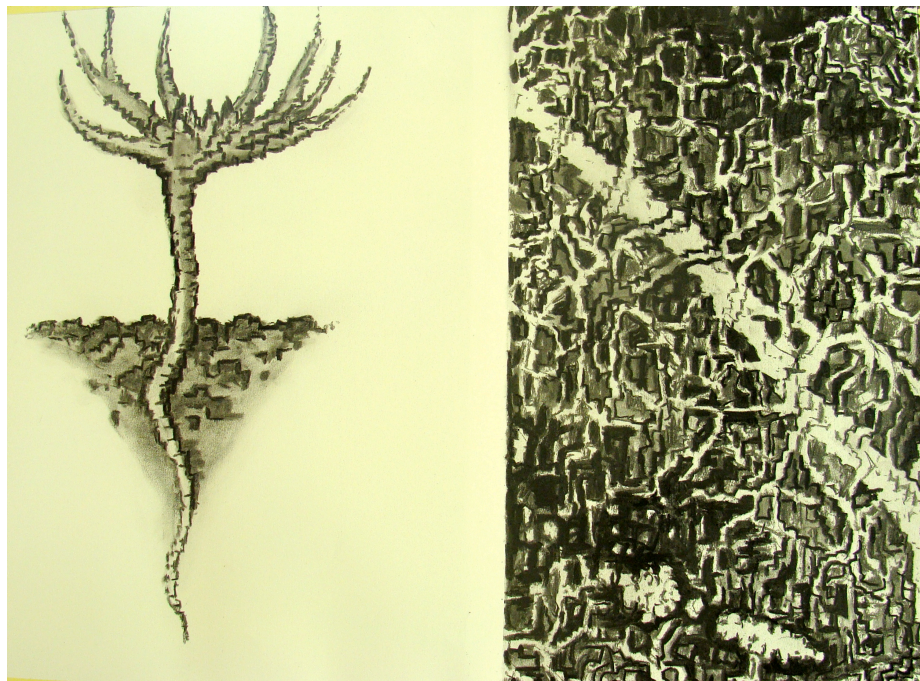


Figure 4.64: *Lungsprout*, 2009, charcoal on paper, 70x100 cm

The theme of these drawings was inspired by a news story concerning a pine tree that sprouted in a human lung. The initial intention was to make an animated narrative however I decided to interpret the story as a series of drawings. I based them on low-resolution digital images downloaded from the Internet. I translated the pixelated quality of the images into handmade marks using charcoal and pencil on paper.

Intersection I and II

The series *Intersection I and II* consists of digital drawings (Figs 4.65 – 4.74), an animation video (Figure 4.75) and two pencil drawings (Figs. 4.76, 4.77). Here I explored the relationship between digital and traditional drawing. This series was based on my observations of a busy city intersection.

Intersection Digital Drawings for Animation



Figure 4.65: *Intersection, Stage 1*



Figure 4.66: *Intersection, Stage 10*

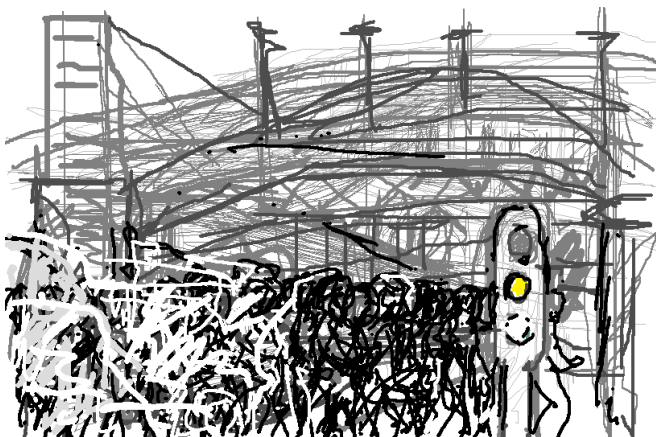


Figure 4.67: *Intersection, Stage 15*



Figure 4.68: *Intersection, Stage 20*



Figure 4.69: *Intersection, Stage 25*



Figure 4.70: *Intersection, Stage 30*

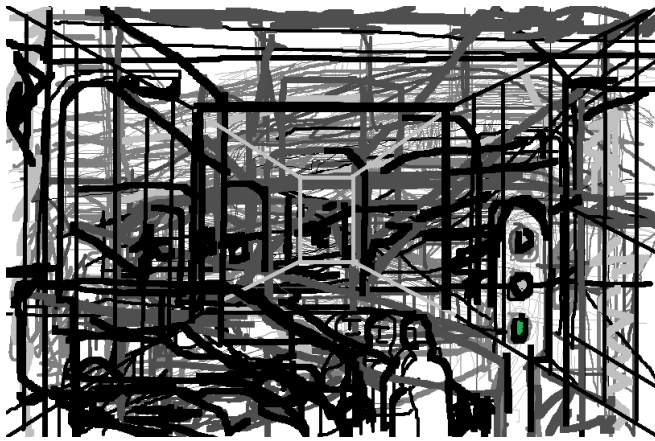


Figure 4.71: *Intersection*, Stage 40

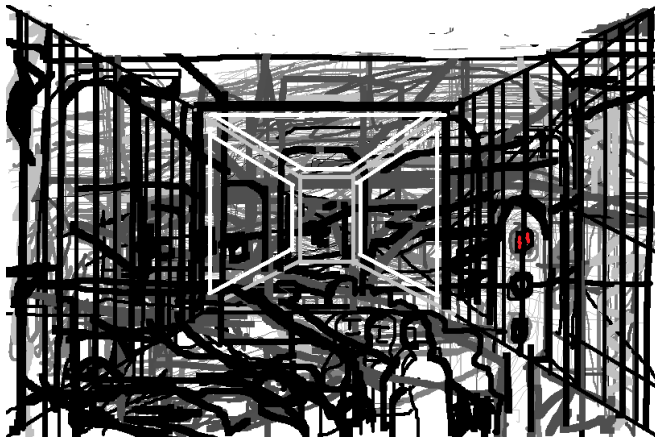


Figure 4.72: *Intersection*, Stage 45

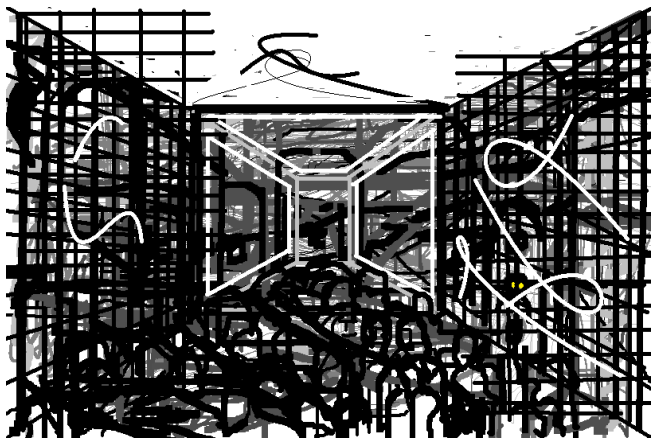


Figure 4.73: *Intersection*, Stage 50

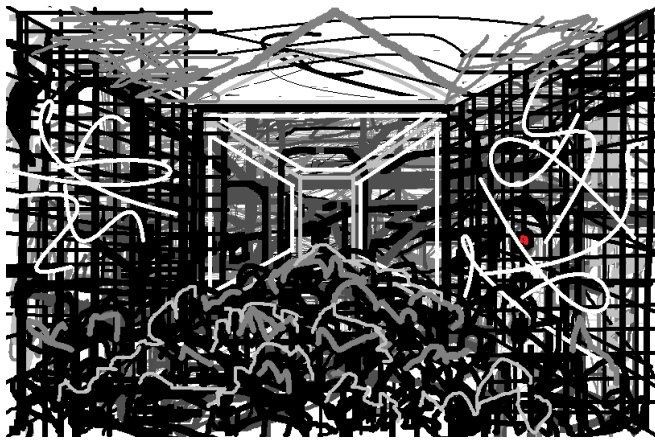


Figure 4.74: *Intersection*, Stage 55

Intersection Animation



Figure 4.75: *Intersection*, Video, Installation View, KZNSA Gallery, Durban, 2013

Intersection Pencil Drawings

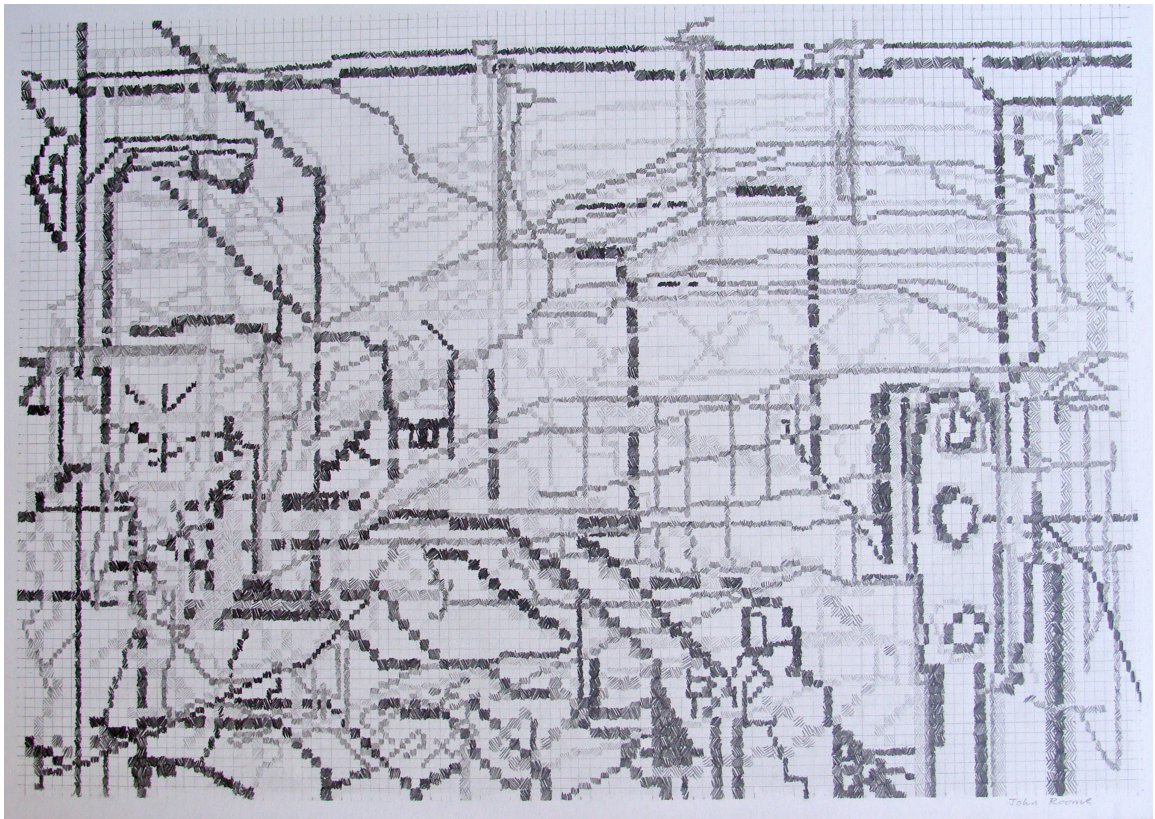


Figure 4.76: *Intersection I*, 2011, Pencil on paper, 50x70cm

Intersection II

In our digital world everything is mediated through pixels even though most of the time we are not aware of them. High-resolution images disguise this. My fascination with pixelation and illusion began when I started working on a series of digital drawings that led to works in other media. *Intersection II* is a hand drawn copy of a low resolution, highly pixelated, digital-drawing taken from a short animated sequence. The drawing researches the intersection of technology and the hand-made. It also represents a literal intersection in the city of Durban. The frenetic energy of rush-hour traffic is translated into hundreds of tiny squares and rendered static. Movement and the digital are 'slowed down' by the pains-taking technique of hand drawing each 'pixel'. (John Roome, Artist's Statement, 2012)

Reflection on the work presented below (Figure 4.77) revealed that my approach to *making* was multi-layered. There is clearly a playful element that allowed for a free flow of visual ideas. Underlying the playfulness there is a more serious side to the work that is evidenced in the imagery. The work also reflects an intuitive approach. Developments did not follow any pre-conceived plan but often occurred spontaneously in reaction to unexpected 'surprises'. These 'surprises' were largely a result of working in an unfamiliar medium. The digital medium appeared to encourage an experimental way of working. Digital drawing, and the resultant

excursion into animation, facilitated what was for me a new and exiting way of generating visual ideas. This realization provoked my interest in the relationship between drawing and the creative process. Concurrent with my practical investigation into drawing, I undertook a theoretical investigation into the field of drawing. In the following section I provide an account of this investigation and indicate how findings based on the literature, together with those based on my practice, contributed to a deeper understanding of the creative process.



Figure 4.77: *Intersection II*, 2012, Pencil on Paper, 70x100cm

4.2 Knowing I

Drawing as Research

Drawing can be a research tool in itself; it shows how something grows or declines, and how a thing might act on its surroundings.

Ursyn, 2008.

4.2.1 Introduction

As an artist, drawing has always been an important part of my 'making' process.¹³ Drawing is not only a means of recording and interpreting one's visual experience of the world, but it also is a means of developing and generating visual ideas for works in other media. In addition drawing

¹³ See Appendix B: *Reflective Writing, Section I*.

provides an opportunity to reflect on and evaluate the viability and strength of visual ideas before taking them further. For these reasons I have long considered drawing to be a form of research in the 'common-sense' understanding of the word. It was only more recently, with the undertaking of this practice-based research project that I began to consider and interrogate the notion of *drawing as research* in more depth.

4.2.2 An Emerging Domain

Literature research into the field of practice-based visual arts and design research opened my eyes to a sub-domain of practice-based research, namely 'drawing research'. I discovered that there is a growing community of drawing researchers worldwide and that this community is actively engaged in promoting research into and through drawing.

Steve Garner's *Towards a Critical Discourse in Drawing Research* (Garner, 2008) provides a useful introduction to this young, emerging domain of research. In attempting to establish an agenda for drawing research, Garner raises a number of issues that resonate with those raised by the literature on practice-based research, reviewed above. Garner begins by asking what the relationship between drawing and research is. In essence this is the same question raised by many writers on practice-based research regarding the relationship between practice and research. However by singling out the practice of drawing, Garner may be suggesting that drawing is a special case of visual practice that requires its own research agenda.

Garner initially identified two distinct communities in the drawing domain: those who make drawings and those who write about drawings. He later recognised that there is a third category: those who describe both the how and the why of drawing (Garner, 2008). This observation could be applied to visual art and design practitioners in general. Writers on practice-based research point out the difference between the professional context and demands of art practice and those of the academic research context. Professional practitioners (those who make drawings) are concerned with problem finding which leads to individual and distributed cognition, whereas academic researchers (those who write about drawing) focus on how the creative contribution comes about, how it can be utilised or might be tested against any implied hypothesis (De Freitas, 2007).

Garner, in identifying a third community of drawing, implies that the separate realms of professional practice and academic enquiry can be brought together as drawing research. This resonates with those who promote an integration of theory and practice in practice-based research (Barrett and Bolt 2007, Smith and Dean 2009, Sullivan 2010).

4.2.3 Drawing in the Academic Research Environment

Garner raises the question of whether the practice of drawing in itself can be considered a form of research. His answer is an ambiguous 'yes and no' due to the complex and variable nature of

drawing. Not all drawing fits into the category of research. Expression and enquiry are often closely bound together in the creative process. Despite this ambiguity it is generally accepted that drawing can be used to explore ideas. As Garner states: "In this sense drawing is clearly part of a research process" (Garner, 2008: 17). Other writers on drawing share this opinion (Ursyn, 2008, Cain, 2010).

Because drawing research is a young domain it faces the problem of having to defend itself and trying to fit in with academia (Garner, 2008). Attempts by visual researchers to fit in with the norms of traditional research can lead to a 'dumbing down' of both art practice and research, particularly when research methodologies from the social sciences are imposed onto the visual arts from the outside (Sullivan, 2010).

The necessity of having some form of verbal or written explanation accompanying the drawing is an issue that concerns drawing researchers (Garner, 2008). This echoes the debate reflected in practice-based research literature as to whether art practice is research or whether it requires the addition of a verbal or written component to validate it as research (Brabazon and Dagli, Duxbury and Grierson). In addressing this issue, the question is raised as to whether drawing can be used to generate new knowledge and challenge the assumed supremacy of the written word in academia. The way research findings are presented reveals one's priorities and values. Referring to the debate around the need for critical discourse in drawing, Garner notes that there is often a clash between art and academia, a clash between the sensual, emotional approach and the rational (2008).

A renewed interest in drawing by visual researchers was a more positive outcome of the influence of the university culture on visual researchers. Garner notes that drawing research displays the signs of a maturing domain, evidenced by conferences, journals, professors and PhD students (2008). The DRN (Drawing Research Network), established in 2002, organises a Drawing Research Conference annually. The theme of the 2012 conference was 'Drawing and Knowledge'. Allied to the DRN is the on-line Drawing and Visualisation Research Journal TRACEY, which publishes peer-reviewed papers on a variety of issues related to drawing. These are just two of a wide range of contemporary initiatives to promote drawing in all its forms.

Conversely, the growth of interest and increased activity in the drawing domain has been seen as a sign that 'drawing is in trouble' and therefore needs to assert itself. James Faure Walker, a senior research fellow in Fine Art at Kingston University, in *Old Manuals and New Pencils*, (2005) discusses the changes that have taken place with regard to the value placed on drawing over the past century and a half. He notes that the idea, promoted by writers such as Ruskin, that drawing is unarguably the foundation of all art, has changed significantly. Drawing is no longer regarded

as an essential skill for artists and the definition of drawing has broadened to encompass an 'anything goes' attitude.

It is like a discipline that has lost its centrality, pushed to one side by new technology, photography, and art theory. (Walker, 2005)

Writers like Garner and Walker, welcome the renewed interest in drawing because it leads to critical reflection on the nature of drawing and its role and function within and beyond the boundaries of fine art. Contemporary drawing researchers draw on a broad range of influences including art theory, drawing practice, history, philosophy and aesthetics (Garner 2008). Walker suggests that some of the most interesting developments in drawing are the result of the influence of digital technology, which has broadened the way we think about drawing (Walker, 2005).

4.2.4 Drawing and Digital Technology

The relationship between digital technology and drawing is the subject of much contemporary research into drawing. Stuart Mealing has a particular interest in the relationship between computers and drawing. He designed a computer programme, known as KIKI, that produces figure drawings. His chief aim was not so much the production of drawings, but rather to gain "an understanding of the processes at work in human drawing". Mealing investigates how mechanisms such as inputs, processing the data, goal-directed mark making, and sequence in computing can be used to create drawings. His experience of what he calls "human drawing" is combined with his knowledge of computing. In this way our understanding of both traditional and computer-aided drawing is enhanced (Mealing, 2005).

This relationship between drawing as a 'human' activity and drawing produced by digital technology is the subject of the book *DRAWING/THINKING: Confronting an Electronic Age*, edited by Marc Treib. The book presents essays by a number of artists, designers and visual practitioners on the merits and demerits of digital drawing. Treib's introduction implies that in the electronic age, the traditional values associated with drawing are endangered.

While calling for a renewed appreciation for drawing by hand, *Drawing/Thinking: Confronting an Electronic Age* examines how we represent, observe, consider, and imagine – and by extension how we live in the world. Unlike the instant of the computer, drawing requires time, attention, and a focused acknowledgement of the place – all of which may stimulate thinking. Electronic media, in contrast, tend to reflect rather than think, processing only what has been entered into their memories by keyboard, mouse, or stylus.

The contributions to this book calmly argue for resisting trends toward the displacement and detachment supported by electronic media, and consider the merits of drawing as a link between the hand and the eye/brain, as a means of engagement, as a support to the process of design, and as a way of viewing the world. (Treib, 2008)

Many of the essays warn against the negative effects that digital media has on drawing, however there are also those that draw attention to the positive implications. Katie Hawkinson in *Paint and Pixel: Giving Visual Form to Thoughts*, argues that:

In today's design world, the hand and the computer are both necessary drawing tools and both should be an integral part of the curriculum. (Hawkinson, 2008)

Hawkinson examined the comparative strengths and weaknesses of traditional drawing and computer drawing. Her conclusion was that we should not pit the two against one another but should rather exploit the strengths of both. Hawkinson designed a teaching programme, *Paint and Pixel* that she used to facilitate the teaching of drawing. Students were encouraged to combine traditional drawing knowledge with computer skills. One of her findings was that those with prior experience of traditional drawing coped better with the computer drawing than those who had not drawn before.

The research findings of both Mealing and Hawkinson resonate with those of my study. Although I have not designed my own programme for drawing in the way Mealing did, I found that the use of an existing programme for drawing led to a deepening of my understanding of the drawing process. Hawkinson identified that the computer “disseminates information quickly, easily creates multiples, and keeps all saved material in an organized fashion” (2008: 162). These are all attributes that I identified as strengths during my own study.

4.2.5 A Drawing Research Agenda

The questions posed by this research project are intended to contribute to Garner's notion of a drawing research agenda. By conducting practice-based research into the use of basic computer programmes for drawing and animation I aim to add to a growing field of knowledge concerning emerging attitudes and methodologies associated with creative drawing.

Garner seeks to establish an agenda for drawing research that encompasses the breadth of interest and application in this domain. He uses the word *agenda* not in a controlling sense but in the sense of externalising shared understandings. In order to counter the subjectivity and inward-looking nature of art practice there is a need for critical reflection. Garner proposes that a shared agenda for drawing research will help to counter subjectivity. He advises that any agenda for drawing research needs to be flexible enough to accommodate the changing nature of drawing.

Questions surrounding the definition of drawing, the relationship between thinking and drawing, how drawing supports creativity and emerging ideas, the purpose and value of observational drawing, drawing as metaphor, analogy and mental liberation, and the influence of new technology would all be on Garner's drawing research agenda. He advocates the establishment of methodologies that are relevant to drawing research (Garner, 2008).

4.2.6 The Critical Rigour of Drawing

In this project I have attempted to integrate the theory and practice of drawing, emphasising the close relationship between them. When considering the relationship between drawing practice and research, what needs to be remembered is that ‘rigour’ is as applicable to the visual domain as to the intellectual domain. It is the critical rigour of drawing that provides the argument for its acceptance as research.

Both Garner and Walker refer to Ruskin, one of the early writers on drawing, who encouraged a critical way of looking at the world. Drawing provides a means of seeing things through fresh eyes, of re-evaluating what we thought we knew. The characteristics of drawing that link it to research are encapsulated in Walker’s description of what drawing practice is:

Drawing itself can require total absorption, complete silence, the belief that nothing else matters but how this line turns. It is not just looking and making marks, but analysing, editing, discriminating, excluding, judging. (Walker, 2005)

Garner refers to the distance between research and practice that appears as a “wide gulf” in some domains. One of the signs of domain maturity is the lack of such polarisation. The distance between research and practice is reduced by constructing relationships between theory and practice, and by synthesising the generation of knowledge and the application of knowledge. Garner notes that in the drawing community there appears to be an imbalance in favour of practice. However, as noted above, drawing practice has the ability to produce knowledge and can be seen as a form of research in itself. Thus as Garner states, the distinction between research and practice becomes ‘healthily blurred’:

For a large number of drawing researchers their enquiry is both *into* and *through* drawing – a seamless and symbiotic process. (2008: 24)

4.2.7 Drawing and the Creation of Knowledge

An important feature of practice-based research is the generation of knowledge through creative practice. In this project I focus particularly on drawing as a means of creating knowledge. If drawing is to be considered as a research tool capable of generating knowledge it is important to understand the distinctive nature of this knowledge. Such an understanding might explain Garner’s promotion of a specialised agenda for drawing research (2008). Having already discussed the relationship between visual art practice and knowledge generally in chapter two of this thesis, I will now highlight some of the contemporary discussion on the specific nature of drawing knowledge.

In *Imagining Truth: The Role of Drawing within the creation of knowledge*, Doris Rohr (2012) distinguishes between the subjective knowledge that is generated by art and the objective knowledge of science. She sets out to interrogate the role of drawing within the creation of

knowledge. As she points out many traditional forms of drawing have long been associated with the dissemination and illustration of knowledge. Observational and diagrammatical forms of visual communication are associated with communicating knowledge in an objective way.

Observational practices are grounded in empiricism. Drawing which is guided by observation originally formed part of scientific modes of thought developed during modernity, alongside practices like anatomy, natural history and the exploration of plant, animal life and fossils. Drawing visualized records and constituted a form of knowledge; it produced knowledge. To some extent the visual, including drawing, continues to play an important role in scientific knowledge production. (Rohr, 2012)

In contrast to the empiricism of observational drawing and scientific illustration there are other types of drawing where the relationship to knowledge is less clear. Rohr notes that 'art' drawing reveals a different kind of truth, not measurable and objective:

The division between art and what is not deemed art is not clear-cut: what constitutes art to some does not fulfill criteria for inclusion to others. Aesthetically the demand for truth, or some form of enlightenment beyond mere entertainment, is a well-established aesthetic theory underpinning such an understanding. Hence drawing qualifying as art, like poetry or the fictional truth of the novel, alludes to a different kind of truth: truth not as ascertainable and measurable 'objective' fact, but truth as insight into social behaviour, human needs, emotional complexities and dependencies, as well as projections of desire or ideals onto landscape, environment and constructions or reconstructions of history. (2012: 3)

In chapter two of this thesis (2.8.2), I make reference to the relationship between art practice and knowledge and the different kinds of knowledge that are generated in art practice. Rohr provides a deep and critical interrogation of the complex role of contemporary 'art' drawing in relation to the production of knowledge. In the context of this study, Rohr gives valuable insight not only into how 'art' drawing can function as a knowledge generating activity but also how contemporary fine art critiques the very notion of what constitutes knowledge by offering a critical perspective on notions of objectivity. According to Rohr, the notions of authorship and autonomy are central to an understanding of art in the contemporary sense. Contemporary artists, while not being totally independent from the dominant knowledge narrative, do have the freedom to interrogate, explore, and use alternative knowledge systems (2012).

Rohr points out that the term drawing can refer to a technique, an act, and can be used as a verb and a noun simultaneously. Graphs, diagrams, computer generated images and even photographs are referred to as drawings. In a contemporary fine art context the act of authorship is a defining feature of drawing. The intention of the author behind the drawing rather than the technique, medium or style, plays a role in placing it within the category of 'art' drawing. Often these intentions have to do with a questioning of established or dominant ideals concerning truth and knowledge (2012).

Rohr draws attention to the status of contemporary drawing as marginalia, of being off centre to the dominant knowledge of the 'developed world', forming a sub-narrative. She notes how contemporary art engages tactics such as humour, sensationalism, shock, and intellectual pursuits. It frequently poses difficult or unanswerable questions, much like Zen koans.¹⁴ In this way much contemporary drawing challenges or subverts established categories of knowledge (2012).

It is not difficult to imagine that those involved in traditional academic research may struggle to see the value of such an approach in a research context. The question of what value fine art drawing can bring to human knowledge of the world will inevitably be raised. As Rohr observes, the key aspect of such an approach to drawing is its philosophical questioning. The intention often is not to solve problems but rather to create additional ones. In this sense contemporary art drawing, unlike more traditional forms, does not illustrate the dominant narrative but actually sets out to destabilise its validity and truth. It is within this critique and subversion that the value of the contribution to knowledge lies.

The point is that artists don't need to be systematic or logical, conform to knowledge systems provided by other academic disciplines, yet they can contribute knowledge, via scepticism, humour, play and irreverence as well as through sheer imagination and fantasy. (Rhor, 2012: 1)

As has been pointed out earlier, drawing has a long tradition of contributing empirical and measurable forms of knowledge. A notable example is Leonardo da Vinci who, with his drawn anatomical studies, made a highly significant contribution to medical scientific knowledge (Clayton and Philo, 2012). However, as Rohr explains, contemporary artists, through their drawing, can offer a different cultural perspective to science. Their contribution is to offer a questioning and non-conformist approach that provides a critique of contemporary materialism and its systems of knowledge production (Rohr, 2012).

The above discussion emphasises the autonomous nature of contemporary art, and its mainly intuitive approach involving the use of the creative imagination. My approach to digital drawing and animation is playful, intuitive and imaginative. These are not attributes commonly associated with academic research. I present my creative output as an alternative form of knowledge that is generated using the alternative methodology of creative practice-based research.

¹⁴ The Encyclopaedia Britannica gives the following explanation: 'Koan, Japanese kōan, in Zen Buddhism of Japan, a succinct paradoxical statement or question used as a meditation discipline for novices...The effort to "solve" a koan is intended to exhaust the analytic intellect and the egoistic will, readying the mind to entertain an appropriate response on the intuitive level.' A typical example of a koan is "the sound of one hand clapping".

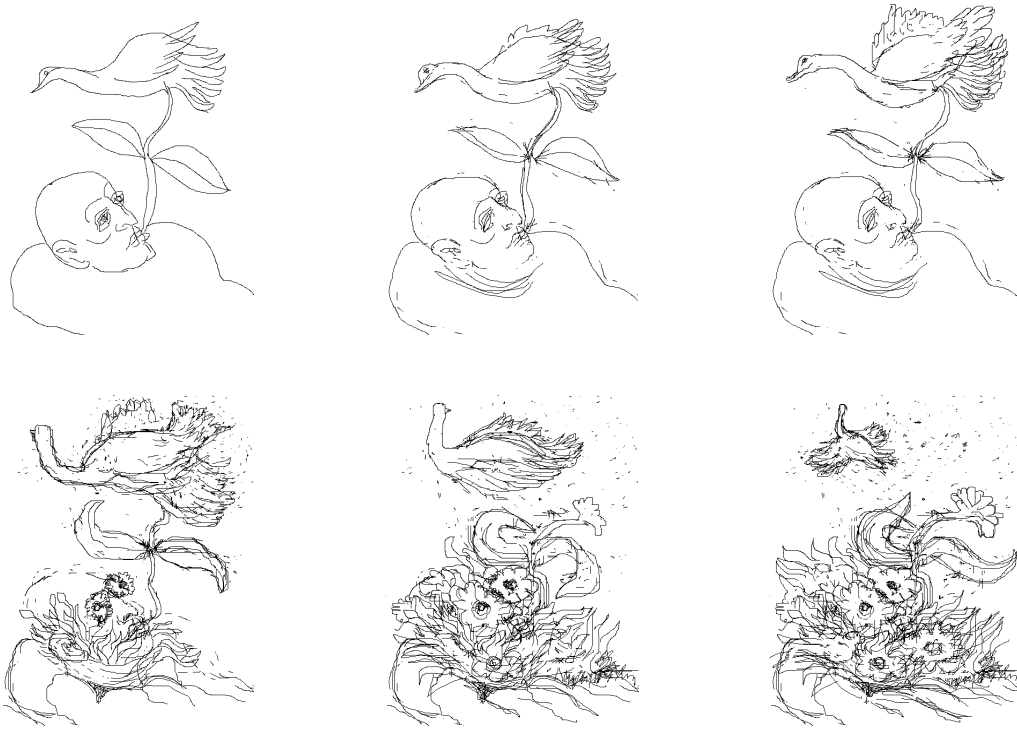


Figure 4.78: John Roome, 2007. *Man and Bird*, Digital drawings for animation

4.3 Doing

Drawing as a Tool for Cognition and Reflection

This study set out to investigate the use of basic software in my art making. I observed that working digitally had brought about changes in the way I created images. I wanted to find out how and why digital drawing affected my creative process. Upon reflection it became clear that in order to understand the role of digital drawing in my practice, I would have to interrogate the role of drawing in a broader sense. This enquiry led me into the field of Drawing Research.

At the end of Chapter Three, I argued that creative drawing could be likened to a form of *Reflective Practice* (Schön, 1983) namely *Projective Reflective Practice* (Scrivener in Candy and Edmonds 2011). In section 4.2 of this chapter I discussed the emerging interest in drawing as research and introduced the notion of drawing as a sub domain of practice-based research. New attitudes to drawing were presented.

I will now discuss the relationship between drawing and cognition in the context of my own experiences when using basic computer software as a drawing tool. Firstly I look at how I use

drawing as a tool for reflection and cognition. Secondly I focus on how digital drawing challenged, altered, and enhanced my creative process.

I will focus specifically on the relationship between drawing and reflection-in-action. I will explain how I developed a reflective method combining visual and verbal documentation of my experience and thought processes while drawing. Characteristics of the drawing process are identified, namely working from the unknown, spontaneity, and the movement between subconscious and conscious decision-making. I introduce the notion of embodied knowledge and neurological theories concerning the relationship between the hand and the brain. The method of investigation into the drawing process is presented in relation to current ideas concerning practice-led research in the visual arts. I discuss how drawing facilitates creative thinking and consider the findings of my reflection in relation to selected theories of creativity. The relationship between drawing, thinking and the creative process is discussed.

4.3.1 Drawing and Cognition

Why Focus on Drawing?

Patricia Cain in *Drawing: The enactive evolution of the practitioner* (2010) explains why she chose to focus on the activity of drawing for her research. The immediacy of the activity lends itself to the direct and unencumbered expression of visual ideas. There are no complicated technical intermediaries that stand between the artist and what he/she wants to express. She notes that drawings provide a unique form of access to the thoughts of the artist and that the activity of drawing has been defined as a “cognitive tool to facilitate and assimilate information” (2010: 28).

As with Cain, drawing has always been a primary means of investigation in my creative practice. I trained as an artist in the Fine Art School at Rhodes University from 1971 to 1975. During that period the emphasis of the teaching was on traditional drawing and painting skills with a strong emphasis on visual perception. As a result I not only achieved a certain amount of skill but I also developed a life-long passion for the activity of drawing. As a student I spent hours drawing from nature and from life models. Drawing became my vehicle for expression and my chief method of connecting to and understanding the visual world around me. Consequently drawing continues to be the foundation and starting point for my work as an artist. I use drawing as a means of researching ideas for works in other media. Invariably the concepts for my work develop out of the drawing process. Perceptual engagement with the environment *while* drawing, stimulates concepts that lead to further art works.

The introduction of the computer as a drawing tool came relatively late in my career. I found that with digital drawing, once I had become used to the virtual nature of the medium, the experience was often more direct and allowed for more spontaneity in certain respects than

traditional drawing techniques. There are some aspects of digital drawing, such as getting used to the interface, that appear to hinder spontaneity at first. However the ease and speed with which one can make changes to an image appear to encourage spontaneity. Further implications and applications of digital drawing will be discussed in section 4.5 of this chapter.

Cain notes that it was important for her to formulate an understanding of her own findings against the background of “contemporary theoretical assumptions about the drawing/thinking relationship” (2010: 28). I consider it equally important to formulate my own understanding of how drawing and thinking correspond in my art practice.

Re-Thinking Drawing

Traditionally the activity of drawing was regarded as subordinate to the major disciplines of painting and sculpture. Drawings were mostly regarded as preparatory works and were seldom exhibited or displayed as works of art in their own right. Anita Taylor, in the foreword to *Writing on Drawing* states:

Often categorised as a lesser activity than the main artefact or product, or otherwise remaining an intimate element of art practice, drawing has often been withheld from public viewing and the discourse in the field has often been marred by romantic visions of what drawing could and should be and how it might or might not be taught. (2008: 9)

In the late nineteenth and early twentieth century the perception of drawing began to shift and drawings are now often exhibited as major artworks. Art historians and museum curators began to take an interest in the drawings of ‘masters’ such as Leonardo da Vinci (1452 -1519), Rembrandt (1606 – 1699), Van Gogh (1853 -1890) and many others. For example the drawings of French painter Georges Seurat (1859 – 1891) are now as highly regarded as his paintings. The National Gallery of Art in Washington D.C. mounted an exhibition titled *A Century of Drawing: Works on paper from Degas to Le Witt* (November 2001 – April 2002) featuring drawings by a wide range of European and American twentieth century artists (2012). The mounting of similar exhibitions, the publication of books and journals dedicated solely to drawing, have contributed to the establishment of drawing as an activity worthy of research. The book *Writing on Drawing* highlights this new interest in drawing:

An increased public and academic interest in drawing and sketching, both traditional and digital, has allowed drawing research to emerge recently as a discipline in its own right. (Garner 2008b)

Fisher suggests that this shift in attitude can be partially attributed to the dominant position of conceptual art and its ‘rigid modes of representation’.

In tandem with writing (drawing) became the standard way to record an intellectual statement or express ideas in art. (Fisher 2009)

What Fisher is alluding to is how drawings are often used to express concepts or document art works that may only exist as actions or temporary installations. The work of installation artists Christo and Jeanne-Claude, known primarily for their large scale but temporary site-specific projects, provides a typical example of this. Installations such as the *Wrapping of the Reichstag* in Berlin (1982) and the *7503 Gates* in New York's Central Park (2005) lasted for only 14 days but took years of planning. Drawings, collages and maps made by Christo served not only as preparatory works but were also the sole source of funding for these projects. In addition these preparatory works are permanent documents of the no longer existing installations. Most of Christo's preparatory works consist of two main elements: A large drawn or collaged component providing a perspectival view of the project is juxtaposed with a smaller component, a topographical map of the site denoting the proposed location of the work (McElroy, 2005).

Using a digital analogy in an interview, Christo referred to the preparatory work as the software phase in contrast to the hardware phase of the construction of the installation:

The Focus: Do you see this preparatory work as part of your work of art?

Christo: All our projects have two distinct periods, the "software" period and the "hardware" period.

Jeanne-Claude: The software period is when the work exists only in the mind.

Christo: Physically, it doesn't exist except for a growing pile of drawings. This is the stage when we fight to get permission – often the most difficult part of our project. But we particularly like this software period because it generates a tremendous energy, an energy that's unimaginable from the outside. (Parallel Worlds, 2008)

It is interesting that while Jeanne-Claude refers to the software period as existing "only in the mind", Christo refers to "a growing pile of drawings". Thus the cerebral and conceptual stages of their projects were expressed and recorded by drawing. Christo's digital analogy resonates with my own experience of 'generating energy'. The creative energy that led to the production of a series of wood panels (my 'hardware period') was generated by hundreds of digital drawings (my 'software period').

Although Fisher offers a plausible explanation for the renewed interest in drawing in the late twentieth and early twenty-first centuries, there may be other reasons. One that seems equally likely is that drawing, the starting point for the majority of artists, documents the thought process of the artist. Drawings can provide an insight into how creative ideas are formed and developed. Thus along with drawing's elevated status has come an increased interest in the *process* of drawing.

Earlier in this chapter I introduced Garner's *Towards a Critical Discourse in Drawing Research* in which he seeks to identify what drawing research entails. According to Garner there is a need to recognise the relationship between the practice of making drawings and the practice of

researching drawing. These are two related, but different, activities. A paradigm for drawing research should take into account how thinking *about* drawing and thinking *through* drawing become related. Drawing research can both inform and inspire practice. Drawing research need not be limited to writing about drawing. Drawing researchers have the ability to generate new knowledge and communicate it visually. In this sense drawing research can challenge the supremacy of the written word (Garner, 2008).

Juliet MacDonald provides a useful selective review of recent studies that “concern drawing as a mode of thinking, knowledge or enquiry”. She points out that:

Against this background of the celebration and promotion of drawing there is an onus on researchers to provide a detailed, critical and searching reflection into its operations, to re-think what drawing is or can be. (2009: 10)

Artist Joel Fisher’s paper *Notes Towards a Prepositional Drawing* given at the Drawing Research Network Conference, London, 8 October 2009, addresses the relationship between drawing and thinking. The conference theme was “*Thinking Through Drawing*”. Fisher asks if drawing could be a form of thinking and notes that “we might start by trying to figure out what we mean by the word thinking.” He unpacks common uses of the word ‘thinking’ in order to see how they can be applied to drawing. ‘Thinking’ may be used to refer to a state of daydreaming where thoughts ebb and flow. This is likened to certain types of drawing such as doodles, which allow for unconscious ideas to surface. Imaginative ‘thinking’ can result in the creation of a story in one’s mind. Drawings can also develop from the imagination.

Both these uses of the word ‘thinking’ resonate with my experience of the drawing process. Other uses of the word include ‘thinking’ as awareness, belief or assumption, memory, recognition, reasoning and reflection. By making a comparison between different uses of the word ‘thinking’ and various approaches to drawing, Fisher sets out to explain the nature of drawing as an activity. Drawing is a complex activity, taking many forms, and can be used for many different purposes. Fisher identifies seven ways in which drawing can be linked to ways of thinking and suggests there may be more. He concludes that drawing is related to, but differs from thinking.

Drawing is like thinking, but not what we might call a ‘mode of thought.’ It is too multifaceted to be proposed as a single system or lens able to give us a specific understanding of the world. (Fisher, 2009)

Like Fisher I am interested in understanding the nature of drawing and its relationship to thinking. A deeper understanding will open up possibilities for practice through insights that facilitate change and improvement.

When we tacitly accept a limited understanding of drawing we not only close off possibilities but also prevent the discovery of drawing embedded in other activities. A fresh way of looking actually changes what we see. A shifted point of view can bypass

engrained habits. Achievements are not just in things. The truly outstanding also exists in relationships, in intervals, approaches, and context. Through drawing we exceed our habits and thus expand our possibilities. All we have to do is to expand what we believe drawing can be, and we effortlessly open up insights elsewhere. (Fisher, 2009)

How Do We Think as We Draw?

Early on during the experimentation with transferring and translating digital drawings into woodcut panels, I noticed that a distinctive style of mark making had emerged. An observant viewer of the woodcut artefact would notice that the image had originally been digitally generated due to the pixel-like quality of the lines. The style of the drawing reveals something about the technical origin of the image. But would a stylistic analysis of the artefact reveal anything about the cognitive process itself? My feeling was that it would not. On the other hand the animated sequences consisting of hundreds of drawings, revealed a lot more about the thinking/drawing relationship.

In considering the relationship between style and thinking, Cain concludes that style is not a reliable source of information about the cognitive process.

...the notion that style is analogous to thinking implies that a practitioner knows in advance what he or she is doing and can choose to use a particular style accordingly. However, this idea fails to take into account how, in practice, ideas often appear to emerge as the activity progresses. (Cain, 2010)

She also points out that reference to style does not explain the “complexities surrounding the bodily processes required for different types of mark-making” (2010: 29).

I concur with Cain that one cannot make assumptions about the drawing/thinking process purely based on the outcome or artefact (2010: 30). I realised that by visually documenting the stages of development of an idea as I drew, I was revealing something about my thinking. However, as Cain points out “drawing is much more than simply a visual issue”(2010: 29). It was this realisation that led me to begin recording my experience by writing *while in the process* of drawing.

In her introduction to *Drawing: The enactive evolution of the practitioner*, Cain asks the question: “How do we think as we draw?” She investigates the relationship between thinking and drawing *while in the process of drawing*, which she points out, is not the same as verbal validation *after* drawing. Retrospective explication of the drawing process is easier to accomplish as opposed to the more elusive and ambiguous process of reflecting or explaining *while* drawing (2010: 17).

Two questions arise. Is there a danger that the state of ‘flow’ can be arrested when conscious reflection is introduced? Can a heightened involvement overcome it?

Csikszentmihalyi refers to the state of immersion in the creative process as “the flow of creativity” (1996b: 107). He equates ‘flow’ to a feeling of enjoyment and satisfaction that is more

intense than normal. This heightened state of involvement in which “action and awareness are merged” is what distinguishes creative activities from everyday activities (1996b: 111).

This resonates with my own experience. I always felt more comfortable with reflecting on the creative process afterwards but now feel the need to get closer to what happens while working moment by moment. I saw the making of drawings, the resultant artworks, and the reflection on the process as separate activities. Throughout my career verbal reflection on my art production was mainly in the form of artist statements that were written after the completion of the artwork, once it was ready to be exhibited.

This research set out to investigate the role of digital drawing in the creative process. This in turn led to an examination of the drawing process itself. Written responses to drawings made on the computer were recorded immediately after completing each drawing or after certain stages of a drawing.¹⁵ I found this a more satisfying method than video recordings made while working. Video recording (passive and ‘objective’) provided limited information and revealed nothing new. In contrast, the process of writing *while* drawing (more active and subjective) set up a dialogue between a ‘drawing persona’ and a ‘writing persona’. This form of dialogue not only functioned as a reflective process, but it began to actively contribute to decisions made while drawing.

My drawing experiences were enriched, despite fears that writing while drawing would slow down and stultify the natural flow of creativity. The written reflection during the drawing process did not interrupt ‘flow’. Instead the merging of action and awareness was intensified. The activity of drawing was transformed into the activity of ‘drawing/writing’ with both activities contributing to and recording the cognitive process at the same time.

4.3.2 Drawing and Reflection

In Chapter Three of this thesis I outlined the methodological framework adopted for this project: a combination of practice-based research, reflective practice, projective reflective practice and drawing-as-research. Reflection-in and -on-action is the pivot around which my research revolves. I now focus on creative drawing as a form of reflective practice.

Reflection on the Drawing Process

In my art making practice I value spontaneity highly. The digital drawing process encouraged spontaneity. The speed with which it was possible to make changes to drawings by using ‘copy and paste’, without the fear of losing the original drawing, encouraged a free, spontaneous approach. I was concerned therefore that interrupting the free flowing creative process by having to stop and reflect at every stage would inhibit spontaneity.

¹⁵ See Appendix B: *Reflective Writing, Section II, Drawing Journal Entries*

Cain notes that reflection on the creative process is sometimes seen as a hindrance. She noted that Sculptor Henry Moore felt it was “a mistake for a sculptor or a painter to speak or write very often about his job” (Cain, 2010). Moore’s fear that verbal explication leading to theoretical and logical thinking has a negative impact on the intuitive process of making art, is something that I shared. I used to believe that writing about art was not as interesting or important, and certainly not as ‘creative’, as making art. As Fisher states:

We still meet artists who don’t want to think about what they are doing because they fear it would stifle their creativity. (2009: 1)

Yet in spite of similar reservations, I share Cain’s interest in finding out how we think as we draw. The decision to undertake a practice-led enquiry into my art making process necessitated conscious reflection. The enquiry needed to be situated within the context of current theoretical discourse on creativity, and drawing in particular. Cain’s research into drawing and the ‘enactive evolution of the practitioner’ resonates powerfully with my own research questions.

Enactive Cognition

‘Discovering’ the digital process of drawing as a method of generating creative ideas led me to think about drawing in a different way. I began to understand that my drawing series represented a visual record of my spontaneous and intuitive thinking. I became interested in how this process of drawing in a virtual medium had enabled me to generate new ideas and images that led to the making of physical artworks.

Similarly Cain notes how, in the course of her enquiry, her views about the activity of drawing changed:

From initially considering drawing as a finite event toward the production of an artefact, I began to consider drawing as *process* – as an end in itself. As a consequence, my focus became the evolution of the practitioner rather than the evolution of the drawing, and how to map this evolution became equally as important. The vital question was not as my tutors had asked, ‘what is this drawing about?’ but rather ‘what have I come to know about the world through making this drawing?’ (2010: 19)

Cain made a connection between Francesco Varela’s theory of *Enactive Cognition* and the activity of drawing, which she sees as an enactive phenomenon. It is beyond the scope of this study to provide an in-depth discussion of Varela’s *Enactive Cognition* theories. However Cain provides an introduction to *Enactive Cognition* and applies Varela’s theories of *Autopoiesis*, *Embodied Thinking*, and *First Person* methodologies to her research on the drawing process (2010: 48).

In essence Varela theorised human cognition as self referential and self-producing processes. *Autopoiesis*, “the biological theory of autonomous self-organising systems” can, according to Cain, be literally translated as meaning ‘self-creation’. When applied to drawing, the theory of

autopoiesis enabled Cain to recognise how knowledge emerges as the drawing process unfolds and how the drawing practitioner is changed in the process.

The practitioner is not seen as an individual entity operating in isolation from the environment, but rather as part of an ecosystem in relation to the world around her. Thinking occurs within the process of interaction. Cain could move “away from the conventional view that drawing is a discrete activity, and think of drawing as a process of open-ended discovery which can be investigated through action” (2010: 48).

The idea that drawing can be thought of as an unfolding process of self-creation, prompted the investigation of my drawing process by means of visual and verbal reflection. I became interested not only in how the drawings progressed and changed, but also in how *I* changed as a result of the process.

Transformation of the Practitioner

A process of art making that leads to the production of unexpected or unpredictable artefacts, would seem to indicate that the thinking of the maker undergoes some sort of transformation during the process of making. Following from that it could be concluded that the practitioner him/herself undergoes a process of transformation.¹⁶

A series of drawings with unexpected results led to new developments in my approach to art making. This seems to indicate a significant change in my approach to creativity. Further, one could say that this indicates that I had learnt something in the process that brought about a change in me. ‘Something’ happened to me while in the process of drawing. Trying to pin down exactly what that ‘something’ was, proved difficult. Cain reflects on the difficulty of identifying the knowledge that is generated during the drawing process:

The notion of thinking within the medium also prompted me to think about what form the unstable knowledge occurring in the loop of activity between artist and drawing might take. How would I be able to identify what I could know in this kind of process? I conjectured that knowledge which evolved from the making process might accumulate not only from an accretion of events, but ‘within’ the events themselves as they took place. In effect, thinking would take place ‘within the flow’ so to speak, rather than simply retrospectively. Moreover, this might be a matter of learning as much as it was a matter of thinking. (2010: 32)

Cain’s “notion of thinking within the medium” corresponds in many ways to Schön’s reflection-in-action. Her reference to what she calls “the unstable knowledge occurring in the loop of activity between artist and drawing” seems to describe what Schön refers to as “knowing in action”. Schön observes that if one does not think of intelligent practice as being only the

¹⁶ This is discussed in the Webinar Presentation, *Old Fashioned Drawing in a Digital World*, in Appendix C 3.

“application of knowledge to instrumental decisions, there is nothing strange about the idea that a kind of knowing is inherent in intelligent action” (Schön, 1983).

Cain takes Schön’s knowing in action further by suggesting that some form of self-knowing and transformation takes place. As the title of Cain’s book, *Drawing: The Enactive Evolution of the Practitioner*’ (2010), suggests, the practitioner evolves or is transformed as a result of their practice. In seeking to understand one’s creative process, learning leads to transformation. *A/r/tography: Rendering Self Through Arts Based Living Inquiry* (Irwin and de Cosson, 2004), similarly proposes that enquiry into practice can contribute to self ‘rendering’. A/r/tography focuses on the relationship between artist, researcher, and teacher. The approach is essentially autoethnographic and seeks to establish a ‘multilectic’ (as opposed to dialectic) relationship between artist, researcher and teacher (Irwin, 2004). In *Praxis in Perspective*, Harold Pearce (2004) asserts that all artworks are essentially self-portraits because they reveal something about the artist. Further, he claims that research reveals as much about the researcher as it does about the researched.

4.3.3 A Method of Enquiry Through Making

The learning and transformation that takes place during the creative process can only be experienced directly by the practitioner involved. Reflection and questioning encourages a dialogue between the researcher and the researched. In this case the dialogue is between the artist, the artist’s different personae (as artist and thinker), and the creative process. In order to facilitate this dialogue a method of enquiry was required.

The ultimate question that Cain arrived at was “how I know I make sense of what I do”. She notes that although this is a seemingly personal and subjective topic, her enquiry became an in-depth and rigorous example of the nature of learning in creative research (2010: 19). One of the challenges of practice-based research in the creative arts is how to deal with the notion of subjectivity and what Cain refers to as “the philosophical condition of the self in practice” (Cain, 2010). Subjectivity is an inherent part of self-reflective practice-based research. This study aims to provide a credible account of the creative process rather than an objective one.

‘Making sense of what I do’ is at the core of my research enquiry. The notion of ‘the evolution of the practitioner’ (Cain, 2010) provides a way of thinking about art practice that could help answer the question: “How do I improve what I am doing?” (Whitehead, 2009). In order to address this question, I need to ‘make sense of’ my art making process, and understand *how I know that I make sense of it*. I think of practice-based research as a learning process and therefore need to understand what the nature of my learning is.

In order to ‘make sense’ of my art making practice I need to investigate what Cain calls “the symbiotic relationship between *what* I know (my subject matter) and *how* I know it (my

methodology i.e. the principles and ideas which govern how I go about my practice)” (Cain, 2010). My initial approach to the research was to examine the products of my practice retrospectively. While this revealed *what* I had achieved, it did not adequately provide an in-depth understanding of *how* I had achieved it. I could not go back and repeat or re-live the experience of works that had already been completed. For this reason I began to develop a method of documenting my experience both visually and verbally *while* creating new work. The method involved keeping a journal.

The process of visual/verbal journaling has begun to reveal the relationship between what I call my ‘drawing persona’ and my ‘writing persona’ i.e. between practice and theory. The activity of creating a drawing in a fine art context is far from rational and logical, but rather intuitive, instinctive and often illogical. It is also highly subjective. By conducting this drawing/reflection experiment I sought to provide a personalised description of the drawing experience. In so doing I hope to throw some light on the process of art making. By reflecting on art practice within the framework of theories on the creative process I am adopting the dual role of practitioner and theorist.

Drawing/Reflection: Journal Entries ¹⁷

The examples below are taken from a series of my journal entries that document the process of making a digital drawing. The drawing was made using a *Bamboo* digital drawing pad. The software used was *Artrage*. By means of ‘copy and paste’ I visually documented 44 stages of the process. Each stage was also documented in writing by means of brief notations. At the end of the process a more detailed reflective account was written in response to the visual and verbal documentation.

Reflection While Drawing (12/08/2011)



Figure 4.79: Reflective Journal Drawings

1. First line – just a squiggle
2. Another lighter one – similarly random
3. Another line above – Reminds me now, - suggests rather, a head – do I follow this idea?

¹⁷ The complete journal entries can be found in Appendix B, Section II.



Figure 4.80: Reflective Journal Drawings

- 28. More texture to top shape – Stronger – more assured – more aggressive – Drawing is becoming more about responding to itself – the drawing is taking over!
- 29. Softer pencil texture on right – I like the layered effect.
- 30. Filling in top left corner – too much? - drawing is starting to flatten.



Figure 4.81: Reflective Journal Drawings

- 37. Bring in dark shape- initially out of frustration with hand. Alters mood of drawing – more sinister.
- 38. Rework lines on 'hair' down back of main figure. Want to bring in another sinister shape – cannot decide where.
- 39. Found a shape- claw -like. Seems to connect to other sinister shape. (Need a break – 2 hours.)

Reflection After Drawing (12/08/2011)

What have I learnt from this experience so far?

My intention was to create a drawing with no fixed idea in mind. To start with a random line and see what happens.

I started with a fluid line that did not represent or mean anything. The second line was a repeat of the first line, but broken, slightly overlapping. There was a diagonal movement beginning across the page.

Then came a few more lines that seemed to curve in an arc across the top of the page. Already in my mind I envisaged a head with long hair down the back, but it was still just lines. I was 'projecting' an idea. I drew a line at an angle, curvy, suggestive of an arm, still going with the figure idea.

Then came a 'nose', clearly representational and consciously drawn. This was followed by mouth and chin. A caricature-like head was emerging.

I tried to break away from this image. I drew another curvy abstract line across it, and started drawing another shape away from it. More lines were drawn, going over the initial lines, trying to break up the emerging 'figure'.

Some hair-like marks followed, going back to the 'head' idea. It seems like I was having trouble dropping this idea. Then another shape appeared that looked like a female figure (vaguely). I re-enforced this with genital and leg shapes. An 'eye' appeared in the central head; an eye to look at the girl.

More abstract marks arrived now and I started to fill them in with grey tone. I was beginning to think about composition. I started strengthening the hair down the back of the figure. I seem to have decided on a figurative drawing now, but also was working on strengthening the abstract shapes. I became conscious of 'composition'.

Mark making and texture started becoming important. I built up layers of marks to make texture. This went on for a while, all over the drawing around the 'figures', but not on them. The texture was to emphasise the abstract shapes but it also brought out the 'figures'.

I tried to draw a hand for the main figure. I struggled working purely from imagination, with no reference. I erased it and re-drew but it got worse. I covered up the hand with a dark abstract shape that felt like a sinister presence. The shape suggested a head or a hat. This shape shifted the mood of the drawing and set it on edge. It no longer felt playful. Another dark form came into the bottom left corner to re-enforce this mood.

From now on the mood of the drawing was established and I made formal adjustments to 'finish' the drawing.

In the end the figurative element remained dominant despite my earlier attempts to get away from it.

This was followed by further written reflection.

Meta Reflection (15/08/2011)

This exercise was an attempt to investigate and analyse my cognitive process while drawing. I do not normally work in this way, writing down or recording the process while working. I thought that it would inhibit me and slow me down too much. Actually I found it an interesting and informative process. I had to constantly step outside of my 'drawing persona' into my 'writing persona' and then back again. I did not feel inhibited at all and it soon started to feel natural. It was interesting that my 'writing persona' was trying to push the drawing in an abstract direction and my 'drawing persona' seemed to resist this. There was a battle going on between the figurative and abstract tendencies. I think that this tension is what makes the drawing interesting.

I would like to repeat this exercise and see what effect it has on my creative process.

Working from the Unknown

The advantage of the above reflective method is that it visually records the result of intuitive and sub-conscious thinking while at the same time recording in writing conscious responses to these decisions. I agree with Cain that "thinking is not simply a consciously reflective post-activity event but ... a process which occurs on an innately self-reflective subconscious level as part of activity – a process where 'not thinking' or 'not knowing' might be valued" (Cain, 2010).

What I have attempted to capture with the visual journals is the experience of being engaged in the creative process. For me this often involves starting from a position of not knowing where or what the activity will lead to. Cain echoes my experience. She aimed to “share a flavour of the experience of what it is like to be engaged in a process, where often the questions which are at the core of the enquiry are not always visible at the outset but emerge only as the enquiry progresses” (2010).

Experience as an artist has taught me that a drawing with a pre-conceived or known outcome usually leads to boring, uncreative and uninspired work. When the outcome can be predicted, when I feel that I know what I am doing, it is time to make changes to the way I work, to introduce new challenges. This is a subjective observation and is by no means intended as an objective, general principle. My position on this is validated by Scrivener who, when introducing his concept of “projective reflective practice”, states:

However, throughout the history of art there have been artists who sought to go beyond given and familiar habits of practice, artists who developed strategies of production designed to disturb or interrupt their own and the viewer’s appreciation of what constitutes art. (Scrivener in Candy and Edwards, 2011: 71)

Sullivan maintains that many artists work from a position of uncertainty in order to make the unknown visible (2010). My journey into the territory of computer drawing and animation was a journey into the unknown. I had no pre-conceived notion of where I was going when I started ‘playing’ with digital drawing. Having come to the end of a series of works that were becoming repetitive, I needed to introduce a new element of challenge into my art practice. The resulting animated sequences came as a surprise. The title of one of these artworks, *Journey into the Ineffable* (2009)¹⁸, was intended to indicate that what I had done could not be expressed in words. The verbal side of my brain did not know what I was doing although the visual side clearly did.

Cain stated:

The idea of not knowing what I was doing whilst making a drawing was as productive and as formative in terms of thinking as any explicit account could be. (2010: 18)

Reflecting on the questioning of the validity of the ‘intuitive process’ in the 21st century by one of her tutors, Cain responded that many artists start off not knowing where they are going (2010). This resonates strongly with my own experience. When I started drawing using computer software I had no idea that these drawings would lead to the creation of animated movies, and that the process of making the movies would lead me back to making wood-cut panels and charcoal drawings.

¹⁸ A copy of this video is provided on the accompanying computer disc.

As the reflective process of 'drawing/writing' shows, the drawing started as a series of tentative marks with no explicit knowledge of what was being made (Journal Entry 12/08/2011). A series of implicit visual responses followed. Initially the verbal commentary was restricted to describing what I had done. However early on in the drawing, an explicit self-critical question was posed (5. Going with the head- Predictable?)¹⁹. This was followed by drawing a consciously 'random' line in an explicit attempt, using implicit means, to get away from the 'predictable'. This combination of implicit, sub-conscious activity followed by explicit, conscious responses continued throughout the drawing process.

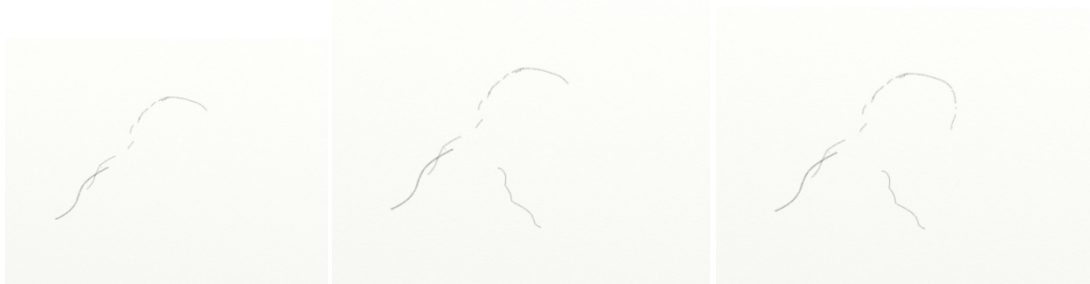


Figure 4.82: Reflective Journal Drawings

4. Reinforce top of head – seem to be following this possibility
5. Going with the head- Predictable ?
6. Continue- what kind of head?



Figure 4.82: Reflective Journal Drawings

7. Nose – I AM being predictable.
8. Mouth and chin- Now I really need to change things.
9. Totally random line- getting away from the predictable.

Concerns about 'predictability', and attempts to avoid it, are issues with which many art practitioners might identify. Cain quotes the artist Asuja Bloms in this regard:

Once the pen hits the paper that mark will be there, and there is something challenging about having to be so specific, and trying to be too specific, because if you are too specific it is not interesting. I don't want to make something that I know I am making. I want to

¹⁹ See Appendix B, Section II, for full journal entries.

make something that I don't know I am making. (Ansja Bloms in Hunt 2001: 79, in Cain, 2010: 32)

The idea of wanting to “make something that I don't know I am making” resonates strongly with my approach to art practice. One of the most satisfying and exciting moments was when I started digitally recording my drawing process and suddenly realised that I had unintentionally made an animated movie. This realisation led to the making of other movies and also unexpectedly to the making of physical artefacts.

4.4 Knowing II

Drawing, Thinking, and Creativity

4.4.1 Drawing and Thinking

Thinking While Drawing

This research project started with the intention of making sense of ‘discoveries’ made during art practice. I began by analysing the artefacts that I had produced. This led to literature research around the issues of drawing (particularly digital drawing), animation and theories of creativity. As the study progressed the focus shifted more towards how drawing (digital drawing in particular) facilitates creative thinking.

It became clear that these ‘discoveries’ were an important part of the creative and cognitive process. There were multiple resonances with the work and ideas of other artists and theorists. Both Schön (1983) and Scrivener (2011) emphasise the element of ‘surprise’. I also became aware that my working methods and thought processes were idiosyncratic and unique.

Digital drawing provided a tool that was not only helpful in generating ideas for works in other media, but together with the process of animation, provided a means of visually recording the thought process *while* drawing. This allowed for a shift of attention from the artefacts to the cognitive process that led to their creation. Like Cain, I began to ask: “How do I think as I draw?” (2010: 27)

If one accepts that drawing is a thinking process, the question “how do I think as I draw?” seeks to unravel the mystery of a cognitive process that does not express itself in words. How then does one go about answering this question? Cain, in her attempt to “investigate the role of drawing in the creative process and its relationship to thinking” set out to examine the “conscious and unconscious aspects” of drawing as a thinking process, as well as “the notion that thinking might not just involve knowing with the head, but thinking through the body” (2010: 27).

Thinking Through the Body

While I was drawing I became aware that my hand was often ahead of my mind. I felt as if my body knew what to do before my conscious mind became involved.

Ideas concerning 'heuristic learning', 'thinking through the body', and 'embodied knowledge' have a direct bearing on the relationship between thinking and drawing. They also present an alternative way of defining thought and knowledge. Any analysis of the drawing process, and indeed any creative activity involving the body, needs to take cognizance of alternative concepts of cognition.

In *The Real Meaning Of Hands-On Education* Frank R. Wilson links the evolutionary development of the human brain with the biological evolution of hand and arm movement. Wilson maintains that the evolution of the arm, hand, and brain in early hominids was linked to their skilled use for throwing, and contributed to the survival of the species in a hostile environment. He further postulates that these early developments had profound consequences for modern humans.

We can now say with considerable confidence that almost the entire set of distinctive human motor and cognitive skills, including language and our remarkable ability to design, build, and use tools, began as nothing more than an enhanced capacity to control the timing of sequential arm and hand movements used in throwing. (Wilson, 1999: no pagination)

What Wilson calls 'the biomechanics of the modern hand', contributed directly to the neurological development of the brain. This link between manipulation of the thumb, the hand, and the brain has enormous implications, the most important of which is that the hand is the central focal point of individual human motor and cognitive development. Thumb movement takes up proportionally a large part of the brain. Wilson states that

...any human skill, in both its abstract and its concrete sense, is a river reaching back into the deep hominid and primate past. It is composed of far more than muscles, nerves, joints, reflexes, and brain circuits. It is part of the whole, almost indescribably long story of hominid and human evolution and represents the unfolding in individual humans of genetically based and culturally enhanced strategies for our survival. Trial and error, inventive tinkering and design, major innovations in brain operations to transform two hands into a cooperative pair, and to permit the hands to signal, teach, and even tell stories through mime and gesture all became part of the evolutionary success story of the hominids with their new hand and expanding brain. (Wilson, 1999: no pagination)

In this context 'thinking through the body' appears to be a fundamentally human trait. Humans not only inherit specific physical and mental capacities but also are equipped to *learn* how to survive behaviourally in the face of danger. This heuristic behaviour involves both the body and the brain. Learning implies gaining knowledge. Psychologist Henry Plotkin defines knowledge as "any state in an organism that bears a relationship to the world" (In Wilson, 1999). This definition implies that knowledge is not limited to what can be stored in the brain but is embodied in the entire being, including the body.

When dealing with the creative arts the notion of embodied knowledge makes perfect sense. The development of heuristics has particular significance for people who work with their hands. Wilson remarks on how self-expression invests the hands with unusual meaning:

...when personal discovery and desire prompt anyone to learn to do something well with the hands, an extremely complicated process is initiated that endows work with a powerful emotional charge. People are changed, significantly and irreversibly it seems, when movement, thought, and feeling fuse during the active, long term pursuit of personal goals. (Wilson, 1999: no pagination)

The idea that people are changed in this way echoes Cain's concept of the "enactive evolution of the practitioner"(Cain, 2010). Wilson believes that the use of the hand and the brain in harmony leads to autonomy. The interaction of the hand with objects in the real world gives rise to 'ideas'. These 'ideas' begin at an early age in humans, at about age one, and are not constrained by operations of formal language. They are more related to the interaction of the body with the world (Wilson, 1999).

Despite the contemporary bias towards conceptual art, the hand still plays an important role in visual art practice. Drawing in particular requires a mastery over hand, eye, and brain coordination. It could be said that when drawing, thinking and the generation of ideas takes place through the use of the hand as much as it does by using the brain. Drawing can be thought of as contributing to a learning process in which the hand has a privileged status due to its "unique contribution to experiences which associate personal effort with skill mastery and the achievement of difficult and valued outcomes" (Wilson, 1999).



Figure 4.83: John Roome, 2011. *Hand-eye coordination*, Digital drawing

There is clearly a difference between the hands-on, tactile experience of drawing *on* paper with traditional materials, and the mediated experience of drawing *through* a computer programme. During my study I became increasingly aware of this difference. Yet I also became aware that the two worlds, the virtual and the physical, impact on each other to create a new experience of *poiesis*.

In both digital and traditional media the hand and the mind work together to ‘shape experience’. Research conducted by Cathy Treadaway supports this view. Her case study of artist and designer Charlotte Hodes provides findings concerning the creative use of computers that resonate with my own.

Treadaway prefaces her research by stating:

We live in an increasingly virtual, mediated and disembodied world in which the role of our hands, the experience of physical touch, and the sharing of gestures and emotions has been diminished by technology which pervades so much of our daily lives. We make meaning of our world, develop emotional connections and communicate with one another through our senses and our hands play a vital role in this process; they inform our perception of experience and express our emotional responses to it. (Treadaway, 2009)

Treadaway found that Hodes combined the “distinctive and identifiable qualities” of digital and physical crafting in her work to “create a visual language that embodies the characteristics of both”. Treadaway’s “...research indicates the vital importance of physical experience in our digital world” (2009: 14).

These findings resonate with my own experience of combining the virtual and the physical in an attempt to establish a dialogue between them.

4.4.2 Drawing and Creativity

Drawing and Creativity Theory

As the title of this study indicates, the initial intention was to investigate ‘the *creative* application of basic computer software’. The focus of this study is on how an individual art practitioner uses basic computer software programmes to stimulate and enhance creativity. It is beyond the scope of this study to investigate ‘creativity’ as a psychological and scientific phenomenon. However in order to provide the study with a theoretical underpinning, various theorists on creativity were consulted, notably: Amabile (1996), Bohm (1998), Csikszentmihalyi (Csikszentmihalyi, 1996b, Csikszentmihalyi, 1996a), and Sawyer (2006). These accounts of creativity are chiefly written from a psychological perspective and tend to provide an ‘outsider’ view, whereas this study aims to give an ‘insider’ account of an individual artist’s approach to creativity.

Much of what has been written on creativity focuses on external factors that either hinder or promote creativity. Definitions of creativity tend to confine themselves to how creative acts or

products contribute to knowledge in new and novel ways and are judged to be creative. Understanding of how creativity works on an individual level has not been dealt with as extensively. Amabile in *Creativity in Context* questioned the value of evidence by creative people for her study. She cautioned that creative people often do not understand their own creativity (Amabile, 1996).

I contest this view. I propose that the value of my contribution lies in it being an insider's account, a subjective, idiosyncratic, but authentic study of how an individual artist thinks through drawing and how the use of basic computer software affects this thinking. If it is agreed that drawing can play a role in the creative process, and that creative ideas can be generated by the process of drawing, then in order to understand my own creative process, it makes sense to investigate how I think as I draw. As Cain points out there is a scarcity of literature on 'the artist's creative process as written by the artist' whereas psychologists have written extensively on creative thinking (Cain, 2010).

When reading psychological accounts of research into creativity, anecdotal evidence sourced from individual practitioners, was easy to identify with. Generalised theories about creativity seemed more abstract. One of the aims of this study is to provide an individual, anecdotal experience of the creative process within the broader context of psychological explanations and theories.

In developing the reflective process referred to above, I aim to shed light on the nature of thinking *while* drawing, in other words, 'thinking in a medium'. The results indicate that there are moments of subconscious or tacit thinking as well as moments of conscious, explicit thinking. As Cain points out, models of creativity such as the one put forward by Wallis (1926), acknowledge these two aspects of explicit and tacit thinking. Sawyer (2006) notes that since the 1970's there has been a new approach to creativity with cognitive psychology replacing behaviourism.

In explaining the stages of the creative process there are two competitive theories: The 'Croce-Collingwood' theory says that creativity is purely the creative idea and that the process of creativity stops once you have formed the idea in your head. Action theorists on the other hand argue that the execution of the creative work is essential to the creative process. Creative ideas often happen while you are working with your materials (Sawyer, 2006). My own experience together with the neurological research referred to earlier, would appear to support the latter theory.

Thinking in a Medium

My journey into digital drawing and animation created an awareness of the potential of this medium not only as a creative vehicle for expression, but also as a reflective tool for research.

Working in this way led to a deeper understanding of how 'thinking in a medium' is integral to the creative process.

Sawyer's idea of 'working with your materials' is similar to the idea of 'thinking in a medium'. According to Sullivan:

Thinking in a medium...describes artistic thinking as primarily being the consequence of thought and action that is given form in a creative product. Drawing from Anglo-American traditions of cognitive psychology, 'thinking in a medium' is a useful description of this orientation. (2010: 135)

Sullivan explains how findings from art educational research by Arnheim and others, together with those of Gardner can be extrapolated to emphasise "that some artists think in a medium, even as the medium moves to embrace structural and cultural constraints" (2010: 135).

Sullivan describes the role of what he calls 'visual arts knowing' in relation to visual arts research:

When translated into inquiries in visual arts, the expectation is that the study of perceptual processes is the best way to understand visual thinking. Visual arts knowing, as such, is a form of cognitive functioning that may be associated with the visual properties of different media where physiognomic qualities lend themselves to expressive potential in the hands and minds of artists and children. In this sense, artists think in a medium and particular dispositions and habits of mind help individuals give form to meaning during the process of making. (2010: 135)

The notion that the idea for a visual work of art is seldom pre-determined, but is rather the result of 'working with your materials' and 'thinking in a medium' (Cain, 2010) and Sullivan, 2010: 135) resonates with my experience of art making. Similarly Cain refers to "drawing as a knowledge-constituting process" (2010: 31).

In my drawing/writing experiments I attempted to understand how thinking emerged from the making process. I have mentioned the value I place on spontaneity in art making, but am also aware that paradoxically, spontaneity is something one has to work hard at achieving. Cain refers to the writer Galbraith's explanation of " ... the 'hidden decision-making lying behind *what seems like a spontaneous process* [my emphasis]" (Galbraith 1999: 139) occurs as a dialectic or conversation between the writer and what he produces..." (Cain, 2010).

My 'drawing/writing' exercises help me set up a conversation or dialectic between the artist and what is produced, the artwork. As with Galbraith, new ideas emerge through the practitioner "alternately not knowing what he is doing whilst producing an initial text (an implicit act)" or, as in my case a drawing, "but knowing what he is doing in responding to it (an explicit act)" (2010). There is a constant movement between implicit and explicit processes.

The 'drawing/writing' method not only documents the evolution of a drawing, but also records the dialogue between an evolving artwork and the artist. Both Cain (2010: 32) and Sullivan

(2010: 204) promote the idea that a work of art in process can 'talk back' to the artist. This is a useful way of understanding the dialectic or conversation that occurs between the creator and the artefact created.

Ambiguity and Indeterminacy

If we accept Sawyer's idea that creative ideas occur *while* working, then Scrivener's *projective reflective practice* (Scrivener in Candy and Edmonds, 2011) helps us understand how this works in practice.

As discussed in Chapter Three *Methodology*, Schön (1983) observed that the element of surprise or divergence plays an important role in reflective practice. Practitioners react to unforeseen elements that occur in their practice. By reflecting on these 'surprises' they are able to reframe their ideas based on existing knowledge, and in so doing are able to come up with solutions or ways of moving forward. Scrivener (2011) proposes that creative practitioners do not simply react to surprise, but rather deliberately introduce elements of divergence or uncertainty into their practice. Scrivener's *projective reflective practice* provides a theoretical framework for this phenomenon.

In her paper *Is Drawing a Language* (Raney, 1997) Karen Raney discusses the phenomena of perceptual ambiguity and indeterminacy in relation to drawing and creativity. Raney refers to Scrivener's observation that artists make deliberate use of both ambiguity and indeterminacy while drawing and sketching.

Indeterminacy, or the unfixed aspects of a drawing, manifests itself in the form of "missing lines, incomplete structures, multiple contours...all the things we are familiar with in sketching, the untidiness, the scribbles, the blots" (1997, no pagination). Raney notes that indeterminacy facilitates a 'back and forth' between what she calls 'wordlike' thinking, which has to do with conventions, and 'iconic' thinking which has to do with how things mimic structures and physical space. She maintains, "this is important to creative or inventive thinking" (1997). It is precisely this interchange between 'wordlike' thinking and 'iconic' thinking that my 'drawing/writing' method of reflection interrogates.

Indeterminacy allows for an open-ended approach during the early stages of a drawing. This suggests multiple possibilities. At the beginning of a drawing there is often a great degree of uncertainty. The artist starts with a broad or general idea and slowly works towards something more specific.

Indeterminacy is a strong feature in my digital drawings and animations. In my first series of animated sequences I developed a method of animation that involved making changes to certain aspects of the drawing, frame by frame. Some elements, such as the background landscape,

remained unaltered, while the moving elements, such as the figures and aeroplanes, were altered in order to make them appear to move. By digitally erasing and re-drawing, these parts of the drawing slowly changed position and size resulting in an illusion of movement (Figure 4.84).

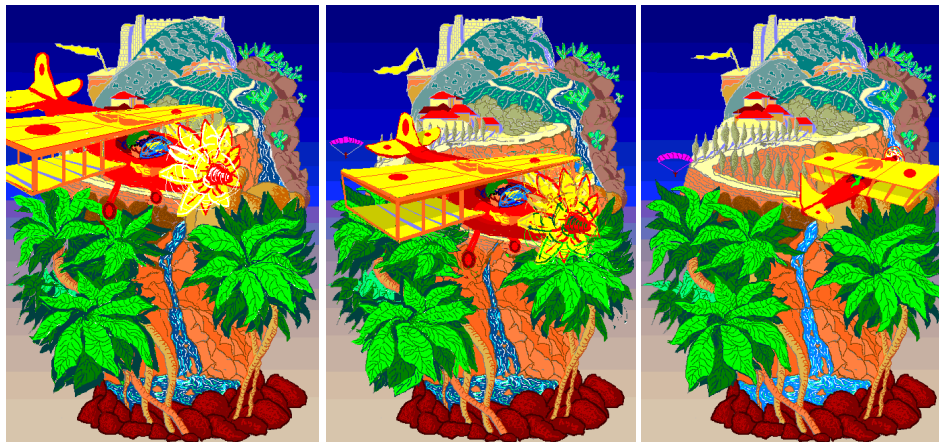


Figure 4.84: John Roome, 2007. *Circling the Island*, Digital Drawings

In the later series I began to apply this to the entire drawing of each frame. As a result the image changed and moved as the sequence developed. When individual frames were viewed as static images I became aware of the indeterminate quality of the lines and marks that made up the image. The two woodcut panels that were made from frames of *Journey into the Ineffable*, illustrate this clearly. In the digital drawing and woodcut panel illustrated below there are bold marks that describe a head that appears to be disintegrating or transforming (Figure 4.85 - 4.86). It is as if one image is developing into another image. The lines and marks are both ambiguous and indeterminate. This image represents the transition between different stages in an evolving drawing. It can be thought of as an example of 'iconic' thinking. In this way the artwork can be viewed as a research document that provides an insight into the nature of the creative process.



Figure 4.85: John Roome, 2009. *Journey into the Ineffable*, Digital drawing



Figure 4.86: John Roome, 2009. *Journey into the Ineffable*, Woodcut Panel, 92.5 x 138.5 cm

Having discussed drawing as a tool for reflection and cognition in a broad sense, I will now investigate the specific challenges, benefits and revelations that arise out of digital drawing. I will refer to the growing body of literature on this subject in order to provide resonance and credibility to my own findings.

4.5 Making, Doing, Knowing

Collaborating with the Computer: The Challenges, Benefits and Revelations of Digital Drawing

Artists often view themselves to be working with the machine in a collaborative sense, and this often yields part of the revelatory qualities in their work.

Bell and Thompson, 2010

Is it possible to 'collaborate' with a computer? This would imply some kind of interaction where the computer makes an independent contribution to the project at hand. In other words the computer must function not merely as an inanimate tool but must become an active participant in accomplishing a task. My hypothesis is that when using a computer to draw creatively, the relationship between artist and tool more closely resembles one of collaboration than when working with other tools. Collaboration of any sort presents challenges but also provides benefits and often results in revelations for the collaborators. It is in this sense that I regard working digitally as a form of collaboration.

I began experimenting with digital drawing at a time I when I was creatively blocked. As a 'digital immigrant' (Prensky, 2001) I was not familiar with sophisticated drawing software and began by using *Microsoft Paint* and a mouse to make intuitive doodles. This playful approach led to a more serious endeavour that involved the making of short animated sequences. Reflection on this process led to further investigations into the potential benefits of using the computer to generate creative ideas through drawing and animation.

Digital drawing is a rapidly growing field. The development of increasingly sophisticated software and hardware has made this way of working relatively easy and accessible. My approach has been to limit myself to the use of basic software. Initially this was mainly due to a lack of experience and could be attributed to my status as a 'digital immigrant'. As I gained experience and knowledge I made a conscious decision to avoid the slick and ubiquitous quality of many computer-generated drawings. I deliberately sought to exploit the 'crude' quality of software such as *Microsoft Paint* for expressive purposes.

Despite these self-imposed restrictions, my journey into the field of digital drawing and animation has raised questions and provided insights concerning the nature of digital drawing and its impact on creativity. Schön introduced the notion of 'talk-back' to explain how reflection-in-action occurs (1983). Becoming alert to the potential for the digital medium to 'talk back' during the process of drawing raises the potential for collaborative and creative interaction.

4.5.1 Interacting with Technology

As a result of digitisation, the way we approach drawing has undergone significant changes. This has to do with the nature of the digital image being fundamentally different from that of the analogue image. Hansen, in *New Philosophy for New Media*, reflects on the digital image:

Following its digitization, the image can no longer be understood as a fixed and objective viewpoint on “reality” – whether it be theorized as frame, window or mirror - ... (Hansen, 2004)

Hansen’s statement is in support of his argument for what he calls *embodied perception* (2004: 8). We have become *active users* of digital devices as opposed to passive viewers of media such as film and television. This has significantly altered our relationship with technology. Our active use of processes such as zooming, clicking, and hyper linking indicates that our relationship with technology becomes an *embodied experience* (2004:10).

Hansen observes that the computer interface enables us to interact with technology, particularly in the sense that we are not restricted to selecting pre existent images, and that we can now *filter information directly* and so we create new images (2004:11).

To draw digitally means to interact with technology. In chapter two of this thesis I reflected on the impact of this interaction by making reference to my own experience as well as that of other artists and researchers.

4.5.2 Does Digital Technology Imply the End of Drawing?

This study aims to show that digital technology provides artists with the opportunity to extend and transform the process of drawing. There are, however, those who express concern that technological tools discourage the acquisition of traditional drawing skills. Hamilton states in *Drawing with printmaking technology in a digital age*:

Computers could be seen as a threat to drawing, through their ability to allow the production of ‘instant art’, with little use of drawing skills, for example with functions within programmes such as Adobe Illustrator’s ‘live trace’. (2009: 3)

Hamilton cites Cohen (2002) in the context of the threat imposed by digital technologies to traditional core art disciplines such as printmaking that require physical interaction:

...drawing materials – have been abandoned and nothing has yet taken their place. Part of the problem is that computer-based art-making processes are medium-less and there are, consequently, no skill-based disciplines to learn. (Cohen in Hamilton, 2009: 3)

These fears are based on the assumption that artists who use digital technology will not need to acquire any traditional drawing skills, and will as a result miss out on the experience and knowledge that working with physical tools and materials provides. As Ursyn points out, the question of whether artists who work exclusively in digital media need to possess drawing ability, is a relatively old one. Some argue that traditional drawing skills are no longer necessary,

whilst others counter that it is only through the learning of traditional drawing skills that artists develop essential cognitive abilities (Ursyn, 2008).

Karin Raney, a painter and visual theorist, explains how her interest in what she calls the 'turn towards the visual' in contemporary society led her to undertake a visual literacy project. She conducted interviews with a wide range of artists, designers, and educators in the visual industry. Raney observed that due to the use of digital technologies there has been a change in the way artists work as well as a change in attitude to the teaching of drawing at schools. She notes that due to the increased use of computers in the visual industry the relevance of drawing has been brought into question. The 'instant' imagery associated with digital technology seemed to be gaining preference over the more time consuming and difficult process of drawing (Raney, 1997).

This study does not approach the issue of digital drawing from the perspective of a 'novice artist' but from that of an artist who has already acquired traditional drawing skills. Therefore my question is whether the use of digital technology will have a negative or a positive effect on existing drawing skills. What I propose is that a combination of existing drawing skills together with the use of digital tools can lead to a deeper understanding of the drawing process and an enhancement of creativity.

4.5.3 Gains and Losses of the Computer as a Drawing Tool

Artist David Hockney has pursued a fascination with emerging technology throughout his career. Isenberg describes Hockney's journey into digital tools:

"What fascinates me is not just technology but the technology of picture-making," says Hockney. "I spend more time painting, of course, but I treat the iPad as a serious tool. The iPad is influencing the paintings now with its boldness and speed."

One discovery feeds the next. From photography he moved onto photo collages and experiments with office copy machines – cameras of another kind. His fax art allowed him to send exhibitions over telephone lines much as he recently e-mailed an exhibition worth of iPhone and iPad drawings to an art gallery at Paris' Foundation Pierre Bergé-Yves Saint Laurent..."Who would have thought the telephone could bring back drawing?" Hockney asks in the Paris show's catalog.

Hockney's iPhone art began in 2008. A rotating group of about 30 friends, curators, dealers and writers regularly receive his e-mailed artworks, and the artist even urged his friends to get iPhones, then iPads to archive the continuing e-mails. According to Gonçalves de Lima, Hockney has already sent out nearly 400 e-mail drawings on his iPhone and 300 more on his iPad. (2009: No Pagination)

However Hockney stresses that the work he produces with these tools is still the product of the artist rather than that of the computer. Glazebrook reports:

Hockney is quick to ridicule the misconception that this work was some sort of computer art, in which the computer rather than the artist dominates. "Most people thought they knew what 'computer art' looked like, but of course that is like saying they know what

'brush art' looks like. It is daft. What did Leonardo use to paint the Mona Lisa? Well, he used brushes; so if I get a brush I can do that, can't I? No! A brush, like a computer, is merely a tool". (2009: n. p.)

While this may be true, there are distinct differences between the process of drawing using traditional tools and materials and the process of using a digital device to produce virtual drawings. I too am fascinated by the 'technology of picture-making'. Initially my approach to drawing on the computer was playful but like Hockney I soon began to regard the computer as a 'serious tool'. Working in a virtual medium presents new challenges to the artist. I quickly discovered that there are certain disadvantages but there are also distinct benefits to drawing digitally.

Disadvantages or 'losses' that I experienced included the lack of physicality or a sense of touch, a lack of real scale, difficulty with hand-eye coordination, and the anonymous nature of the medium.

When drawing digitally there is no sense of physical contact via a pencil, pen or brush. There is no sense of the 'feel' of the medium such as the drag of the pencil or the flow of the ink on the paper. All of this has to be simulated via the interface and the software. In a sense the artist is removed from a large part of the drawing process. Many new drawing software programmes allow the user to simulate and manipulate physical characteristics such as the texture of the paper, the type of drawing medium (pen, pencil, brush, pastel, airbrush), the hardness or softness of the pencil, the width of the brush, and the transparency of the ink. A virtual palette allows the artist to make colour choices and adjust the tonal range. Pressure sensitive digital pens help to compensate a little for the lack of physicality but essentially the process is still purely virtual. The artist has to rely on their own experience and knowledge of the media being simulated.

Basic software programmes such as *Microsoft Paint* offer a limited range of simulations. I found that when working with *Paint* I was not trying to imitate any particular medium and was not relying on past experience. Instead it was as if I was working in an entirely new medium that required a new way of thinking. I was reminded of the woodcut printing process. The drawings were linear initially and I used the 'colour-fill' tool to introduce areas of flat colour. This quality led me to translate the drawings as woodcut panels. What was initially a limitation led to an unexpected creative innovation.

The image below on the right (Figure 4.88) was made using *Microsoft Paint*, a basic programme that does not simulate traditional media. The image on the left (Figure 4.87) was made using *Artrage*, a more sophisticated computer programme that simulates traditional media such as oil paint.



Figure 4.87: 2011. *Tree*, Digital Painting



Figure 4.88: 2006. *Circling the Island*, Digital Drawing

Obvious benefits of working digitally are the minimal studio space and equipment requirements. Using a laptop computer one can produce a drawing virtually anywhere. New hand-held devices make it possible to draw while commuting, while in bed or in any number of situations. The use of virtual materials obviates the need to carry around pencils, paper, inks, brushes, and the like. I found that there were also other unexpected and revelatory benefits.

The observations of Bell and Thompson in their paper *Loss and the Effect of Computer Drawing on Time, Revelation, Iconicity, Authenticity and Morphology in Art Practice* (Bell and Thompson, 2010) confirm my own findings in a number of specific instances.

In relation to *time*, Bell and Thompson refer to how the responsiveness of the computer results in a different sense of *productive* time. Particularly when using programming, but also to an extent when using a digital tablet, a different sense of time occurs due to the artist making an input while the computer completes the drawing. This is particularly noticeable when zooming in to a drawing in order to work on fine details. At first I found this phenomenon slightly disconcerting, as the marks only appear on the screen a fraction of a second after they have been made.

When I began making computer drawings I used a computer mouse as the tool or interface between my hand and the screen. Initially I struggled with hand eye coordination. After a period

of time this became easier and with regular practice came to feel natural. Switching to a digital tablet allows for the use of a pressure sensitive 'pen'. One would expect that this would provide a drawing experience closer to that of using pen and paper. This was not the case. Again I needed time to adjust to the indirect interface.

I also experienced the *indirect quality* or *distancing* that occurs when drawing with a mouse or on a digital tablet. To say that this led to a total loss of spontaneity would be an exaggeration. However it did require some getting used to. The choice of a virtual medium determines the character of the marks that appear on the screen. In addition, making input to the software via the interface controls the width and softness of the line. What would normally be a direct, bodily, often instinctive action requires a conscious premeditated decision. I regard this as a significant difference in the creative process. Spontaneity in this instance, if not altogether lost, is much harder to achieve.

Bell and Thompson explain how "*physical control, hand eye coordination, and tactile physical feedback*" are all missing in computer work. This resonates with my own observation: "*Coordination, 'going off the page' and tactile feeling were still a problem for me.*" (Reflective journal entry)²⁰. What I identified as challenges seemed identical to what Bell and Thompson refer to as *losses*

In my early experiments when using a mouse with computer drawing, I was attracted to what I refer to as the 'digital mark'. The initial intention was merely to make drawings. On discovering the pixelated quality of the marks made by the computer I began to exploit this quality in other works using traditional media. Bell and Thompson refer to this phenomenon as *revelation*. By this they mean what is revealed to the artist that cannot be achieved in other media. According to Bell and Thompson there are three aspects to this *revelation*:

- Unexpected 'expression'.
- How computers work, how that affects expression, how through practice perception of what they are trying to do is achieved.
- What the software enables them to achieve.

(Bell and Thompson, 2010: n. p.)

I experienced all of the above.

A major benefit of working digitally is the ability to copy and paste a drawing almost instantaneously. This enables one to re-work the drawing and take it in a number of different directions without losing the original state of the drawing. Doing this manually is time consuming. This feature of digital drawing not only sped up the process but it enhanced creative potential by allowing for more investigation of alternative ideas. This led to the revelation that I

²⁰ See Appendix B.II.16

could animate the drawings, thereby introducing elements of time and movement into my work. The software used, despite it being 'basic' or 'dumb', contributed profoundly to the creative process.

My initial approach to digital drawing was similar to 'doodling'. Working without any reference or pre-conceived idea, I relied on imagination, memory and intuition. As an image emerged I was able to respond to it in an improvisatory manner. This resulted in a series of animated sequences. Without the help of digital technology I doubt that I would have entered the field of animation.

Scale is a variable in digital drawing. This extends the creative possibilities for the artist. By means of projection or by 'zooming in', a drawing can be enlarged. This flexibility of scale was a revelation. By virtually enlarging or 'zooming' into a drawing one is able to work on fine details. Digital drawings can be printed onto a variety of surfaces to a scale the artist selects. I realized that the digital images could be projected onto a much larger scale in order to translate them into large woodcut panels thus transforming the images into a different medium and scale. I also noticed that, depending on the resolution of an image, at a certain point of enlargement it begins to 'pixelate'.

There is something magical about drawing with a digital device. Via electronic impulses the inputs that one makes by clicking and moving a mouse or by drawing on a digital tablet are translated into virtual marks on the screen. What appear as hand drawn or autographic marks are in reality a series of vertical and horizontal lines. As one enlarges the image the pixelated nature becomes more apparent. I exploited this possibility in order to create a style and aesthetic that acknowledged the digital source of my work. The jagged edges employed in my woodcut panels are a digital 'quote' (Figure 4.89). This aesthetic was further exploited in a series of pencil and charcoal drawings on paper that imitated the pixelation of digital drawing (Figure 4.90).

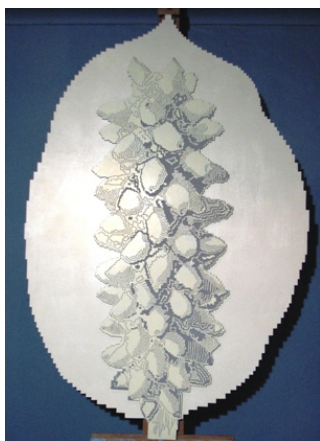


Figure 4.89: *Flower*, Woodcut Panel

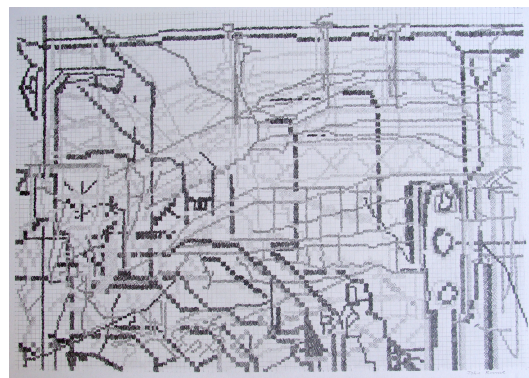


Figure 4.90: *Intersection I*, Pencil on paper

I extended my investigation of basic software by working with a digital drawing pad and more sophisticated software, namely *Artrage*. Although *Artrage* is more sophisticated than *Microsoft Paint* it is still relatively easy to use and requires no special computer knowledge or training. In this sense it still falls within my definition of basic software. The new software presented new challenges as well as unexpected benefits.

Ursyn describes the characteristics of digital images as follows:

The visual quality of digital images depends on the single points of projected light in an image – the pixels and their intensity. The number of pixels in an image, its resolution, is a key determinant. Early computer – generated drawings were made without the possibility of seeing the consequence of the algorithm, the programming, before printing it. With the development of tools such as graphic tablets and increased processor capabilities there were improvements to user interaction and drawings acquired some of the characteristics of analogue drawing. (Ursyn, 2008)

The drawings I made using a mouse and *Microsoft Paint* emphasise this digital quality whilst the drawings made using a digital tablet and *Artrage* have an aesthetic that is closer to analogue drawing. The image on the left below (Figure 4.91) has an analogue aesthetic whilst the one on the right (Figure 4.92) has a digital aesthetic.



Figure 4.91: Howard, Artrage



Figure 4.92: Head, Microsoft Paint

A major benefit of using a digital drawing pad and its accompanying software is that one has access to a wider range of virtual tools and media. The use of a pressure sensitive pen simulates the traditional drawing experience more closely. As a result the drawings made tend to resemble traditional drawings more closely than those made using *Microsoft Paint* and a mouse. The 'digital aesthetic' is not so apparent.

The strongly digital feel of the *Paint* images contributed to and affected my creative process. This is particularly noticeable in both my use of line and colour. A digital line is composed of short straight horizontal and vertical lines. There is no such thing as a curved line in digital

images. The placing of short vertical and horizontal marks creates the impression of curved lines. This becomes more noticeable in low-resolution images and is also emphasised when high-resolution images are enlarged.

I began to exploit this characteristic for expressive and aesthetic purposes. In the large wood-panels derived from enlarged digital drawings, all the lines were created by a series of short vertical and horizontal cuts. The edges of the wood panels were shaped using a jigsaw to echo this jagged quality of the digital line.

Colour and tone cannot be modulated in *Microsoft Paint*. Compared with more sophisticated programmes this would normally be seen as a disadvantage. Because of my experience as a printmaker, I was able to exploit this limitation to my advantage. The woodcut panels were inked up using a roller. The flat, bold use of colour contributed to the expressive and aesthetic look of the artworks. Had I begun by working with more sophisticated software I probably would not have developed the distinctive way of working resulting in the stylistic characteristics of the digitally inspired wood-cut panels.



Figure 4.94: *Helicopter*, Woodcut Panel



Figure 4.95: *Helicopter*, Digital Drawing

The *Artrage* software *trace* tool offers an additional benefit. This tool enables one to trace directly from a photographic image. David Hockney has conducted extensive research into artists' use of optical devices. In his book *Secret Knowledge* Hockney presents evidence that many old masters used mirrors and lenses as drawing aids (Hockney, 2001). The *trace* tool provides the user with an easy to use optical device that facilitates speed and accuracy when transcribing a photographic image. The degree to which this tool hinders or enhances creativity depends largely on the artist. I have not made extensive use of this tool but recognise the potential time saving benefits of employing it as a starting point.



Figure 4.96: Portrait, Digital drawing using 'trace' tool

Thus in a variety of ways the software used has contributed to my creative process. Unexpected and revelatory benefits accrued from using digital software. The 'gains' far outweigh the 'losses'.

4.5.4 Time and Digital Drawing

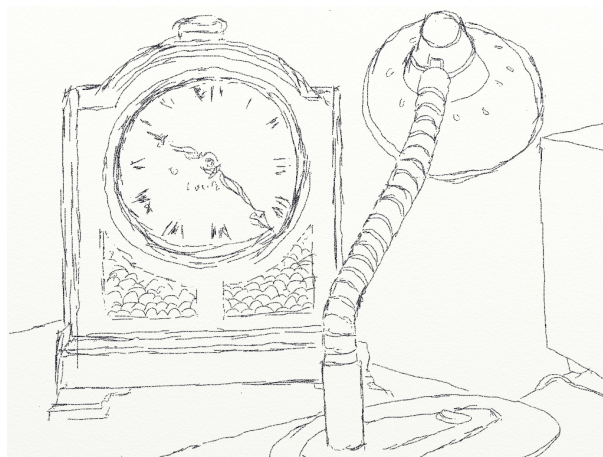


Figure 4.97: Time Piece, Digital drawing

Digital drawing “can contribute to a different sense of productive time” (Bell and Thompson, 2010). The ability to copy or clone images instantaneously without effort is an example of this. Artist and designer Marcello Hernandez Borba, in *Forever Drawing* (Borba, 2007) discusses the philosophical implications of the way in which digital technology has altered the traditional relationship between time and the drawing process. His observations resonate with my own experiences in the field of digital drawing and animation.

Borba points out that drawing resists time in the sense that it can be transformed infinitely. A drawing is always in progress and is never ‘finished’. Making constant changes is part of the process. However, the process of drawing in relation to time has traditionally been linear and one directional. Drawings are built up by making a series of marks that accumulate over a period

of time. Depending on the medium there may be a possibility to erase what has been done at a certain stage and take the drawing in a different direction. Yet essentially the outcome of the drawing is largely dictated and restricted by its own history of mark making. There is no opportunity for the artist to go back in time and return to an earlier stage in the development of the drawing.

In digital drawing this restriction is lifted. The ability to copy and paste a drawing at any stage together with the introduction of the *layers* tool means that the artist can return to any stage in the drawing process. The artist can take the drawing in an alternative direction. In this sense the artist can actually go back in time.

This has profound implications for the creative process. It becomes much more open-ended and the possibilities are literally infinite. Digital technology subverts the chronological nature of the drawing process opening it up to a much wider range of possibilities. As Borba points out, in traditional drawing marks are made, added, subtracted and changed in a certain order over a certain period of time. This results in what he calls a 'perceptive set': the development of perception and ideas in a certain order over a certain period of time. If this chronology were altered or manipulated a different set of results could be achieved. The digital environment allows for this manipulation and therefore enables the artist to break free of the traditional 'perceptive set'. Although all drawing has the potential for constant change, digital technology makes this aspect more transparent and easier to manipulate.

Borba uses video and animation to demonstrate the many dynamic propositions contained in one drawing. He is not simply documenting the drawings, but demonstrating the perceptual process. His videos tie the drawings together, but the drawings remain subversive. Everything is open to change. Other combinations of the images are possible (Borba, 2007).

4.5.5 Narrative and Storytelling in a Set of Drawings

This description of Borba's work could equally be applied to my own digital narrative series titled *Journey into the Ineffable*. This short video consists of a series of drawings developed intuitively in response to an initial drawing of a head. The 'narrative' twists and turns in various directions and does not follow any story line. There is no literal or linear narrative. Every frame of the video is a drawing that responds intuitively to the previous frame.



Figure 4.98: John Roome, 2009. *Journey into the Ineffable*. Digital drawings for animation

The *journey* referred to in the title is a journey into the process of drawing as well as a journey into the subconscious workings of my mind. The viewer is exposed to a cycle of a continuously changing drawing. Each frame contains an individual drawing but each frame is also a reworking of the previous drawing. In this way the video can be thought of as one constantly evolving drawing. Although for exhibition purposes the video was looped, the sequence is open-ended and could continue changing infinitely. *Journey into the Ineffable* not only tells the story of an evolving drawing. It also provides evidence of ‘reflection-in-action’ and is a visual document of ‘tacit-knowing’ (Schön, 1983).

In *Digital Drawing, Graphic Storytelling and Visual Journalism* Ursyn suggests that “drawing as storytelling might provide a useful bridging phenomenon between traditional and new drawing practices” (Ursyn, 2008). Ursyn points out that the digital environment has become increasingly visual due to the quantity and complexity of data being generated. This requires some form of ‘information visualization’ in order to make sense of it. She argues that visual literacy has become increasingly important in the new information age and asks what the role of drawing is in this. Due to advances in software programmes it is no longer necessary for digital image-makers to be able to draw in the traditional sense. Ursyn asks the question:

Has the meaning of drawing been totally changed in electronic media, where images are interactive, linked, and open-ended? (2008: 170)

Ursyn believes that drawing will continue to play a vital role in visual communication, even though it is undergoing a transformation in the digital era. As artists begin to engage more with digital tools, new definitions of ‘drawing’ begin to emerge. Consequently, Ursyn observes:

Questions for those engaged in drawing research today might include: to what extent our drawing outputs should rely on the foundations provided by technological developments, to what extent has digital art defined its own specific language and what might contribute to the emerging field of aesthetic computing? (2008: 171)

The stance that the computer is only a tool in the hands of the artist, as stated by David Hockney, may be something of an oversimplification. What Hockney seems to be suggesting is

that the medium has no influence over the outcome and the result depends purely on the skill and talent of the artist. I have indicated above that the digital medium has the potential to alter the way we approach drawing and the computer can become a 'collaborator' in the drawing process. Ursyn supports this opinion.

The spectrum of the roles that drawing can assume has broadened considerably with technological developments in online communication and digital drawing tools. Sophisticated web page tools, digital imaging, scanning, e-mail, blogging, wireless communication, programming, electronic writing, animation, virtual environments, and compressed or streamed video may now be intertwined in the making of drawings. It has become more difficult to distinguish between what Sullivan has termed the 'line between analogue and digital' as well as to see a distinction between physical and virtual forms – creations of mind, programs, data structures or information networks. (2008: 171)

I have explained how my use of digital drawing led to the making of animated visual narratives. This happened spontaneously. Had I not been working digitally I doubt that I would have ventured into animation. Borba also discovered that digital drawing tools enabled him to engage the dimension of time, resulting in drawings that narrate their own history. One has to acknowledge that animation and visual story telling are far older than computer technology. However, the ease and sophistication of digital technology seems to lend itself to a narrative approach.

Ursyn proposes that visual storytelling can contribute to what she calls the "emerging field of aesthetic computing" (2008:171). Drawing is a communication tool that can be used to express visually what cannot be expressed verbally. The title of my animated video *Journey into the Ineffable* is a reference to the power of drawing to express what cannot be expressed in words. This power to tell visual stories when combined with the possibilities offered by new technology can lead to exciting new developments for both drawing and other fields of communication including science, and technology (Garner, 2008).

It is beyond the scope of this study to investigate all of these possibilities. However by reflecting on the challenges, benefits and revelations of digital drawing in my own creative practice, I hope to create an awareness of the potential that this approach holds for creative practitioners in other fields.

4.6 Summary

I have observed how, in my art practice, drawing functions as a form of reflection in and on action. I became aware of the challenges, benefits and revelations of digital drawing through reflective and projective-reflective practice. It became apparent that the use of basic computer programmes for drawing not only influenced and facilitated my making or poiesis, but also influenced and enhanced the reflexive doing or *praxis* of my art making process. On reflection I began to understand more clearly how drawing and thinking are often inextricably intertwined. Digital drawing enabled me to identify and exploit elements of divergence or surprise in my

practice. I was able to deliberately introduce uncertainty into my practice by introducing digital technology. The tacit knowing employed while drawing (*poiesis*) has been converted, by means of reflection on action (*praxis*), into insights about drawing and creativity that contribute to the existing body of knowledge (*theoria*) in this field.

CHAPTER FIVE

REVELATIONS

Je ne cherche pas, je trouve. (I do not seek, I find.)

- Picasso in Sutherland, 1936

5.1 Introduction

This chapter presents a meta-reflective account of what the research project revealed. This will include an account of the new knowledge revealed by the research as well as an assessment of the value of the research. Traditionally researchers provide ‘answers’ to carefully formulated research questions in order to solve a ‘problem’. I have indicated from the outset that this creative practice-based research does not attempt to investigate probability or plausibility, but rather seeks to reveal ‘possibilities’. The questions have been formulated to encourage an exploratory and open-ended form of enquiry rather than offering finite solutions. I do not provide any ‘answers’ or ‘conclusions’ that are cast in stone, but rather propose a series of more fluid ‘possibilities’ in response to the research questions.

The aim of this research was to conduct a practice-based study of visual art and design thinking through drawing and animation by exploring the creative applications of basic computer software in my visual art practice. My hypothesis was that this examination would reveal insights about the creative process that may be of value to other creative practitioners and students of creativity. In order to do this I decided to use the theoretical frameworks of *poiesis*, *praxis*, and *theoria*. The fundamental question that arose during the study was: *What is the relationship between making, doing, and knowing in visual art and design thinking?*

Rather than treating art practice purely as data or artefacts, as suggested by Brabazon and Dagli (2010), the approach was one of ‘articulating what has emerged’ through practice (Barrett and Bolt, 2007). Following Sullivan’s concept of *transcognition* the study attempted to establish an active dialogue between theory and practice. Throughout the thesis I have established a conversation between the literature, and my own findings based on my art making.

During the course of conducting the research it became apparent that the three concepts, *poiesis*, *praxis*, and *theoria*, could not be thought of as occurring in any fixed or chronological sequence. They were inextricably interwoven and had a reciprocal relationship with one another. Nevertheless I was able to identify distinct characteristics of my practice that could be associated with each of the three. I formulated sub-questions for each concept. Firstly I provide

an account of how the three characteristics inter-connect with each other. Following that I examine the revelations of the research through the lens of each concept.

5.2 Making, Doing, Knowing

The organic, developmental, inter-connected, and open-ended nature of this study is illustrated in Figure 5.1. The research journey began at the centre with an investigation into my creative practice. The introduction of basic computer software acted as a catalyst for what followed. An element of uncertainty, the computer, was deliberately introduced in order to stimulate creativity. Initially I had no fixed ideas, no clear notion of where my creative journey would take me. I started with the unknown. My approach was exploratory and playful, in an attempt to open up new creative possibilities. When I undertook literature research into practice-based methodologies, I discovered that the deliberate introduction of uncertainty has been identified as a defining characteristic of creative research, namely *Projective Reflective Practice* (Scrivener, 2011).

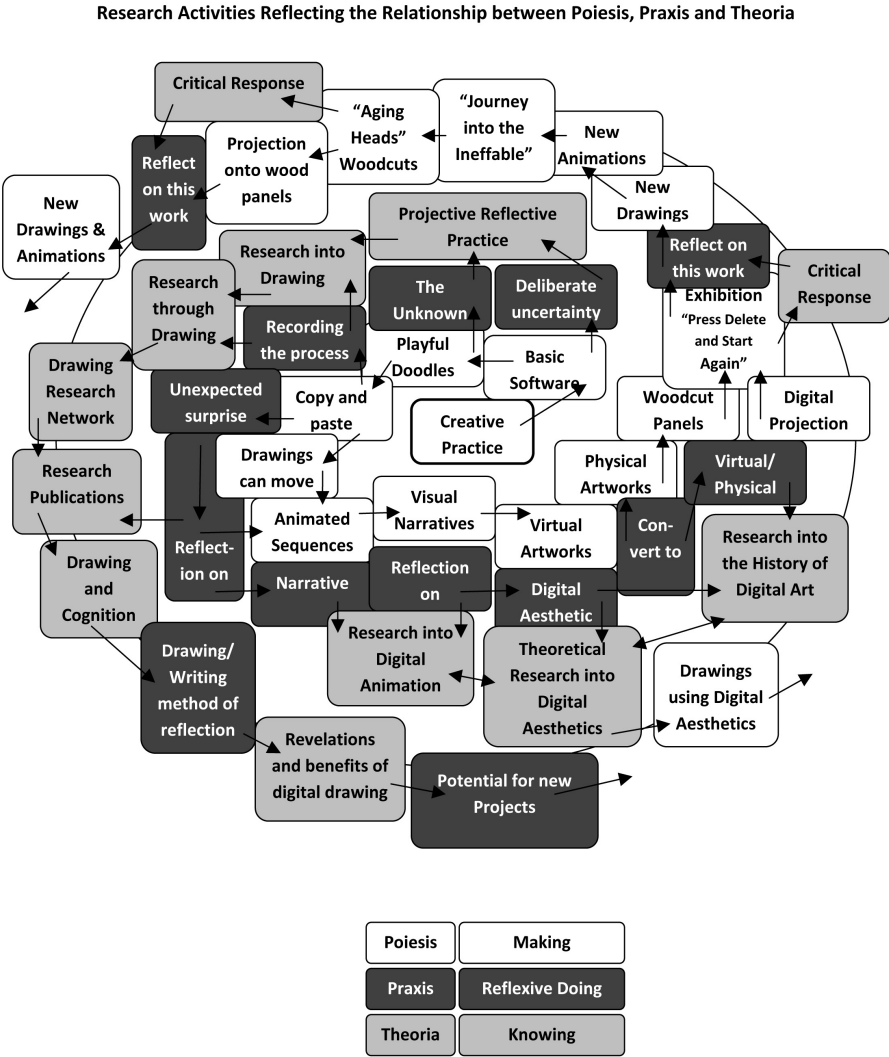


Figure 5.1: Research Activities Reflecting the Relationship between Making, Doing, and Knowing

Poiesis or making was accompanied by reflection in and on action. This reflection or *praxis* is what drove the work forward. I responded to the possibilities presented by developments in my practice that were often unexpected and surprising. The conscious reflection on my creative process led to theorising through which I began to formulate explanations for and interpretations of my creative processes. This took the form of informal journal keeping as well as formal research presentations and papers. In addition to my own theorising I undertook literature research in order to contextualise and provide credibility for my work and ideas, and provide 'resonance' for my own theorising concerning the creative process.

The diagram illustrates how creative ideas developed organically out of the connections between *making*, *doing*, and *knowing*. At times *making* led to *doing*, which was followed by *knowing*, but at other times *making* grew out of a combination of *doing* and *knowing*. The use of a spiral structure emphasises the inter-connectedness of the creative process. The spiral has the potential to keep growing, creating an infinite number of new possibilities.

5.3 Making (Poiesis)

As stated in chapter one of this thesis, I used the term *poiesis* to denote the creative act of making drawings, animations, and artefacts. In order to investigate the role of *making* in my creative practice I asked the question: *How does the use of basic computer programmes as a tool for drawing and animation influence and facilitate poiesis in my visual art practice?*

A simplistic and somewhat tautological answer to this question would be that basic computer programmes had a positive influence on *making* in my visual art practice. A more meaningful answer would need to provide a detailed explanation of how this came about, and importantly, why this came about.

I have argued that my practical outputs can be viewed not only as artworks but can also be regarded as research documents. In chapter two of this thesis, I indicated how the practical work of the selected artists provides evidence of a research process, highlighting the relationship between practice and theory. I sought to contextualise my work in relation to selected artists who saw themselves as creative researchers. Considering that this research is based on an exploration of computer drawing and animation, I felt it was necessary to contextualise my practical research in relation to earlier developments in digital art. I examined what I had made in relation to the work of other artists who have worked with digital media in order to establish context and resonance. This exercise revealed more than just that. Insights regarding the distinctive characteristics of my work were revealed.

Issues such as the evolution of a digital aesthetic, the relationship between new media and traditional media, the virtual and the physical, the digital mark, and digital animation, were discussed in relation to my art practice in chapters two and four of this thesis. In pointing out

certain similarities between my own work and that of other artists, my aim was not to elevate my standing as an artist, but to stress commonalities of interest.

A defining feature of my work and that of the early pioneers of computer art is the fascination with the distinctive digital aesthetic. My decision to use basic software had a strong impact on the aesthetic look of my work, particularly the character of the line. Another characteristic I share with the early pioneers is the interest in the relationship between the virtual quality of computer art and the physical quality of traditional media. This is evident in the woodcut panels that imitate the aesthetic of the digital drawings.

The fascination with the digital aesthetic proved to be an influential factor in my 'making' process. As a result of working digitally I began to visualize my ideas in a different way. Not only did I produce woodcut panels with a pixelated aesthetic, but I also began to make drawings using traditional media that had a digital feel to them.

I began to ask questions concerning the differences between working with traditional media and digital media.²¹ I discovered that drawing on the computer had potential benefits not afforded by traditional drawing methods. I found that, by means of copy and paste, and slightly altering each drawing, not only could I record the 'history' of a drawing, but also the drawings began to move. The idea to animate my drawings came as an unexpected 'surprise' and opened up new creative possibilities.

A comparison of my use of animation to that of early pioneers of digital animation revealed an important characteristic. Like the early digital animators I was not interested in illustrating a story. The real fascination was with creating a sense of movement by digitally manipulating and altering a series of drawings. I began to develop my own method of making animated films, using a playful, experimental, approach to drawing similar to unconscious doodling. I responded spontaneously to the visual stimulus of each drawing. There was no script or storyboard to guide me in any particular direction. I discovered a new way of generating visual ideas that would not have been possible without the use of digital software.

Digital drawing and animation helped me develop a new way of seeing and interpreting the visual world as well as the world of my imagination. Working digitally had a profound impact on my 'making'. It opened up new possibilities in terms of the aesthetics of my work, as well as the conceptual development of ideas. It also provided me with a method of recording and reflecting on my cognitive process while making art. Reflection on *poiesis* not only revealed how the work

²¹ See Appendix B Section I, *Self Reflection on a Body of Work*, May 2010.

was made, but also why this happened. This is where *poiesis* and *praxis* interact with each other. I will now discuss the revelations brought about by the reflective and reflexive process of *praxis*.

5.4 Doing (Praxis)

Reflection

In Chapter One, I stated that for this study, *praxis* or reflexive doing was interpreted as the actions, activities, and behaviours (including reflection and thinking), leading up to, and following on from, the productive act. *Praxis* facilitates the conversion of making (*poiesis*) into knowing (*theoria*). I formulated the following question to interrogate *praxis*:

How does the use of basic computer programmes as a tool for drawing and animation influence and facilitate reflexive doing (praxis) in my visual art practice?

Examination of my 'making' or *poiesis* revealed two fundamental concerns. One was the relationship between drawing and creative thinking, and the other was the influence of the digital medium on drawing. This led to the following two sub-questions:

What is the relationship between thinking and drawing in the visual art and design process?

What role can digital drawing play in the art and design thinking process?

It became clear early on in my study that drawing played a pivotal role in the development of my art practice. In order to understand how and why my approach to *poiesis* changed, I needed to investigate how my approach to drawing changed. My findings indicate that there is a complex relationship between drawing and creative thinking. An examination of my own practice together with a study of current literature on drawing resulted in 'revelations' or insights concerning this relationship.

My enquiry was both *into* and *through* drawing. The relationship between drawing and research is a topic of interest to many writers on drawing. This research aimed to explore how this relationship manifests itself in my own practice. Garner identifies three communities in the drawing domain: those who make drawings, those who write about drawing and those who do both (2008). I placed myself in the third category.

Ideas that emerged through the act of drawing required verbal reflection. In my study I used both visual and verbal means of reflecting on and presenting my findings. I found that a combination of visual (practice-based), and verbal (theory based), data provided a richer explanation of practice than either of the two on their own. Garner draws attention to the ambiguity surrounding the question of whether drawing itself can be considered as a form of research. He argues that because drawing can be used to explore ideas it should be considered

as part of the research process. The question of whether drawing requires verbal explanation to function as research or whether it can challenge the verbal dominance of academia is of concern to writers on drawing.

As with all practice-based research, drawing research raises questions about the nature of knowledge. The aim of my creative practice is not purely to generate empirical knowledge but to explore an intuitive, idiosyncratic, and experimental approach to knowledge. Through this exploration I aimed to contribute to knowledge *about* the process of drawing *through* the process of creative drawing and animation.

A distinguishing feature of this enquiry is that it provides an 'inside' account of the drawing process. An individual artist's experience was presented and examined against the background of current theories concerning drawing and cognition. Contemporary drawing theory provided a sounding board for my own ideas and experiences. Reflection on my 'making' was validated by the reflection and findings found in current drawing research literature. This explains the presence of observations based on current literature, intermingled with the findings.

Drawing and Thinking

What is the relationship between thinking and drawing in the visual art and design process?

In chapter four of this thesis, I examined the relationship between drawing and thinking, and the creative process in the context of practice-led research. The literature revealed that most writers on drawing agree that there is a significant relationship between drawing and thinking. Cain asserts that drawing can be used as a tool for cognition (Cain, 2010). MacDonald claims that drawing is a mode of thinking (MacDonald, 2009). Fisher on the other hand concludes that drawing is related to, but differs from thinking in the generally accepted sense of the word (Fisher, 2009).

My understanding of 'thinking' is that it is a process of generating new ideas, developing concepts, exploring possibilities, as well as critically analysing and synthesising existing ideas, resulting in understandings. My contention is that drawing is a similar process and involves all of the above.

Reflection on my creative practice, specifically on 'making' or *poiesis*, revealed that new ideas, concepts, and creative possibilities emerged *through* the drawing process. Reflection on action indicated that I had responded to unforeseen occurrences or 'surprises' during my art practice. Rather than restrict my enquiry to asking questions after the fact, I was eager to find a way of interrogating my thinking while in the process of drawing.

The computer provided a method of recording the various developmental stages of an idea as it is drawn. This has the potential to document the drawing process and add to our knowledge of how creativity functions. Stimulated by this discovery I began to research what others have to say about creativity and drawing. My introduction to the Drawing Research Network opened up a field of research and knowledge that impacted on my creative practice. Influenced by the work of visual researchers on drawing, I developed a reflective method of enquiry into the drawing process using digital tools. The advantage of this method was that it provided both a visual record of the creative process as well as a verbal account of creative thinking that led to insights concerning drawing and cognition.²²

The digital drawing/writing method revealed insights into the dialectical nature of the creative process. Characteristics of the drawing process were identified such as making the unknown visible, thinking in a medium, ambiguity, and indeterminacy. These findings, based on a series of reflective exercises, were found to resonate with findings by other drawing researchers (Bell, Borba, Cain, Duff, Eames, Fisher, Garner, Hamilton, Kantrowitz, MacDonald, Raney, Rawson, Rohr, Sale, Taylor, Trieb, Ursyn, Walker). In addition, research in the fields of creativity (Amabile, Csikszentmihalyi, Klinker, Sawyer, White), reflective practice (Schön, Scrivener) as well as neurological research into 'embodied knowledge' (Wilson), supported my observations.

The dialectical nature of the drawing process that I refer to above revealed itself clearly in the journal entries made while drawing. A form of conversation took place between the drawing and me. One could interpret this as a dialogue between the visual and verbal sides of my brain, or alternatively between my unconscious and conscious minds. By means of this drawing/writing experiment I palpably experienced the 'talk-back' referred to by Sullivan (2010). The dialectical nature of drawing enables and encourages Schön's 'reflection-in-action' (1983). Thus in answer to my question concerning the relationship between drawing and thinking, I found that the act of drawing, as well as the artefacts themselves in their developmental stages, played a significant role in my creative thinking.

A further revelation concerned the role of the unexpected and unplanned in drawing. The idea of a dialectic relationship implies an element of negotiation leading to unpredictable outcomes. I have made reference earlier to Sullivan's notion of 'working from the unknown'. I did not have a fixed idea of exactly what the drawing would look like. By responding to developments while drawing and allowing for feedback, an element of divergence or uncertainty was deliberately

²² These insights are recorded in the main text of the thesis (Chapter Four) as well as in the Appendix B Section II, *Drawing Journal Entries*.

introduced. The visual records of various stages of the drawings revealed that what Raney refers to as “perceptual ambiguity and indeterminacy”, plays an important role in the cognitive development of drawing (Raney, 1997).

Thus by thinking through the medium of drawing, setting up a dialectic relationship with the drawing, employing the tactics of ambiguity and indeterminacy, I was able to make the unknown visible.

The Benefits of Digital Drawing

What role can digital drawing play in the art and design thinking process?

I began working digitally in response to a period of creative block. Initially my approach was a playful exploration of an unfamiliar medium. The ‘non-serious’ or playful attitude reignited my interest in drawing. What started out as a series of playful digital doodles led to a serious-playful investigation of the computer as a creative tool.²³

The use of basic computer software proved a useful tool in both the creative and reflective processes. A corollary to the question ‘How do I think as I draw?’ emerged; ‘How does the process of *digital* drawing influence or assist my thinking?’ In answer to this question I set out to examine the benefits and drawbacks of digital drawing in the context of my personal involvement with this field. Chapter four of this thesis provides a detailed account of my findings concerning the ‘gains and losses’ of digital drawing. I reflected on particular experiences related to my investigation and exploration of the computer as a drawing tool. Again, the views of other artists and researchers into digital drawing were introduced as a means of providing resonance and credibility to my own findings.

I interrogated the question of whether or not digital technology constitutes a threat to traditional drawing. It was argued that, rather than posing a threat to traditional drawing, digital technology provides a way to extend the possibilities and applications of drawing. The ‘gains’ experienced when drawing digitally appear to outweigh the ‘losses’. Unexpected ‘revelations’ that occurred when drawing on a computer were identified. These include the relationship between time and the ‘history’ of a drawing, and the narrative story-telling power of drawing.

The subversion of linear time was a significant revelation concerning digital drawing. When I began drawing digitally I soon realised that the digital medium made it easy to document and save each stage of the drawing as it developed. This provided a history of the drawing that enabled me to ‘go back in time’ as it were. This history provided insights not only into the craft

²³ See Appendix B, Reflective Writing, Section I.

of the drawing (how it was made), but also into the thinking that took place while drawing. An unexpected and added benefit was that the ability to 'go back in time' opened up an infinite number of possibilities for the further development of each stage of the drawing.

Similarly, the ease with which one can animate digital drawings allowed for an investigation of visual narratives. I exploited the potential to subvert linear time in animated sequences where I returned to the first image of the sequence and then continued the narrative in a different direction, creating a spiral-like flow of visual ideas. In *The Road not Taken*, the poet Robert Frost (1874–1963) describes two roads diverging in a wood.

Two roads diverged in a yellow wood,
And sorry I could not travel both
And be one traveller, long I stood
And looked down one as far as I could
To where it bent in the undergrowth;

(Frost, 1920)

I was able to track back and take the road not taken.

I found that working digitally significantly changed my approach to drawing and also enabled deeper insights into the process of drawing. My exploration of basic software for drawing not only 'freed up' my drawing, but it significantly deepened my understanding of the creative process in a broader sense.

By reflecting on the relationship between thinking and drawing as well as the role that digital drawing plays in the art and design thinking process, findings began to emerge that added to knowledge about the creative process. The revelations concerning *poiesis*, brought about by *praxis*, contributed to *theoria*.

5.5 Knowing

As stated in chapter one of this thesis, for the purposes of this study I interpreted knowing (*theoria*) as the knowledge or theory leading to and gained from the experience of creative practice.

I posed two questions:

How does the use of basic computer programmes as tools for drawing and animation influence and facilitate knowing in my visual art practice?

What insights and knowledge does a reflexive approach to visual art practice reveal about the nature of art and design thinking?

For purposes of structure and clarity I have tried to separate *making*, *doing* and *knowing* where possible. In reality they are not that easy to distinguish between. They often overlap and intermingle with one another. This is particularly true of *knowing*. *Knowing* can lead to and influence *making*. Equally *making* can lead to *knowing*. *Reflexive doing* involves reflection on *making* as well as *knowing*. *Knowing* can influence *doing* but it also can be a result of *doing*.

Some writers on practice-based research maintain that the creative artefact itself *is* the research (Duxbury and Grierson, 2008). This position implies that the creative work can be presented as a form of knowledge that does not require any form of verbal explanation. Looked at this way, the creative artefact contains within it all the elements of *making*, *doing*, and *knowing*.

As I have shown in chapter three of this thesis, there are a variety of approaches to practice-based research. The most prevalent standpoint is that research requires the integration of theory and practice. In order to qualify as research, creative work must contribute to an existing body of knowledge in the relevant field. It follows from this line of thinking that the knowledge generated by creative practice needs to be converted into a form that can be verbally articulated and discussed. The knowledge generated in practice-based research emerges out of unique and mainly subjective experiences. Yet in order to contribute to a wider body of knowledge, the individual's experiences need to be converted into something that resonates with others in the field. In other words, knowledge must be generalisable and transferable. It needs to be shared so that it can be verified or challenged by others. In creative arts research these characteristics are more important than providing "absolute certain truth" (Candy and Edmonds, 2011).

A review of creative practice-based research literature revealed that there are a number of alternative understandings of 'knowledge'. Important concepts for my study, "situated knowledge" (Barrett and Bolt), "embodied knowledge" (Bolt), and "visual knowing" (Sullivan), are discussed in chapter two of this thesis.

My approach was to interrogate the process of making/*poiesis* through reflective action/*praxis* in order to arrive at knowing/*theoria*. During the course of the study I began to identify different aspects of *theoria* or knowing as they occurred in my practice. Firstly I recognised that I brought with me a body of knowledge based on my experience as an artist. I was not new to drawing and had a considerable body of prior knowledge on the subject based on both personal experience and the 'reading' of drawings by recognised experts in the field. However, prior to this study I had not undertaken any form of detailed, analytical investigation into my own creative process *while* drawing. In other words I had not interrogated the thinking that took place *through* drawing. This study enabled me to develop theories concerning the cognitive processes associated with drawing that could be shared as well as verified or challenged.

Literature on practice-based research and reflective practice made me aware of the role that 'tacit knowing' plays in the creative process. I observed how new ideas appeared to generate themselves during my drawing and animation process. This occurred through a series of drawn responses to unexpected surprises. These responses were mainly intuitive and did not involve any conscious thought. This would explain why the tacit knowledge that is embedded in the creative artefact is not commonly articulated verbally.

Only once I became aware of the role that tacit knowing played, was I able to begin to express what was happening. Tacit knowing was the key to understanding how and why new ideas and approaches to drawing emerged. My decision to start making animated sequences, the resulting unfolding narratives with their unpredictable imagery, were all the result of tacit knowing and reflection-in-action. This knowledge was embedded in my work and was generated in the localised, specific context of my creative practice.

It was through reflection-on-action that I began to understand and articulate verbally what had happened. *Praxis* or 'reflexive doing' involved a conscious interrogation of the artefacts produced as well as the process that led to their making. The resulting knowledge was explicit and could be shared, verified or challenged. Although I based my findings on knowledge generated in a specific context, the resulting *knowing* has broader implications.

In relation to *knowing or theoria* my first question was: *How does the use of basic computer programmes as tools for drawing and animation influence and facilitate knowing in my visual art practice?* The use of basic computer programmes for drawing and animation proved to be a valuable way of gaining knowledge about my creative practice. The initial playful experiments using *Microsoft Paint* turned out to be the catalyst for this research.

Digital drawing and animation functioned as the element of uncertainty or surprise that not only stimulated and influenced my creative output, but also provoked an enquiry into the relationship between drawing and creative thinking. This led to the second question: *What insights and knowledge does a reflexive approach to visual art practice reveal about the nature of art and design thinking?*

Praxis or reflexive doing revealed that the chief theoretical contribution of digital drawing and animation using basic software was a deeper understanding of the relationship between thinking and drawing. My study showed that using basic software for digital drawing and animation provides a method of visually documenting and recording art and design practice. This gives the practitioner a useful means of analysing and understanding creative thinking, leading to insights that can be shared and discussed with others. These insights included knowledge about the role of tacit knowing, reflection in and on action, indeterminacy and ambiguity, serious play, and the dialectical nature of drawing.

Summary of the Research Revelations

Table 5.1: Research Revelations

Research Questions	Revelations
Making <i>How does the use of basic computer programmes as a tool for drawing and animation influence and facilitate making in my visual art practice?</i>	• The digital aesthetic – a different way of seeing and drawing. • The ability to record drawings – leads to animation. • Evolution of ideas through animation. • The virtual and the physical – exploration of old and new media. • Conversion of virtual images to physical artefacts.
Doing <i>How does the use of basic computer programmes as a tool for drawing and animation influence and facilitate reflexive doing in my visual art practice?</i> <i>What is the relationship between thinking and drawing in the visual art and design process?</i> <i>What role can digital drawing play in the art and design thinking process?</i>	• Record of drawings provides a means of reflection on creative process – “drawing/writing” method. • Making the unknown visible. • Thinking in a medium. • Dialectical “talk-back” process. • “Serious play”. • Ambiguity and indeterminacy. • Subversion of linear time – ability to explore infinite possibilities. • Ease of animation – exploration of visual narratives.
Knowing <i>How does the use of basic computer programmes as tools for drawing and animation influence and facilitate knowing in my visual art practice?</i> <i>What insights and knowledge does a reflexive approach to visual art practice reveal about the nature of art and design thinking?</i>	• The use of digital drawing functioned as a catalyst – introduced an element of uncertainty. • Provided a method of reflection-in-action. Insights and knowledge concerning the role of: • The relationship between thinking and drawing. • Reflection in and on action. • Tacit knowing – implicit knowledge. • Conscious knowing – explicit knowledge. • The dialectical process – “talk-back”. • Ambiguity and indeterminacy.

5.6 The Value of the Research (Credibility)

Traditionally the value of any research project depends largely on the validity, reliability, and transferability of the outcomes. In chapter three of this thesis I established that in creative

practice-based research, the emphasis shifts away from validity and reliability towards credibility. This has to do with the subjective nature of creative research. I noted that values such as objectivity, probability, repeatability, reliability, and validity, that are associated with traditional scientific research, are replaced by inter-subjectivity, possibility, criticality, creativity, and credibility. I argue that my research project has value in terms of the above criteria.

In chapter three of this thesis I provided a detailed account of the measures I used to ensure credibility. These included the use of established research methodologies, triangulation or a combination of different methods (practice-based research and reflective practice), peer scrutiny, on-going reflective commentary, thick and rich description, and reference to related research findings.

The initial motivation for undertaking this research was personal and subjective. My intention was to arrive at a deeper understanding of my own creative practice so that I could transform and improve it. In other words I wanted to investigate new creative possibilities. 'Possibilities' cannot be proved or verified in the tradition of Positivist scientific research. From a Positivist perspective it is difficult to provide any proof to validate the research outcomes. However I argue that the search for possibilities has value on an inter-subjective level and there are transferable benefits. The value of the research for others is linked to its credibility. The rich and thick description of my creative journey, and the rigorous reflexive process that accompanied it, provides a credible account that resonates with others in the field of creative art and design thinking.

Peer scrutiny in the form of exhibition reviews provides evidence of credibility. A peer reviewed exhibition at a public gallery in 2009 drew the following observations in response to the work titled *Journey into the Ineffable*:

Roome's projected animation, 'Journey into the Ineffable' explores a digital form of pictorial narrative where, as he explains about his title, 'words have no place.' In a darkened room in the exhibition, Roome projects an animated series of numinous overlays of linear faces, vivid in their neon colours. This is the cerebral work of a mature artist, eager to take on fresh creative opportunities offered by digital media. Powerful imaging software is known to render often facile digital effects; Roome avowedly uses minimal computer tools to create his animated images. In self-consciously avoiding flair, the authority and potency of his autographic skills in observational drawing is expressed most cogently.

Responding to the pixelated (sic) qualities of digital images, Roome carves equivalent marks into two painted wood panels in representation of the faces in his animation. The resulting surfaces of his still images resemble a traditional lino- or woodcut: cut through a painted layer into the wood substrate, the directional strokes of his carving and chisel-marks render static the restlessness and agitated movements of his digital animation. (Calder in Pillay, 2009: 8-9)

The aged head that fragments as it is displaced in motion and space, is partly transcribed in the faceted marks associated with the pixelation of digital imagery together with more

conventional striations that reflect the gesture of the artist's hand in the animation and in the low relief. He engages in a subtle irony here, in which the computer generated marks, incised by hand, initiate a discursive on the interface between the man-made and technology. Roome is a master in various two-dimensional media, printmaking, linocut, woodcut and painting, and this facility is easily transcribed into the incising of pristine white gesso covered board. (Leeb duToit in Pillay, 2009: 16)

Art curator B. Brophy, in response to the drawing *Intersection I* (Figure 4.76), expressed an interest in my research. His resulting text is included in Appendix D as a further example of peer validation. His reflection indicates how the drawing is conceptually linked to the questions raised by this thesis.

Concerning the drawing *Intersection I* Brophy notes:

I first encountered the 'new' work of artist and educator John Roome 'visually'. As a fine arts curator and writer I am typically drawn like a moth in the dark to the light of what I consider to be 'innovative practice', something fresh, artwork that intrigues me because I have not seen anything like it before. In this instance a graphite on paper work at a local exhibition offered what appeared to be a complex and chaotic arrangement of gridlines with the resulting small 'blocks' filled in, or not. My immediate and guttural reaction was 'more computer generated art posing as drawing'. This intriguing artwork was in fact composed of a myriad of handmade markings depicting the urbanity outside of the artist's office window.

He makes reference to my research into alternative forms of knowledge:

The knowledge generation driven by new technologies that are fast approaching a credible materialisation of 'artificial intelligence' raise interesting questions surrounding the relative autonomy (or not) of a computers 'brain'. This is an epistemology that suggests that whatever is known is known relative to the knower. This self-reflexive and self-reflective aspect of the artistic process is Roome's central endeavour and achievement in this doctoral project. His apparently computer generated drawing that had first caught my attention now readily emerged as an investigation by the artist into what he describes as 'the cognitive role of drawing in the creative process'.

Finally he concludes:

By engaging directly with computer software could Roome have unearthed the neo-realist holy grail of the elusive 'ghost in the machine'? By his own admission this thesis and body of work raises more questions than it answers, and therein lies the rub. History is made by journeying down paths where others fear to tread.

(Brophy, 2013)

In addition to the peer validation of my creative output (*poiesis*), the acceptance of research papers for publication in the peer reviewed journal *TRACEY: Drawing and Visualisation Research*, adds credibility to my theoretical research into drawing (*theoria*).²⁴

²⁴ The papers titled *Drawing in a Digital World: A self-reflective critical analysis of the creative output of John Roome*, and *Digital Drawing and the Creative Process: In Response to Dr. Paul Hamilton, Drawing with printmaking technology in a digital age*, are included in Appendix C.

As I have indicated above, the research provided a number of ‘revelations’ concerning the creative benefits of using basic computer programmes for drawing and animation. Reflection on these benefits revealed broader knowledge concerning the relationship between drawing and thinking. Thus although the initial premise for the research was linked to the subjective experience of creative practice, it led to findings that are credible and transferable to creative researchers and practitioners in the field.

5.7 Implications

Personal (As an Artist)

In relation to my own creative practice this research has allowed for the development of new works and new ideas about the creative process. Art practice (*poiesis*) combined with theoretical research (*theoria*) provided an opportunity to engage in deep reflection (*praxis*) concerning my approach to art making. This has positive implications for future developments in my art practice. This research has opened up potential areas for future art making and continued research into the creative use of basic computer software for drawing and animation.

This project has not only facilitated growth and transformation of my creative practice, it has also enabled personal growth and transformation. In Chapter Four I discussed the concept of “enactive evolution of the practitioner” and “the philosophical condition of the self in practice” (Cain, 2010). I found that the undertaking of this creative project combined with a reflective study of my creative process resulted in changes in me on a deeper level. I agree with Sansom who states:

Creative work can definitely give the opportunity for self-reflection and so may help us change and develop as people if and when we can. (Sansom, 2012)

Not only has the project helped me to change and develop as an artist, it has also helped me to develop as an educator and as a researcher.

Education (As a Lecturer)

The knowledge and experience gained through my own practical and theoretical research has had a transformative effect on my teaching. Much of what has been discussed here has a profound implication for art education, particularly at the tertiary level.

My findings on the relationship between drawing and cognition inspired a series of teaching collaborations with a colleague who lectures Art Theory. This resulted in a paper titled *Mind the Gap: Drawing Theory and Practice Together* presented at the Drawing Research Network

Conference *Drawing and Knowledge* (2013).²⁵ The focus of the collaboration was on the integration of theory and practice in our fine art teaching. As educators, we responded to the perceived gap between art theory and studio practice in the context of art education at tertiary level in the Fine Art programme at the Durban University of Technology (Roome and Ziegler, 2013).

We looked at various factors that brought about this perception and presented a possible solution through a drawing and animation project. Our hypothesis was that drawing could become a means to close the theory/practice gap. We found that despite our demanding expectations students were comfortable with the integrated approach. The integration made sense to them, therefore the response was positive, leading to a more critically and conceptually aware approach to drawing. The attitude to both subjects changed beneficially. (Roome and Ziegler, 2013: 18)

Our paper outlines the background to the perceived theory/ practice gap and discusses related factors that present pedagogical challenges in South African tertiary education. We describe how we addressed the perceived gap through a combined art theory and drawing project.

The drawing project was largely inspired by my own experiments with digital drawing and animation. Many of the revelations I experienced during my journey of exploration into digital drawing and animation, were transmitted to second year drawing students. Projects that involved the use of basic computer software for drawing and animation were met with great enthusiasm and had a profound effect on the motivation and engagement of the students. I include some of the student responses to the drawing and animation project:²⁶

I enjoyed doing animation, and I was pleased by the outcome of my work, because at first I couldn't understand what I was doing and I wasn't sure of how to do it, but not until I relaxed and let my hand flow onto paper freely.

This was a successful module, which was challenging in approach and ideas it was a learning experience as I learned how to make animation and challenges, which came with animation.

I am proud of what I've achieved personally. I know that I worked hard because I did over a thousand drawings if I am not mistaken, in a space of just three days and I think that is an achievement in itself.

(In Roome and Ziegler, 2013)

Throughout this research project there has been an emphasis on the integration of theory and practice focusing on the relationship between making, doing and knowing. Our teaching experiment indicates that this approach provides benefits for tertiary art education.

²⁵ The paper is included in Appendix C.

²⁶ This project is discussed in the paper *Mind the Gap: Drawing Theory and Practice Together*, (Roome, Ziegler, 2013).

By emphasising its conceptual and cognitive aspects, drawing became an effective means of bridging the perceived gap between theory and practice. Concepts dealt with in art theory were explored *through drawing* and then developed in the other practical disciplines. Thus we encouraged students to develop visual thinking skills through drawing as a means of generating and expressing concepts in relation to both theory and practice. The improved standard of drawings, together with the generally positive feedback, indicates that we were successful in our aim. (Roome and Ziegler, 2013: 18)

Apart from its relevance for undergraduate teaching, this research has also impacted on my role as supervisor in the Fine Art Masters Degree programme. My findings concerning creative practice-based methodologies have assisted in the supervision of Masters students. A deeper and broader knowledge of the role of reflection-in and on-action has assisted with the supervision of both the theoretical and practical components of the degree. Most significantly it has heightened my awareness of the need to integrate these two components.

Creative practice-based research by its very nature emphasises the integration of theory and practice. Lessons learnt through my research about this integration have beneficial implications for educational practices.

Academic Research Policies (As a Researcher)

This research has a number of implications for academic research. Most importantly as a practice-based study it has implications for the recognition of visual art and design as research. It implies that creative art and design practice can form the basis of academic research and that creative outputs, designs, and artefacts have value in an academic research context. In this sense the acceptance of this study, and of similar practice-based studies, supports the need for a revision of the criteria and policies that govern the acceptance and accreditation of creative outputs. The implications here are not limited to departmental and institutional bodies, but on a broader level, national research bodies may be encouraged to review policies regarding the funding and accreditation of creative practice-based research outputs.

5.8 Recommendations for Further Research

Further research is recommended in the following areas:

Personal

As mentioned above, this research has opened up possibilities for future creative research projects. The projective reflective research process is cyclical by nature. The making of artworks leads to reflection and theorising that in turn generates new ideas leading to more making. Thus this project is an ongoing one and will continue to evolve. I will continue to research the use of basic computer software for drawing and animation. Parallel to that, the relationship between drawing and cognition will remain a focus of my creative research. Unexpected elements of surprise as well as deliberate uncertainty will continue to motivate my creative output.

Education

The implications of this study for education have been mentioned. I am currently engaged in research on the integration of theory and practice in tertiary art education. It is hoped that this study will encourage others in the field of art and design education to carry out further research in this area.

Research Policy

The scope of this study did not include a detailed investigation into research policy. However, as has been mentioned, there are implications for the review of research policies at programme, departmental, faculty, institutional, and national levels. Work in this area is already being undertaken (Schmahmann, 2011). It is recommended that further research is carried out that could inform and advise policy makers about the need to acknowledge and accredit creative practice-based research projects.

5.9 Final Meta-Reflection

The decision to write about my own work in an academic context was risky. Risk taking is acceptable and even encouraged in creative practice. Yet it is not traditionally associated with academic research. This project challenged me to find a balance between the risky world of creative practice and the 'secure' world of academic 'truth' in the sense of traditional verification.

My enquiry into two seemingly opposite realms of 'subjective' creative practice and 'objective' academic practice has revealed many unexpected synergies. They can rather be seen as disciplines placed along a continuum. This study has not only broadened my understanding of my own creative process, it has also given me a deeper understanding of the relationship between the paradigms of creative practice and research.

Finally, in the spirit of meta-reflection, I return to Moon's description of reflection that inspired me at the outset of the project.²⁷

Description serves reflection, context is noted, there is evidence of standing back, a sense of mulling over and engagement, the frame of reference can change, a metacognitive stance is taken, which requires critical awareness of one's own processes of mental functioning, multiple perspectives are noted, self questioning is evident (an internal dialogue is set up), views and motives of others are taken into account, the role of emotion is recognized, prior experience and thoughts are recorded, points for learning are noted, the personal frame of reference can change according to the emotional state of the writer, the acquisition of new information, and reviews of ideas and time passing are all taken into account. (2006: 36)

²⁷ See Appendix B, Section I, *Self Reflection on a Body of Work*.

The characteristics of reflection that Moon describes are all evident in my examination of the relationship between *making*, *doing*, and *knowing* –an examination that contributes to a growing body of knowledge. I set up internal and external dialogues between myself, my work, the work of other practitioners and researchers. In this way I came to a deeper understanding of my own creative practice and was able to convert this understanding into knowledge that can be accessed and discussed by others in the field.

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APPENDICES

APPENDIX A

Practice-based Research in Visual Arts and Design

Preface

Practice based research is a relatively new and evolving field. I introduce methodological paradigms in visual arts research by providing an overview of current literature, including a definition of terms, a brief historical background, and an introduction to a range of different approaches.

A.1 Introduction

The relationship between art and academic research is a topic that inevitably stirs up controversy in universities where art and design are taught. In South Africa art and design educators at tertiary institutions are encouraged to practice professionally in their fields but when it comes to funding, their activities such as the production of artefacts and exhibitions, are not acknowledged as research outputs (Schmahmann, 2011). Smith and Dean (2009) note that even within the humanities there is a knowledge bias where theory, criticism and historical investigation receive priority over arts practice. This bias accounts for creative outputs generally not receiving the same recognition and subsidies as text-based outcomes. Duxbury and Grierson state that artist-researchers are not counted as 'legitimate' researchers because they have not produced justifiable research outcomes in the form of textual publications such as books, book chapters, refereed journal articles and conference papers (Duxbury and Grierson, 2008).

The perception that art and research are not compatible is largely to blame. The visual arts are often associated with subjective and idiosyncratic activities that do not conform to the rigour and so-called objectivity of academic research. There are indications that this perception has begun to change although opinions differ as to whether and how art practice and academic research can be integrated. It is only in the last two to three decades that arts practitioners, using terms such as practice-based research and practice-led research, have begun to argue that creative practice is as important to the generation of knowledge as the traditional (text-based) theoretical, critical and empirical methods of research (Duxbury and Grierson, 2008).

Practice-based research in arts and design has yet to gain recognition in the broader research community. An example of this is *Sage Research Methods*, an authoritative data resource, which

does not include practice-based research as a category of research. They do have information on art-based research, which is a methodology used in the social sciences, but there is no information on visual arts and design research.

A.2 A New Research Paradigm

As stated in the introduction to chapter one, this research project aims to provide a *credible* account of a *creative* journey from a *subjective* point of view. This would appear to contradict traditional academic research values rooted in the Positivist, scientific, quantitative, paradigm, with its emphasis on measurability, proof, 'objectivity' and 'truth'. As Sullivan (2010) points out, from the Enlightenment era until the twentieth century, academic research has been dominated by science and rationality. He notes that until fairly recently the arts were sidelined in research circles and were not seen as reliable sources of insight and understanding. This position is also noted by Schön (1983), who refers to the dominance of 'Positivist Rationality' in professional practice research. Sullivan notes how this position began to change in the late twentieth century as qualitative methods were introduced. Whereas quantitative research investigates probability, qualitative researchers look for plausibility. Rather than 'solving' problems, the problems are 'surrounded' in an approach that incorporates human experience not only cold facts. More recent developments in arts research have introduced the notion of *possibility* as opposed to probability or plausibility. Researchers in the arts see the need for research to be not *only* systematic and rigorous. They have begun to ask the question; how can research become a creative and critical practice rather than a linear or enclosing process? (Sullivan, 2010).

Sullivan suggests that a new, but informed attitude towards research methodology is required. Researchers in the arts should not slavishly follow established methodologies, neither should they reject them outright. What is required is a familiarity with established procedures so that they can be adapted to new purposes. In chapter three, for example, I explain how established mechanisms for ensuring trustworthiness have been adapted for this project.

I include a brief summary of Sullivan's *Paradigms Lost* (2010: 31 - 62) in order to contextualise the positioning of this study within the paradigm of creative practice based research.

Sullivan stresses that the new research paradigm should be more than a pastiche of traditional scientific methodology. He addresses three main themes in order to provide an understanding of the differences and similarities between the old and new paradigms. First, in *Method as Truth* he introduces the principles and values of the scientific method. Second, in *Doubting Doctrines* he discusses the challenges to scientific theory posed by postmodernism, critical theory, and interpretive philosophy, which question and reject positivism. Thirdly, *The Visual Turn* proposes a new concept of inquiry, based on creative and critical perspectives (2010: 32 - 33).

I will now examine each of these themes in relation to the aims of my own study.

A.2.1 Method as Truth

The search for meaning is linked to methods and procedures. Scientific enquiry rests on basic philosophies and assumptions such as rationalism and empiricism. The corner stone of the scientific method is logical positivism, which works well for the natural sciences, and applies to the social sciences. Positivism is less successful in the human sciences. Sullivan identifies four fundamental principles of the scientific method: 'rationality rules' (logical reasoning), 'empiricism and its limits' (the need for rigorous interventions), 'objective and subjective realities' (objectification of reality needs to be balanced), and 'essentialist (mis)conceptions' (the view that things have an inherent nature or essence and thus are predictable) (2010: 34).

As Sullivan points out, the scientific paradigm with its assumptions about a deterministic, rule-governed world has resulted in a hierarchy of knowledge. The scientific method stands at the top of this hierarchy and is the most pervasive form of research. An empiricist approach to data favours probability and stresses control, validity, and reliability. A project which emphasises credibility rather than reliability, and does not try to 'maintain a mantle of objectivity', requires a different research paradigm (Sullivan, 2010).

Sullivan notes that qualitative researchers began to address the limits of empiricism. They questioned the objectification of knowledge and began to assert that the reliability of the senses can be questioned. Phenomenologists recognized that there are other requirements for studying real world phenomena, such as interpretation and intuition. Empiricism was not totally rejected by early qualitative researchers, who adopted empirical practices such as Grounded Theory, and validity checks, such as triangulation and trustworthiness (2010: 37).

My research cannot be described as empiricist, and is closer to a phenomenological approach as it places considerable emphasis on interpretation, intuition, and their roles in the creative process.

A.2.3 Objective and Subjective Realities

Here Sullivan points to the complex relationship between subjective and objective realities. He warns against seeing them as polar opposites. Meanings are constructed by individuals and cultures, resulting in 'intersubjectivity'. Interpretations are influenced by contexts and relationships, as well as personal perspectives. 'Radical intersubjectivity' acknowledges that the self and others are reflective and reflexive human beings. This idea resulted in an alternative approach to research by emphasising social relations and discourse. 'Intersubjectivity' together with the idea of liminal space, or 'third space', have become productive constructs for 'making' where new meanings are made possible (2010: 28 – 40).

My research approach is one of 'projective, reflective practice' that acknowledges the reflective and reflexive nature of creative practice. In chapter two of this thesis, using my own experiences

of 'making' together with observations concerning other 'makers' I provide an 'intersubjective' account of the creative process.

A.2.4 Essentialist (Mis)Conceptions

Positivism supports the idea that things have a fixed or essential nature, and that it is possible to define certain features and examine them in a certain way. Sullivan notes that essentialist concepts can become problematic and lead to bias, for example when it comes to race and gender constructs. An example of essentialism is the way creativity was examined in the mid-20th century. The idea that creativity possesses certain essential attributes has now been challenged by the view that creativity is a social and cultural construction. In the visual arts ancient Greek philosophies about the essential power of arts, and modernist ideas that formalist aesthetics can reveal essential 'truths', have been challenged by the postmodernist emphasis on contextual and situational factors (2010: 41-43).

I acknowledge that my study is based on a subjective experience of creativity. I do not claim to uncover essential or universal characteristics of creativity. My aim is to provide a credible account of my subjective experience and to compare and contrast this with the experience of others. By positioning my own findings within the context of related practice and theory I aim to contribute to the field of creative research.

A.2.5 Beyond Method

Sullivan notes that there is some overlap between the different research paradigms. Empirical review can occur in art, and speculation and intuition also play a role in scientific insights. Traditional hypothesis testing is not the only way to conduct research. Alternative research approaches look for understanding rather than explanation, where the emphasis is placed on discovery. Sullivan cautions that this quest for understanding rather than explanation needs to be equally vigilant, (if not more so than scientific methods), about validity and reliability. In arts enquiry strategies for ensuring the trustworthiness of the outcome are not based on statistical significance, but on whether the outcome is meaningful.

This involves sound reasoning, systematic analysis, and sustained focusing, along with the process of subjecting emerging findings to continual critique as new observations are framed by interpretations drawn from the situation, the self, and others. (Sullivan, 2010)

This study attempts to provide an understanding of what happened during a particular series of creative experiments. (See chapter three of this thesis for a detailed explanation of the checks and balances employed to verify the credibility and 'trustworthiness' of this interpretation.)

A.3 Doubting Doctrines

Postmodernism introduces a critique of the scientific paradigm. The emphasis on rationality and empiricism is replaced by a more critical and interpretivist perspective. The main themes in postmodernism are critical constructionism, positionality, reflexivity, and transformational enquiry. Postmodernism deconstructs traditional research methods and critiques the basicptions and theories underlying modernism and the Western cannon (Sullivan, 2010).

My research locates itself in the postmodern paradigm and adopts a reflexive approach to transformational enquiry. The interrogation of my creative practice is intended to provide a deeper understanding of the process as well as provide an opportunity to transform aspects of my practice.

A.3.1 Critical Theories

Sullivan notes that in recent times traditional research practices were challenged by a combination of cultural studies and identity politics. In education practice the theory/practice relationship began to be interrogated. The new critical theory with terms like empowerment, enactment, *praxis*, and critical reflection (reflexive practice) had a transformative impact on society and individuals (2010: 49-50).

This research does not overtly interrogate cultural issues or identity politics, but rather my interest is in the transformative nature of the creative process in an individual context.

A.3.2 Reflexive Return

Significant changes in ideas about research have begun to take place. The researcher is no longer seen as 'a potential source of error in the equation'. The experience of the researcher is no longer seen as a liability but becomes a positive part of the enquiry. Reflexivity involves self-critique, personal quest, plays on the subjective, the experiential and the idea of empathy. Reflexivity is a form of constructivism that affects the researcher and the researched. The emergence of visual research is linked to the reflexive approach. Reflexive researchers begin to make use of visual or image based research methodologies (2010: 51-52).

My study is essentially reflexive, and my subjective experiences as a practitioner become a contributing factor in the research equation.

A.4 The Visual Turn

Sullivan notes that the introduction of the visual as an agency of academic enquiry presents certain challenges. Paradigms and criteria used for assessing outcomes of visual research are mainly qualitative, although there are instances where post-positivism is applied. Visual researchers rely mainly on plausibility rather than probability. In visual research the distinction between paradigms tends to get blurred and mixed methods are often used (2010: 53-55).

A.4.1 Arts- Based Research

Arts based research began in the mid-1990's in the field of education research and the social sciences. This approach is grounded in the aesthetics of art and language. As Sullivan observes, the Arts provide a special way of communicating about the world. Researchers began to look at how art can enhance the process of discovery in science, and a new interest in the value of art as a research instrument emerged. Sullivan points out that linking art to utilitarian ends can result in art losing its critical edge. He quotes John Baldacchino (2009) in this regard:

Art *practice* is, in and of itself, a specific and special form of *research*. In the arts the very idea of a qualitative-quantitative divide becomes irrelevant because by its distinct nature arts research calls for a different set of categories where the arts do not *search* for stuff or facts, but they generate it. (p. 4, emphasis in the original). (In Sullivan 2010: 57)

I have chosen to focus on my own creative practice (*poiesis*), through which I *generate* data that is then interrogated through reflection (*praxis*), and leads to knowledge (*theoria*). My research project does not fall strictly within the arts-based research category, although there are aspects of it that could lead to further arts-based enquiry in relation to the educational applications of my findings. My project is a creative practice-based one and in that sense can claim to be a '*specific and special form of research*'.

A.4.2 The Trickster Metaphor: Enlisting Art to Explain Data

Sullivan concludes by emphasising that our world is constantly changing and that in order to make sense of it, scientists, such as those working on the human genome project, are forced to use metaphors, analogy, and imagery to describe it. In the struggle to interpret 'messy' processes and bewildering observations, art is being enlisted to help explain and understand scientific data.

Sullivan introduces the metaphor of the 'trickster' for arts researchers. Taken from indigenous knowledge, the 'trickster' is someone who is able to fill contradictory roles: insider/outsider, dependant/independent, instinctual and habitual, prey and predator. Tricksters are creative in finding solutions to apparently unsolvable problems. Art researchers are like the 'trickster' as they redefine their role within the research community.

Sullivan claims that scientific research, despite its status, has limitations in catering for the full dimensions of human needs. Art research provides the potential to compensate for the limitations of scientific method. He promotes the development of the visual arts as a 'powerful cultural agency' grounded in the theories and practices of the visual arts (2010: 60-62).

My study adopts a creative approach to research. Being both the researcher and the researched is part of my 'trickster' role.

A.5 Definition of Terms

The variety of terms used to refer to practice related research can be confusing: 'Practice as Research' and 'Studio-based Research' (Barrett and Bolt, 2007), 'Practice-led Research' and 'Research-led Practice' (Smith and Dean, 2009), 'Art Practice as Research' (Sullivan, 2010) are some of the variations found in the literature. In some instances the terms *practice-based* and *practice-led* seem to be used to mean the same thing. However in *Practice Based Research: A Guide* (Candy, 2006) the distinction between the two terms is clarified.

Practice-Based Research

Practice-based Research is an original investigation undertaken in order to gain new knowledge partly by means of practice and the outcomes of that practice. Claims of originality and contribution to knowledge may be demonstrated through creative outcomes which may include artefacts such as images, music, designs, models, digital media or other outcomes such as performances and exhibitions. Whilst the significance and context of the claims are described in words, a full understanding can only be obtained with direct reference to those outcomes. A practice-based PhD is distinguishable from a conventional PhD because creative outcomes from the research process may be included in the submission for examination and the claim for an original contribution to the field are held to be demonstrated through the original creative work.

Practice-based doctoral submissions must include a substantial contextualisation of the creative work. This critical appraisal or analysis not only clarifies the basis of the claim for the originality and location of the original work, it also provides the basis for a judgement as to whether general scholarly requirements are met. This could be defined as judgement of the submission as a contribution to knowledge in the field, showing doctoral level powers of analysis and mastery of existing contextual knowledge, in a form that is accessible to and auditable by knowledgeable peers.

Practice-Led Research

Practice-led Research is concerned with the nature of practice and leads to new knowledge that has operational significance for that practice. The main focus of the research is to advance knowledge about practice, or to advance knowledge within practice. In a doctoral thesis, the results of practice-led research may be fully described in text form without the inclusion of a creative outcome. The primary focus of the research is to advance knowledge about practice, or to advance knowledge within practice. Such research includes practice as an integral part of its method and often falls within the general area of action research. The doctoral theses that emerge from this type of practice related research are not the same as those that include artefacts and works as part of the submission.

Figure A.1: Candy, L. *Practice Based Research: A Guide*, (2006: 3)

A.6 Brief Historical Background

The introduction of doctoral degrees in art practice, as opposed to pure art theory, has led to debate and revision concerning the status of art practice within academic research. In countries where practice-based doctoral degrees have been offered for the past two decades this debate continues.

It is beyond the scope of this study to give a detailed history of the development of practice-based PhDs in art and design. However it will be useful to introduce some of the significant factors influencing this development. Practice-based research in the visual arts and design at doctoral level has been offered at Universities in Australia, Canada, the United Kingdom, and the

United States for the past two to three decades. At the time of writing South African Universities are beginning to introduce Doctoral degrees in visual arts and design.

The move to practice-based PhDs in art and design was initiated in the United Kingdom in the last decade of the 20th century. In a paper titled *A Dual Inheritance; The Politics of Educational reform and PhDs in art and design* Fiona Candlin (2001) gives an overview of factors influencing the introduction of art and design PhDs in the U K. Her paper not only offers an historical account of the introduction of practice-based PhDs but also postulates reasons for these developments. Candlin offers useful insights into a phenomenon that has spread to many countries including South Africa.

Candlin traces the pedagogical, institutional and political history of the practice-based PhD in the U K. She proposes that the introduction of practice-based PhDs in art and design “could be interpreted as the logical consequence of critical, politically aware practices” (2001:304). This refers to shifts of intellectual, ideological and practical approaches in education post 1960, related to social history, conceptual art, feminist theory, and post structuralism. These approaches led to a critical debate concerning the autonomy of art in relation to social, historical, political and theoretical issues.

Pre 1960 art history and theory were seen as separate subjects. They were taught independently of studio practice and were allocated 20% of the time. (This situation still persists in the majority of South African art and design departments and is only now beginning to change.) Candlin notes that with the introduction of more theoretical material into art education the autonomy and prestige of studio work began to be questioned. This was linked to the rise of conceptual art and the influence of Feminism, which both questioned and bridged the previous separation of theory and practice. By the 1990s art was taught and made in relation to wider intellectual, social and gendered concerns.

These theoretical and conceptual developments were partly responsible for the introduction of practice-based PhDs but Candlin suggests that they are also the result of educational reforms in Britain. Among these are the conversion of the Diploma Art and Design to the Bachelor of Arts Degree in 1974, which resulted in arts and design being regarded as an integral part of higher education. The merger of two educational councils, the National council for Art and Design and the National Council for Academic Awards, in the same year, meant that art and design was no longer only taught in independent art schools but was offered in the new Polytechnics.

In 1991 it became possible for Polytechnics to take on University status and the line between Universities and Polytechnics was abolished. By 1992 Polytechnics were re-named Universities and thus a number of art and design degrees were offered within the University system. This eventually led to the introduction of practice-based PhDs. Candlin hypothesises that the

introduction of these post-graduate degrees was part of a strategy to become more viable financially and academically. The requirements of the RAE (Research Assessment Exercise) made it more profitable to have post-graduate students in terms of fees and research funding.

These developments need to be viewed in the light of the institutional separation of art practice and academic research. As Candlin notes, there was no history of doctoral study in practical art and only a minority of institutions offered M A courses. This meant that the introduction of practice-based PhDs allowed for and demanded a critical re-thinking of academic practice (Candlin, 2001).

Similar developments have taken place in other parts of the world. According to Candy the first practice-based studies were introduced in Australia in 1984 when the University of Wollongong and the University of Technology, Sydney, introduced Doctorates in Creative Writing (Candy, 2006). In 2008 Duxbury and Grierson stated:

Currently, Australia is one of only a handful of countries in the world that validates the making of artworks as research by offering postgraduate degrees such as Doctor of Philosophy (PhD) and the Doctor of Fine Art (DFA). However, what has been produced as a result of undertaking a research programme in art practice – paintings, constructions, photographs, sound productions and objects, for example – has not readily been recognised as research according to the Australian Department of Education, Science and Training (DEST) criteria, nor is it well understood within the academy. (2008: 10)

Despite many Australian universities recognising art practice as research, the official view is that the only measurable outcomes of research are textual publications such as books, book chapters, refereed journal articles and conference papers, although they note this is slowly changing.

There is an indication here that practice-based research is still struggling to gain acceptance within the academy. In addition, even where it has been accepted there is no general consensus as to what forms the practice-based PhD should take.

In Australian Universities there are as many variations of requirements for the completion and examination of a PhD or DFA by creative project as there are institutions, but generally most specify some kind of creative presentation such as an exhibition accompanied by a thesis or exegesis. Some universities privilege the textual document over the project, while some apportion a percentage of the total marks to the project and a percentage to the text, sometimes requiring the candidate to nominate the percentage ratio in advance. (Duxbury and Grierson, 2008: 10)

Sullivan remarks that “by the beginning of the 21st century, professional (art and design) schools in most Western countries had been incorporated into universities.” In the United States where most undergraduate and graduate visual arts courses are located in universities, they still remain discrete and somewhat isolated programmes. Sullivan points out that financial implications of funding being linked to productivity and measurable outcomes has led to visual art departments having to justify what they do in terms of quantifiable outcomes. This has

resulted in a new scenario where Arts faculties need to consider their responsibilities as *researchers* as well as teachers (Sullivan, 2010).

In some respects the situation in South Africa reflects that of the U K with similar developments occurring one to two decades later. There are also some important historical differences between the development of tertiary art education in South Africa and the U K. In South Africa fine art programmes have been offered as degree courses at Universities since the early part of the 20th century. Some Universities, such as Rhodes, offered a three year B. A. majoring in Fine Art or a four year Bachelor of Fine Art degree which could lead to a Masters in Fine Art. Others, such as the University of Natal, offered a three year B A Fine Art with the option to do an Honours degree, which allowed access to a Masters degree. At all South African Universities the Masters degree was the terminal qualification for studio-based work. Those wanting to proceed to PhD would have to undertake a purely theoretical study in Art History.

Art and design was offered as a three year National Diploma and a fourth year or a National Higher Diploma, in the former Colleges for Advanced Technical Education, which in the 1980s became known as Technikons. The Technikons continued to offer the National Diploma in both art and design and the National Higher Diploma became known as the Bachelor of Technology (B Tech). The option was provided for a Master of Technology (M Tech), which was also the terminal qualification for studio-based or practical work.

More recently the Technikons took on University status and became known as Universities of Technology. This is similar to what happened earlier in the U K when the Polytechnics became Universities. There is currently a process of curriculum renewal taking place at Universities of Technology, which could lead to the offering of degrees in art and design. For reasons similar to those put forward by Candlin in the U K, South African University Arts and Design Faculties have begun to introduce practice-based PhDs. This is happening at both traditional Universities and Universities of Technology such as the one where I am employed. As in the United Kingdom and other Western countries there are academic and philosophical implications regarding the recognition of research outputs in these new practice-based PhDs and D.Techs (Doctor of Technology).

A.7 Creative Practice as Research

Candlin sees both positive and negative implications of the introduction of practice-based PhDs. They mark the importance of critical discourses in art yet they could be understood as having become another orthodoxy that no longer challenges the status quo. However her less polarised interpretation is that that practice-based PhDs affect the way knowledge is viewed within institutions of higher education.

The inauguration of the practice-based PhD assumes that artwork counts as knowledge, as legitimate academic research. By crossing the traditional boundaries between theory and practice, words and images, fact and fiction, the PhD becomes an active agent in changing the literal and conceptual construction of academic work. Ways of working and types of knowledge that have been excluded from the academic or artistic sphere are legitimated with the introduction of the practice-based PhD. As the heir of these feminist, conceptual and poststructuralist debates on theory and practice, the practice-based PhD starts to refigure the boundaries of what knowledge is considered to be in the university. (Candlin, 2001)

Recent and current literature on research in the visual arts reveals different and sometimes conflicting views on the question of whether and how the creative arts can be considered as a form of research.

Brabazon and Dagli (2010) allude to a conflict between art and research and claim that creativity is not research but can contribute to it while Duxbury and Grierson (2008), propose that the creative process *is* the research. Smith and Dean (2009) believe that there is a reciprocal relationship between art and research where the one informs the other. Similarly Sullivan (2010) states that studio-based art practice can be integrated into academic research.

There is the view that creative practice and research practice share the same issues in relation to communication or interpretation, and that the constructivist viewpoint can be applied to both (Mottram and Rust, 2008). Conversely there is the view that the creative process and the act of writing about it involve completely different cognitive processes (Schmahmann, 2011). Thus there are arguments for and against creative practice as research with some claiming that art is research and others that art only has value as research once it has been written about and published. Schmahmann's view is that the debate as to whether or not art itself is research or equivalent to research is circular and cannot easily be resolved (2011). This is typical of an interregnum where two views live side by side until the acceptance of a paradigm shift.

In *Putting the Doctorate into Practice, and the Practice into Doctorates: Creating new space for quality scholarship through creativity*, Brabazon and Dagli (2010) examine the move towards offering practice-led and practice-based doctoral degrees from a quality assurance perspective. They express concern regarding the problems associated with supervision and examination of 'non-traditional' doctoral research in the visual arts. A key question raised concerns the relationship between creative practice and research. Brabazon and Dagli claim that there is a conflict between 'art' and research. In their opinion assumptions made about art, cultural value and quality have resulted in problems with evaluating art research. Further, they are critical of Estelle Barrett's proposal that 'artistic practice be viewed as the production of knowledge or philosophy in action' (Barrett and Bolt, 2007).

In their view this leads to a “confusion of evidence and interpretation, object production and knowledge production” (Brabazon and Dagli, 2010). They emphasize that it is important to establish the relationship between the practical component (‘media object’) and the theoretical component (‘exegesis’). In their opinion many practice-led projects focus too heavily on methods (‘the how’) as opposed to theoretical analysis (‘the why’). As a possible solution to the problem of conflating creativity with research, Brabazon and Dagli recommend that ‘art’ be transformed into ‘artefact’ and that the focus is placed on exploring the ‘why’ rather than the ‘how’ (2010).

In arguing against art practice as research Brabazon and Dagli claim that ‘creativity is not the same as research and is not intrinsically of value within a doctoral programme’ (2010: 31) and that ‘the point of research is not the creation of art, but the building of evidence’ (2010: 34). They state that the goal of all doctoral studies should be the ‘transformation, adjustment and arrangement of thought through the discipline of academic enquiry’ (2010: 36). They propose that practice-led research should follow the same rational and logical methodological path as traditional academic research.

In order to accomplish this they recommend that the artist/researcher seeks to understand the relationship between theory and practice and adopts the dual role of practitioner and theorist. They refer to Sullivan's theoretical framework that enables the integration of ‘the subjective and objective into a new object for academic scrutiny’ (2010: 38).

There appears to be something of a contradiction in stating that creativity has no value within a doctoral programme and at the same time suggesting that the art researcher adopts the dual role of practitioner and theorist.

In my opinion Brabazon and Dagli's focus on quality assurance, although valid, could lead to a conservative and limiting approach to creative practice in academic research. Duxbury and Grierson in *Thinking Through Practice* (2008) adopt a different view. In order to clarify their understanding of art as research they interpret creativity as a process of “bringing forth awareness”. Heidegger's notion ‘that the work of art is the working through of truth in the materiality of practice or making’ guides their thinking on the nature of creative practice and its relationship to the research process (2008: 8). They argue that art practice opens the possibilities of knowledge and its applications in the same way that academic research does. In contrast to Brabazon and Dagli's assertion that creativity and research should not be conflated, they see art practice as leading to new knowledge and understanding and state that ‘the process of undertaking the creative project - the experimental works and the testing of ideas right through to the finished artwork - is the research itself’ (2008: 10).

Duxbury and Grierson present a convincing argument for art as research. They quote the DEST (Australian Department of Education, Science and Training) that states:

Any activity classified as research, which is characterised by originality; it should have investigation as a primary objective and should have the potential to produce results that are sufficiently general for humanity's stock of knowledge (theoretical and/or practical) to be recognizably increased. (2008: 11)

Their argument is that art has always been synonymous with originality; that sustained creative practice embodies investigation as a primary objective; and that artists use self-determined criteria to test their actions or processes. They see the artist/researcher as a conscious practitioner who sets out to realise an objective that has been defined in accordance with the question to be answered. Therefore as with all research, in art practice the research question is central to the creative project (2008:11).

This interpretation needs to be balanced by the somewhat different notion that in creative research there often is no pre-determined research question that requires 'answering' (Sullivan 2010, Scrivener in Candy and Edmonds 2011, Kantrowitz, 2012).

In arguing for the recognition of art as research, the question 'what is art?' arises. As Duxbury and Grierson remark, there is no norm for art and there are no easy answers. Art in contemporary terms is not readily definable and is often the cause of heated debates. Public opinion differs as widely on the subject as it does amongst art practitioners.

Researchers in the sciences and social sciences do not seem to be under the same pressure to justify or define their disciplines in order to undertake research. Also, their status is not as eagerly debated by the general public. Perhaps it is in the very nature of art to avoid being pinned down to a single definition. In the post-modern era the boundaries of most disciplines are continuously being questioned and stretched. The same applies to art. Why should experimental and boundary-breaking work in art be any less valid than experimental work in physics?

Yet the question persists. In order to cast some light on the question 'what is art?' Duxbury and Grierson turn to Heidegger's seminal essay *The Origin of the Work of Art* for 'pointers in the direction of answers' (2008: 12). Heidegger addresses the question by examining the process of making art. As Duxbury and Grierson put it: 'When art *per se* is encountered, by the artist or viewer, how do we think about it and how do we analyse its material and ephemeral properties and conditions? What happens? What prevails?' (2008: 12).

Heidegger's solution is that it is only by enquiring into the nature of the very process of art making that one can begin to address the question 'what is art?' Art researchers can reveal an understanding of art through a sustained enquiry into their own practice. As Duxbury and

Grierson point out, the work of practice-based researchers in art demonstrates what the process of “thinking” might mean through art and its processes: ‘Ultimately the artists (engaged in practice-based research) are working through their material practice and thinking performatively in response to their defined research terrains’ (2008: 16).

A.8 Art and Design Thinking: Integrating Theory and Practice

The question *What is the relationship between making (poiesis), doing (praxis), and knowing (theoria) in visual art and design thinking?* can be rephrased as *What is the relationship between theory and practice in visual art and design thinking?*

The literature reveals a number of different views on the relationship between theory and practice in visual arts and design research. One, that the art making process *is not* the research and requires some other form of theoretical interpretation to validate it. Another view is that the art making process *is* the research and requires only an accompanying exegesis or report to contextualise it. There is a third position that promotes the integration of creative art practice and research practices within the academic environment.

Smith and Dean in *Practice-led Research, Research-led Practice in the Creative Arts*, (2009) stress the reciprocal relationship between art and research by using the terms ‘practice-led research’ and ‘research-led practice’. They point out that creative practice can inform and influence theoretical research and conversely academic research can lead to the initiation, transformation or improvement of art practice. Their view incorporates two basic arguments: firstly that creative work *is* a form of research that generates detectable research outputs and secondly, that creative practice can lead to research insights which can be generalised and written up as research.

Barabara Bolt, in her paper *A Non Standard Deviation: Handlability, Praxical Knowledge and Practice Led Research* (2006), examines the relationship between theory and practice in visual arts research. Like Sullivan, using Hockney’s research into the drawing techniques of the old masters as an example, Bolt explains how Hockney’s experience with the materials and techniques of drawing led him to formulate his research question. Furthermore his position as an artist enabled him to present a ‘visual argument’ in support of his thesis. Bolt attributes Hockney’s insights to a specific form of knowing gained through the handling of materials in practice.

This is what Carter calls ‘material thinking’ as opposed to conceptual thinking. This approach involves an interaction between the ‘intelligence’ of materials and processes and the creative intelligence of the artist. Bolt claims that the nature of material thinking is understood not by talking about practice but rather in relation to the materials and processes of practice. According to Bolt: “Material thinking is the logic of practice” whereby the artist’s practice produces “its

own kind of sight or logic" (2006: 5). In this sense the idea taken from Heidegger applies, that direct experience precedes theory.

Bolt's contention is that the new in visual arts emerges through practice and "is not just the representation of an already formed idea, nor is it achieved through conscious attempts to be original" (2006: 6). Making reference to the contemporary obsession with a quest for the new and original in both contemporary art practice and creative arts research, Bolt asserts that the new cannot be known in advance. This echoes Sullivan's position that creative artists and researchers work from the unknown towards the known. By definition the new cannot be known in advance and it is through the handling of the tools and materials of production ('material thinking'), that the new is realised (2006).

As with the example of Hockney's research into drawing techniques, material thinking can lead to theorising. It is in such cases that the relationship between theory and practice becomes a dialogical one. Bolt argues that in practice led research the role of the written component, or exegesis, is critical. Her position is that the exegesis should not be just an explanation or contextualisation of art practice, but that it should play a critical and complementary role in revealing the work of art (2006: 7). What Bolt is suggesting is that creative arts researchers move from the particular (their own practice) to the general (conceptualising in theory). Thus a dialogue between 'material thinking' and theorising is established.

Bolt argues against the position taken by those who react against what she calls the 'colonising influence of Cultural Studies' by promoting practice-only degrees. The aim of creative arts research is to articulate what has emerged through practice and thereby extend existing domains of knowledge:

It is my contention that it is art as a mode of revealing and as a material productivity, not just the artwork, that constitutes creative arts research. It is not, as Paul Carter maintains, about 'mastering the rhetorical game of theorising what artists do' (Carter, 2004, p.xiii). Rather it is much more concerned with articulating what has emerged or what has been realised through the process of handling materials and ideas and what this emergent knowledge brings to bear on the discipline. (2006: 14)

For Sullivan 'visual arts knowing' is a result of the artist moving between different sites of cognition that include the artist, the artwork, the viewer and the setting. He refers to this phenomenon as 'transcognition':

Transcognition captures the thoughtful movement of the artistic mind. It is a *practical-theoretical* process that unfolds on the artistic mind during visual arts practice. The interpretivist tradition emphasizes *metacognition* as reflective processes are *dialogic*. Within empiricist traditions, the relationships between the form and content of thinking within the mind-body mix is *distributed cognition* and the thinking structures are *symbolic*. Where critical purposes are paramount, thinking occurs as *situated cognition* and the thought processes are *responsive*. (2010: 134)

Transcognition implies that the artist researcher can move between different paradigms of research practice that require different modes of thinking. In the *interpretivist* paradigm cognition takes the form of *thinking in a language*. *Thinking in a context* occurs in the *critical* paradigm. Sullivan maintains that when working in the *empiricist* paradigm the artist is *thinking in a medium* (2010: 134).

Thus, like Bolt, Sullivan promotes the idea that artist researchers are more than just practitioners who theorise about their practice in retrospect. By acknowledging and engaging in the complexity of cognitive processes that make up creative practice, they actively enter into the dialogue between theory and practice. In a creative art context the notion of 'praxical knowledge' as put forward by Barbara Bolt (2007) suggests that theorising out of practice is a different way of thinking to simply applying theory to practice. It is this 'theorising out of practice' that characterises the knowledge generated by practice-led research. Smith and Dean stress the value of interweaving research and creative practice in art education as this leads to the development of new pedagogical tools and the shifting of educational paradigms (2009).

In examining the relationship between *poiesis*, *praxis*, and *theoria*, I acknowledge the significant relationship between theory and practice. My research seeks to explore the nature of this relationship as evidenced in my creative practice.

A.9 Creative Practice Research Methodologies

Having presented an argument for the acceptance of visual art and design practice as a form of research, it is necessary to provide a methodology for how this research should be undertaken and documented. Practice-based Research in the visual arts is an emerging and developing phenomenon. As mentioned previously the requirements for higher degrees in practice based visual arts research vary from institution to institution. However most agree on a combination of a practical and a theoretical component.

Based on recent literature, I present a brief overview of methodological approaches to practice based research. This account does not claim to be inclusive of all the variations on offer, but provides a selection of views by prominent authors in the field.

Practice-based visual arts research deals with alternative and subjective forms of knowledge. The question of how to situate the subjective experience of art making into an academic context arises. According to Sullivan the two most important characteristics of contemporary art practice are complex theoretical thinking and cross-disciplinary engagement. Sullivan cites one of the early pioneers of Modernist art, Paul Cezanne, who exemplifies the notion that artists have the capacity to explore complex theoretical issues and communicate across fields of critical enquiry. In this sense the artist is someone who seeks to go beyond the established way of doing things and challenges what we know by penetrating the unknown. It is this notion of moving

from the unknown to the known that underpins Sullivan's approach to practice-led research (Sullivan, 2010).

The challenges presented by the absorption of art schools into the academic environment of universities has led to various attempts to resolve the 'studio-practice as research' debate, to establish definitions for creative research and/or to establish 'equivalence'. The problem with these efforts is that the traditional concept of research was imposed from the outside, mostly from the social sciences, often leading to "poor social science and poor art " (Sullivan, 2010).

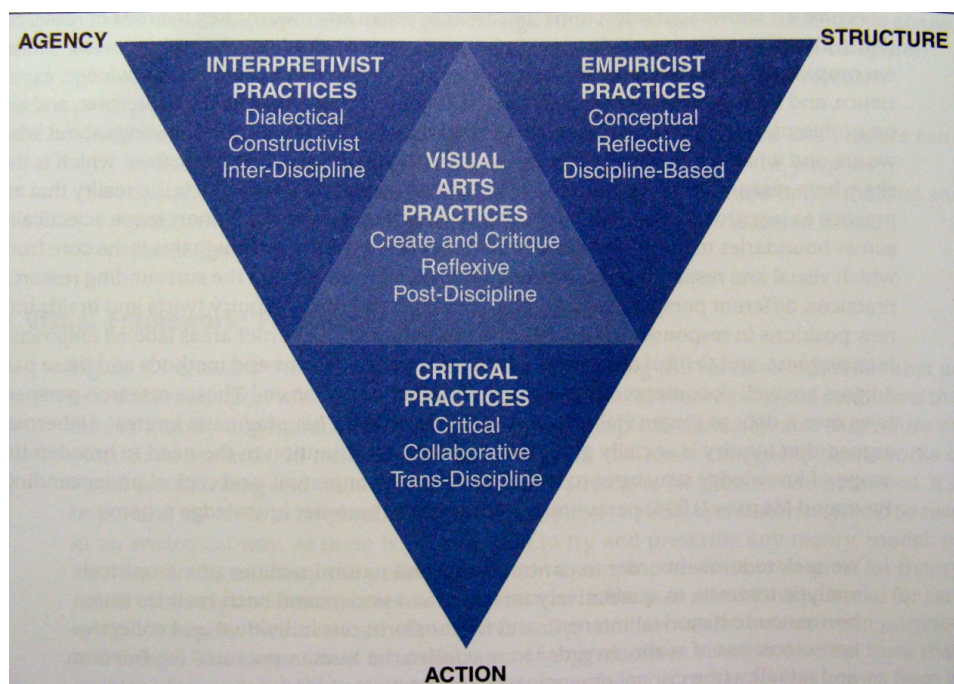
Sullivan promotes a re-think concerning practice-led research from the inside. He argues that studio practice should inform the approach to research in the creative arts and that knowledge which is embedded in practice, can be argued in a thesis and constructed as discourse. In other words there are three points at which creative enquiry can begin: the artist practitioner, the creative product or the critical process. Sullivan stresses the central role of 'making' in the creation of knowledge. In this sense he is promoting a reversal of the traditional approach to research which moves from the known to the unknown. Creative arts researchers begin with the unknown and make it known through their practice (Sullivan, 2010).

A.10 Frameworks for Visual Arts Research

A.10.1 Sullivan's Framework

Sullivan places visual arts practice at the centre of his framework. He surrounds it with the empiricist, interpretivist, and critical paradigms of academic research. Thus the visual art researcher's work is based on the methods and practices of the visual arts but relationships can be established with other fields of knowledge and research paradigms. The framework is flexible enough to accommodate the variety and individuality of approaches such as mine.

Sullivan's *Framework of Visual Arts Research* provides a useful model for conceptualising the complex and diverse nature of practice-based research in the visual arts. Sullivan states the reasons for constructing a framework that is flexible enough to accommodate the 'interdependency of interests, issues, and approaches' of visual arts research (Figure: A.2).



- First, the identification of a range of theories and practices underscores the notion that visual arts is an eclectic and hybrid discipline that is firmly centered on art making and also involves the constituent practices of art writing.
- Second, the nature of art practice as research is such that it is a creative and critical process that accepts that knowledge and understanding continually change, methods are flexible, and outcomes are often unanticipated, yet possibilities are opened up for revealing what we don't know as a means to challenge what we do know.
- Third, a flexible framework that can be adapted to suit different purposes, emphases, and scales, yet retain a dynamic relationship between the parts and the whole, will guard against the tendency to codify visual arts research practices.
- Fourth, such a framework serves as a forum that helps position debates in the field and related areas that inform visual arts research practices.
- Fifth, as new visual arts research is undertaken, it can be located and critiqued within dimensions of theory and domains of enquiry so as to ascertain how practice informs theory and theory informs practice.
- Sixth, as new research strategies emerge such as the use of visual methods across disciplines, multimodal investigations, postdisciplinary projects and computer assisted research technologies, they can be assessed in relation to research practices in visual arts.
- Last, a framework for theorizing offers the possibility that visual arts practice can be readily translated into other forms of research language if the purpose demands it. In this way the research culture remains grounded in the theories and practices of the visual arts, yet the outcomes can be communicated across disciplines.

Figure A.2: Framework of Visual Arts Research (Sullivan, 2010)

A.10.2 Smith and Dean's Iterative Cyclic Web

Smith and Dean propose that those working in the creative disciplines need to be familiar with the traditional trajectories of qualitative, quantitative and conceptual research but add that the unique combination of creative practice and research can lead to distinctive theoretical approaches. The model proposed by Smith and Dean is an 'Iterative Cyclic Web' that combines a cycle with sub-cycles and a web structure (2009).

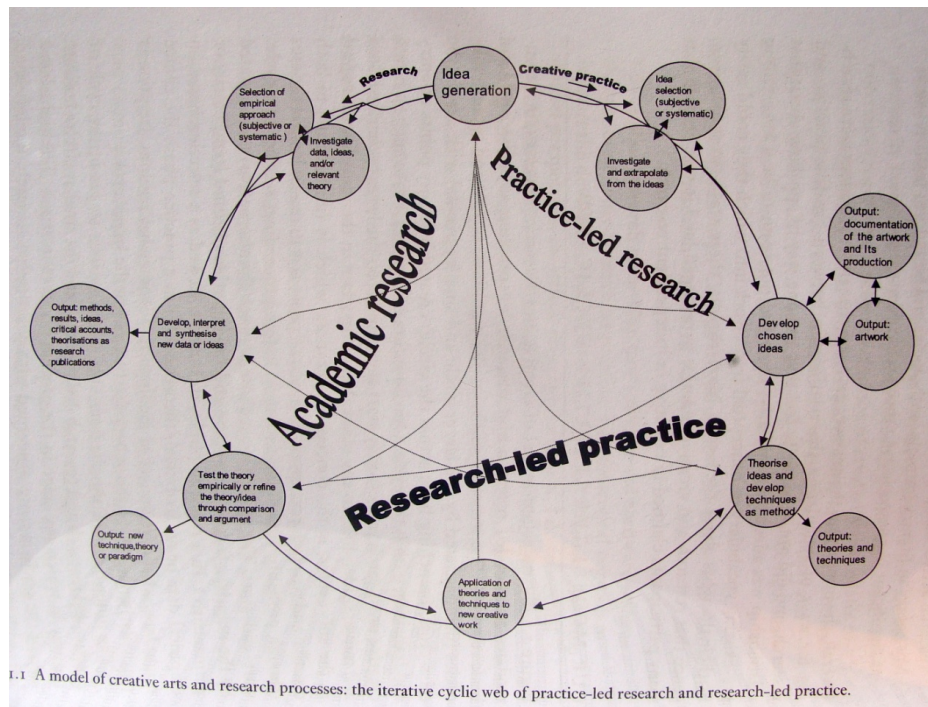


Figure A.3: The iterative cyclic web of practice-led research and research-led practice (Smith and Dean, 2009)

Fundamental to their model is the concept of *iteration* that they understand as the repetition of a process several times with some variation. Iteration leads to alternative results as choices are made regarding what aspects to focus on during the creative process. Their model allows for both practice-led research and research-led practice, as it is possible to move in either a clockwise or anti-clockwise direction. The web makes it possible to pass across the cycle transversely. Smith and Dean's model incorporates the trajectories of traditional academic research as well as creative practice as research and allows for an integration of both.

Practice-led research in their model begins with 'idea generation' through investigation or research. The ideas are developed and released or published which can lead to further formulations and theorization of ideas. This can lead to the generation of new ideas and publications or the generation of new creative work. It is always possible to go back to an earlier stage in the process.

Academic research in their model begins at the same place with 'idea generation' followed by experiments that lead to the gathering of data and/or the analysis of theory or criticism. This leads to the development or synthesis of material, and the testing of theory empirically or by argument or comparison. Outputs can occur at any stage.

The web enables the researcher to jump from one point in the cycle to another and as the cycles are reversible, theories developed through creative practice can be refined and generalised as part of the academic research process. In this way their model accommodates the integration of creative research practices and traditional academic research.

By means of their *Iterative Cyclic Web* Smith and Dean seek to provide an understanding of how notions of traditional research can be accommodated within the paradigm of practice-led research. This is similar to Sullivan's framework for practice-led research that illustrates the relationship between studio-based research and traditional research paradigms. Smith and Dean's model has 'idea generation' as the starting point for the process and the researcher is able to move in to both creative practice and theoretical research from this point.

'Visual arts practices' which encompass the creative, critical, reflexive and post-disciplinary nature of studio-based work are at the core of Sullivan's framework and the researcher is able to engage in and move between the fields of empirical, interpretivist, and critical research from this position.

A.10.3 Frameworks Adapted for this Study

This appendix provides and explains the historical and conceptual context in which my own methodological approach was developed.

My study adapts aspects of both Smith and Dean's (2008), and Sullivan's (2010) models in combination with Donald Schön's *Reflective Practice* (1983) and Stephen Scrivener's *Projective Reflective Practice* (2011). A detailed account of *Reflective Practice* and *Projective Reflective Practice* and how these models were adapted, is given in chapter three of this thesis.

APPENDIX B

Reflective Writing

Preface

Section I of this appendix *Self Reflection on a Body of Work*, was undertaken early on in the process of planning the thesis. It represents a 'stock taking' of the body of work that the study is based on.

Section II *Drawing Journal Entries*, presents journal entries and digital drawings done over a period of six months. The initial intention of the journal was to keep a record of my thoughts about drawing, particularly the process of using the computer as a tool for drawing. Some of the entries also record my thoughts concerning the writing of the thesis and the research project as a whole. I attempted to record my thoughts as quickly as possible while I was drawing so as not to interrupt the 'flow' of ideas. As a result the style of writing is informal.

Section III *Self Analysis of Creative Outputs*, contains a reflective analysis of my digital animations and reflection on a pencil drawing that explores the digital aesthetic.

Section I

Self Reflection on a Body of Work, May 2010

B.I.1 Introduction

This is a self-reflective account of my own practice. Before embarking on this task I felt it necessary to clarify what reflection entails. Jennifer Moon provides a useful guide to reflective practice and reflective writing. She states that reflective writing differs from purely descriptive writing. According to Moon, the characteristics of reflective writing are:

Description serves reflection, context is noted, there is evidence of standing back, a sense of mulling over and engagement, the frame of reference can change, a metacognitive stance is taken, which requires critical awareness of one's own processes of mental functioning, multiple perspectives are noted, self questioning is evident (an internal dialogue is set up), views and motives of others are taken into account, the role of emotion is recognized, prior experience and thoughts are recorded, points for learning are noted, the personal frame of reference can change according to the emotional state of the writer, the acquisition of new information, and reviews of ideas and time passing are all taken into account. (2006: 36)

In conversation, Prof. Joan Conolly stated that self-study is a process of reflection in action, on action, and for action. In this sense I aim to reflect on my creative process while creating, after creating, and consider future creativity.

I reflect on a body of artwork that I produced between 2006-2009. Of necessity, this reflection will be mainly retrospective, as I was not making a habit of keeping a daily reflective journal during the production of this work. I do however have accounts referring to the work, written soon after its completion. These will serve to inform my discussion and I will further use the works themselves to aid my memory of the process.

In my reflection I will try to recall my feelings and thoughts whilst making the work in an effort to gain insight into my own creative process. Each phase of the work will be described and analyzed in relation to the larger context of this study which aims to investigate creativity and play as facilitated by the use of basic computer programmes. I attempt to stand back from my work, metaphorically speaking, and critically interrogate my thought processes. To do this I set up a dialogue with myself, and I also take into account the views of others by means of referring to peer reviews of my work. Based on this reflective process I attempt to identify ways of transforming and developing my creative process.

B.1.2 The Computer and Creative Block

I did not grow up with computers and was introduced to them fairly late in my career.²⁸ Initially I regarded computers as nothing more than a means of sending e-mail and processing documents. It was only when I acquired my own P.C. in 1998 that I became aware of the potential of computers to make visual images. Initially I produced 'doodles' using the standard *Microsoft Paint* feature.²⁹ I did not consider these drawings as artistically significant in any way and would not have considered exhibiting them professionally. Yet I continued to make computer drawings occasionally purely for my own amusement.

In 2005 I experienced a sense of creative block and was unable to come up with any meaningful ideas in terms of my art making. I had come to the end of a series of works I had spent three years developing and felt 'stuck'. My attempts to make new work felt tired and repetitive and I felt generally uninspired. Out of frustration I began to make drawings on the computer again. The 'non-serious' or playful attitude reignited my interest in drawing.

²⁸ Make reference to Prensky (2001), *Digital Natives, Digital Immigrants*.

²⁹ At this point I was unaware of early pioneers of computer art. Make reference here to William Noll and others.

B.I.3 The Role of Drawing

My art education was traditional and the emphasis was placed on drawing as a preparation for paintings and prints. I was trained to draw directly from life and have done this throughout my career. Drawing is a direct form of expression, and is almost always the starting point for my art making process. It is my method of gathering information and also provides a way to process and generate ideas for works in other media.

The drawings that I began doing using a computer were different in a number of ways. The physical process of drawing with a mouse is far less direct than drawing with pen or pencil on paper and presents a challenge in terms of eye/hand coordination. Working with a mouse does not give one a sense of physically drawing, as there is no sense of applying pressure to the drawing instrument. The drawings seemed to appear on the screen by remote control and I found the process quite magical. It felt awkward at first but as I progressed I began to develop a feel for the process. I remember responding with frustration at first to the awkwardness of the drawings, but I began to see the possibility of exploiting this awkwardness for expressive purposes.

My initial drawings were done on a desktop P C which was simply what I happened to have available. Due to its lack of portability I was confined to working indoors. Throughout my career I tended to work from life and would spend hours outside drawing and observing my subject directly. I tended to avoid working from photographic reference as far as possible because I felt that drawing gave me a strong sense of identification with my subject matter. By using a computer I was now forced to work indoors and therefore could not have direct sight of my chosen subject matter. Initially I did use views from my studio window and interior views of my studio as reference, but wanted to move beyond that.

As a response to this limitation I began to draw from my memory and imagination. I realize that for many artists this is a perfectly natural and normal thing to do. However over the years I had developed a strong reliance on direct observation that often prevented me from exploiting my memory and imagination. In retrospect I can see that this had been a limiting factor in my creative process and suddenly by using a computer this limitation was lifted. I was forced to work and think differently. Initially I did not take my computer drawings seriously. This allowed me to be more experimental and free.

B.I.4 Animation and Narrative

Once I had developed a feel for doing simple line drawings using a computer mouse and *Microsoft Paint* I found that I could add colour and various effects provided by the software. What struck me was that by copying an image one could re-work it and alter it completely without losing the original drawing. This was a revelation to me. I remember thinking 'Wow I

can record my thought process while developing a drawing!" This idea of taking an initial drawing in different directions without losing each individual stage appealed to me. I was reminded of Picasso who allegedly would have copies made at various stages of a painting and would then take each one in a different direction. I saw it as an opportunity to track my own process of drawing.

As I began to do this I arrived at another 'aha' moment. When viewing the copies of each drawing as a slide show I realized that they became animated. I was reminded of William Kentridge's process of filmmaking in which he makes alterations to charcoal drawings and films them frame by frame. I then began to visualize my computer drawings as frames in an animated sequence. This introduced a new level of excitement and playfulness into my working process. I had begun by drawing an imaginary landscape based on my imagination and memory. By means of the copy and paste process I was able to introduce a sense of narrative into the drawings. This was completely unexpected and I became excited at the possibility of creating hand drawn narratives.

The process evolved intuitively. I did not start with the idea of making moving images. Once I became aware of the possibilities of working in this way I wanted to see how far I could take this playful approach. I remember having a lot of fun and felt somehow released from the burden of making 'serious' art. The slightly awkward quality of the drawings gave them a child-like feeling that I decided to exploit. I began to introduce images that had the feeling of children's drawings, such as a yellow bi-plane that circled the landscape and dropped a para-glider into a pond.

Although I began to develop a narrative by this method, I did not want the narrative to be scripted in a literal way. I was more interested in the visual process of changing and developing a series of images than in telling a story with a beginning a middle and an end. What fascinated me was that the images themselves were somehow telling me what to do next. The process itself seemed to be taking control and I felt as if I was tapping into elements of my subconscious that had not been accessible before. This was something I thought I could explore and I began to feel that my creative juices were beginning to flow again.

B.I.5 The Virtual and the Physical

I realized the virtual nature of computer drawings has both positive and negative implications. On the positive side it enables me to work a lot faster than with traditional materials, it is not messy and does not require cleaning up. The drawings, being virtual, are automatically stored in the computer and are easy to copy and reproduce. On the negative side they lack the physicality³⁰ and aura³¹ of traditional works of art. It is this lack of physicality that initially

³⁰ Refer to Physicality website.

prevented me from accepting the computer-generated works as serious art. I felt that they lacked the weight and presence of traditional media such as paintings and woodcuts. Yet, ironically I was more excited about the images and ideas I generated on the computer as opposed to using traditional media.

This dilemma led me to attempt to bridge the gap between the virtual world of the computer drawings and the physical world of traditional media. I decided to use one of the computer drawings as the starting point for a large woodcut panel. The graphic quality of the computer images, the use of flat, strong, colour and the awkward but expressive quality of the drawing reminded me of expressionist woodcuts. By means of a digital projector I projected the computer drawing onto a large wooden board (900 x 600 mm). Projecting the digital drawing on a large scale resulted in an exaggeration of the jagged edge or pixelated quality of the image. I became aware of this while painstakingly tracing the drawing by hand. I realized that the computer drawings were constructed entirely from vertical and horizontal lines. I became fascinated by this kind of digital thumbprint, which gave the drawings a distinctive aesthetic. This aesthetic acknowledged their source as being computer-generated images.³²

My initial intention was to use the computer drawing as a starting point for the woodcut in the same way that a traditional drawing would be used. However the concept of creating a hand-made computer image intrigued me. I decided to adhere strictly to vertical and horizontal marks when executing the cutting. This slowed down my process of working considerably as I had to be careful and controlled in my cutting. Once I had finished cutting out the lines of the drawing, which took weeks, I decided that I would shape the edges of the wood block to echo the jagged quality of the lines. I used a jigsaw for this.

Finally I decided to add colour to the panel. The original computer image, produced using basic software, had strong flat areas of colour. In order to emulate this look I decided to use printing ink applied with a rubber roller in flat areas. I used masking tape to obtain a hard edge. This was also a slow process.

The entire process of making the wood panel took months whereas the computer drawing was made in minutes. I found this ironic, but intriguing. By translating a virtual image into a physical object I felt I had resolved my reservations about computer generated images and had managed, by slowing down the digital,³³ to imbue it with a sense of physical aura and substance. I was also

³¹ Refer here to Walter Benjamin

³² Refer to "the jaggies", Negroponte, N. 1995. *Being Digital*, London, Hodder and Stoughton. (When designers tried to emulate the computer look).

³³ Refer to comment by Professor Donal Fitzpatrick.

pleased that the digital drawing process had stimulated my creativity and had led to the production of what I considered to be new and interesting artworks.

B.I.6 Combining Digital and Traditional Media

This work was exhibited on a staff exhibition in 2006 and was well received by peers. The digital images from which the wood panel was derived were shown as a slideshow projected onto the opposite wall in the gallery. Due to the positive reception of this work I decided to continue working in this manner. I also need to note here that during the production of the first wood panel of this series (which took three months to make) I continued to work on the computer and produced a series of animated narratives. The manufacture of the wood panel was a slow, labour intensive, and physically demanding process. I found it necessary to divide my time between periods of hard labour and periods of fun.³⁴

The second wood panel in this series was approached in a similar way to the first one and was to be inked up in full colour. However during the process of preparing the surface to be inked it was painted white. I realized that by leaving the panel white the pattern and texture of the cutting became evocative and the piece felt more mysterious and poetic. In contrast to the first panel, which was loud and bold, the second one was quiet and enigmatic. What I found interesting was that the regular vertical and horizontal cutting together with the white on white minimal colour aesthetic evoked crochet work or tapestry. This was an unexpected result and added to the appeal of the work. The creative process can be mysterious and sometimes it involves recognizing and incorporating the un-planned or unexpected. This panel had its origins in a playful, light-hearted computer doodle that was transformed into a physical, tactile, object, through an intuitive and responsive process. The woodcut panel makes an oblique and mysterious reference to its origins.

B.I.7 The Digital Aesthetic

I was encouraged by the outcome of these works and decided to work towards an exhibition of related works. I continued to work on digital drawings as a means of generating images but I decided to extend my exploration into digital photography as a source of images. I wanted to see what would happen if I translated digital photographs into woodcut panels. By now I was completely immersed in what I call the digital aesthetic. For my next panel I began by taking close up photographs of a flower in my garden. I was drawn to this image by the strongly decorative and patterned appearance of the stamen. I reduced the photograph to a fairly low digital resolution so that the pixelated quality was exaggerated. This image was then transferred onto a wood panel in the same way that the drawings were. Because this image was derived from a photograph it was far more complex and therefore more difficult to translate into a

³⁴ I am reminded here of Paula Scher's definition of serious and somber creativity.

woodcut. I decided to focus on the repetitive and decorative qualities of the image, using a series of digital-like lines engraved into the wood. The resulting image had a quality reminiscent of a circuit board, but it also was shaped to look like a large flower and took on a sculptural appearance. I felt that the combination of the mechanical surface together with the organic shape expressed something about my own relationship with technology.

I continued working in this vein and produced another two large wood panels based on a combination of digital photographs. These images were developed from digital photographs using *Microsoft Paint* and were transferred onto the wood panels in the same way as I had done before. The difference was that here I manipulated the images on the computer and combined more than one image. In one of the panels I combined a photographic image with an image drawn by using a computer mouse. I then went on to make a woodcut panel that had the look and feel of the computer generated images but was actually cut directly without using any preparatory drawings. I made use of only vertical and horizontal cutting, which gave the work a pixelated look. This was a significant development. I felt as if the binary language of the computer had altered my way of looking and drawing. I began to see everything in terms of jagged or pseudo pixelated lines and even found myself doodling in meetings using this technique.

B.I.8 Professional but Simple

By 2007 I felt that I had a body of work that was worth exhibiting. The work was shown at artSPACEurban (2007) and later travelled to artSPACEberlin (2008). I titled the exhibition *Press Delete and Start Again* in a tongue-in-cheek reference to computer technology. The wood panels were exhibited alongside a digital projection of a series of animated sequences. At this stage I had not yet learnt how to translate the series of individual images into video format. I had worked out that by showing them as a high-speed slide show, animation was achieved. Each frame consisted of a jpg image, which was drawn using a computer mouse. This was a time consuming process. I was aware that more sophisticated programmes could offer shortcuts, yet I persisted for a number of reasons. I felt that my method of working was unique or at least that I had made it my own. I wanted to avoid a polished or slick aesthetic, which I felt would detract from the raw expressive quality I desired.³⁵

Practical necessity forced me to learn how to translate the digital images into video format. When the exhibition was taken to Berlin it became necessary to make the animation easy to transport and show. I was asked by the gallery to copy it to disc. I made inquiries and discovered that I could translate the jpg images into video format by using another basic programme, *Windows Moviemaker*. This enabled me to copy the videos onto disc, which made them easy to

³⁵ Refer to comments by Professor Calder (In *Drawing in a Digital World*, Appendix B).

access and potentially marketable as well. This programme also afforded the possibility of adding sound to the images, which I later did. Again I opted for a basic and easily accessible option when adding sound. I searched the Internet for 'free sounds' and created a sound track entirely out of them. I wanted to reinforce the notion of using basic, easily accessible, and inexpensive means to create my art.

Digital technology provides a means of expression and a way of stimulating and aiding my creative process. At this point I felt that I had definitely succeeded in freeing myself from creative block and I was excited about the prospect of doing more work with the aid of computers. As far as exploiting the possibilities of digital technology, I know that I had not even scratched the surface. I was working within my technical comfort zone, but I felt that even my tentative engagement with digital software had made a significant impact on my creative output. I felt that I should continue to exploit the raw quality that *Microsoft Paint* gave to the images. I was not, at that stage, prepared to invest time in learning more complex computer programmes because the software I had been using suited my requirements. I felt that my work would lose its expressive and raw quality by using more sophisticated programmes.

B.I.9 Digital Tools and Art Education

I also took into account my role as an art educator. My art practice has a direct impact on my teaching and I felt that my experiments with digital drawing could be incorporated into my drawing classes. My students come from diverse backgrounds and whilst a few are computer literate and have access to computers at home, the majority do not. Our department is not well resourced in terms of computers and has tended to focus on traditional media. I was aware though that many of the students were eager to employ digital technology in their art practice. I felt that if I could introduce them to the possibilities of using basic computer programmes such as *Microsoft Paint*, which was freely available to them in the open access computer lab, then at least those who had the interest would be able to take it further.

In 2009 I introduced a drawing project, which required the students to explore movement and animation. They were introduced to the possibilities afforded by using digital cameras, *Microsoft Paint* and *Windows Moviemaker*. These programmes were available on the computers in the open access lab and the department had four digital cameras that the students shared. The response to this project was phenomenal. This particular group of students had been challenging, and I was finding it difficult to motivate them. This project was received with enthusiasm and I could sense that the introduction of digital technology into the drawing class challenged and excited them. To my surprise students who had shown little interest in my class showed a high level of interest and motivation. Those students who were more computer literate than the majority particularly impressed me. They began to share their knowledge and experience with the group.

What was also a revelation was the way in which the project changed the students' approach to drawing. Drawing was no longer seen as an end in itself but as a means to an end. Despite my example of using the computer to produce images for animation, many of the students chose the option of using traditional drawing materials. The drawings were photographed at regular intervals and were then made into short animated videos using *Windows Moviemaker*. In their attempts to express movement they became far more experimental and daring in their approach to drawing. The results were exceptional and the atmosphere in the class changed from one of apathy to intense involvement. This was a clear demonstration of how technology could be used to aid and even stimulate creativity.³⁶

B.I.10 Journey into the Ineffable

In 2009 I was required to produce work for an important and prestigious university staff exhibition titled *New Connections*.³⁷ I decided to take my process a step further by creating a work that integrated digital animation and woodcut panels in one work. I came up with the idea of projecting the video directly onto the woodcut panels.

I had already begun developing a new series of images for a video that was to be titled *Journey into the Ineffable*. As with my other animations, I started with a computer doodle. I had no idea where I would end up and simply started drawing whatever came into my head. When I am doodling I often draw heads. Having drawn the first image I decided to make it move and also give the appearance of aging. As the drawings developed the head gradually disappeared and other images began to emerge. In my previous animations I had started with a drawing that became a setting for actions to take place. Here something different was happening.

A process of morphing took place that was directly afforded by the digital technology that allowed me to quickly copy and make changes to each drawing. In retrospect I realised that this was similar to a technique employed by William Kentridge, except that his drawings were physical charcoal drawings and mine were virtual computer drawings. In the case of Kentridge the process starts with a physical, static, drawing that is filmed frame by frame as changes are made leading to animation. In my case the process is reversed. The making of an animated sequence leads to the making of a static, physical artwork.

I had decided that I wanted to produce two woodcut panels based on images from the animation. I would project the animation onto a third blank panel flanked by the two carved

³⁶ Refer here to:

Eales, R. 2004. *The Artist and the Computer: Understanding the creative user*.

Eales, R and D. Perera. 2007. *Postcards From the Digital-Atomic Border: A study of creativity in action*.

Eales, R and D. Perera. 2007. *Creativity Support: Insights from the practices of digital-atomic artists*.

³⁷ Refer to New Connections catalogue.

panels. The decision as to which images to use proved difficult. I eventually decided on one of the head images. I started carving this image before I had decided on what the other image would be. The image I chose had a linear quality and I felt it was a good example of how the computer translates the movement of the mouse into binary marks that are either vertical or horizontal.

I had learnt from experience that carving an image of this intricacy on this scale (90 x 60 cm) required a huge commitment in terms of time and physical energy. I remember having serious doubts about my sanity and was not sure that I had the stamina to pull it off. I also remember wondering whether anyone would be interested in what I was doing anyway. I realised that I could probably have the image laser cut by a professional company and save myself a lot of time, pain and effort. Yet this would detract from what I feel is the strength of my works. The relationship between the digital quality, mechanical and impersonal, and the handmade quality, human and highly individual, is what really intrigued me. In essence this is what this work is concerned with.

I proceeded with my daunting task and as the image developed I began to feel more confident. Feedback from colleagues was encouraging. Although one colleague said that he thought I was truly 'anal' to be working in this painstaking and labour intensive way. I was not sure whether this was intended as a negative comment on my personality or on my work or both. I decided not to let this bother me as I had received positive comments from others and from some students. I was also totally committed to finishing the project.

I was pleased with the outcome of this panel and felt that the rawness of the wood (revealed by cutting through the white painted surface), made a strong impact. I decided to leave it in this state and felt that it complemented the starkness of the black and white digital drawing from which it was derived. This image had a static quality about it but it also had an implied sense of movement because of the agitated quality of the lines.

I had been delaying making the choice for the second image. I looked through the animated sequence of drawings and realised that whilst some of the images had a complete and static quality (like the one I had recently carved), others were more transitional. I use the word transitional to describe the drawings that show the morphing or changing of one image into a new image. These drawings provided a graphic record of my intuitive process whilst working on the computer. They illustrated literally how ideas developed through the act of drawing. To complement the 'complete' image I had carved, I decided to carve one of the 'transitional' images.

My initial intention for this work was to project the video onto a plain white board to be flanked by the two woodcut panels. In this way I wanted to set up a dialogue between the physical, static

images and the virtual animated images. After experimenting with this idea I realised that for the video to be visible it would need to be shown in a relatively dark space, which meant that the two flanking panels would not be visible. I tried projecting the video directly onto the woodcut images and this worked as the light from the projector illuminated the woodcut. Due to the format of the video image it could not be projected to cover both of the panels. The solution was to use only one panel for the projection and I chose the transitional image for this. I realised that this practical problem had led to a solution that also made conceptual sense. By projecting the moving images onto this particular image the integrated relationship between them was strengthened. I exhibited the second carved panel separately.

This work was the subject of a research paper delivered at the Faculty of Arts and Design Conference 2009, and later published in *TRACEY: Drawing and Visualisation Research*, April 2011.³⁸

Reading between the lines, and judging from verbal feedback it would appear that the woodcut panel exhibited on its own, without the video projection was regarded as more successful than the piece which integrated the two. Some viewers responded positively to the projection piece. I noticed that these were mainly younger viewers (art students). I also observed that some viewers were not aware that the video was projected onto a woodcut panel. This probably was due to the way in which the piece was exhibited in a darkened booth. This meant that the image on the wood panel was difficult to see. This is something to bear in mind for future work and I need to do more experimentation with this aspect. I am excited about the idea of integrating the physical and the virtual.³⁹

B.I.11 Viewers and Accessibility

The issue of 'accessibility' to art by the viewer is an issue that concerns me. I often struggle to gain access to the meaning of contemporary art works. I am aware that this is an ongoing discussion and that many people who are not accustomed to having to work hard in order to understand or appreciate art can easily give up. If someone who is professionally trained as an artist finds it difficult, how much more difficult could it be for someone who is not? During the *New Directions* exhibition I observed viewers looking at the work. Most of them spent little time on each work and tended to scrutinize the work from close up which did not enable them to get the required distance for viewing. It is customary for artists to have textual statements that help clarify their concerns, as well as walkabouts to deal with questions that viewers may have. Whilst this helps those who are interested in the work in the first place there is no guarantee that the work will communicate in the way that the artist desires. I believe the artwork itself

³⁸ See Appendix C

³⁹ Make reference here to Nathaniel Stern's work. (Resonance)

should be intriguing enough to invite the viewer to seriously engage with it. I do not believe that art should be easy to access in a facile way, yet it should stimulate the viewer to take an interest.⁴⁰

These are issues that concern me about the reception of art. When I am involved in the creative process I do not consciously think about the viewer. I am mainly concerned with expressing myself and become more engrossed with the process of working rather than the end product. This happens particularly in the initial stages of a work when I have little idea of where I am going. I find that the process of drawing on the computer helpful in generating ideas. I often start without any concrete idea and just begin by doodling. What happens on the screen leads to an idea that I then develop in a playful way, responding to the changes made as I go along. This intuitive way of working leads to unexpected results. What could be problematic is that the work lacks structure or clear 'meaning'. I am aware of this and feel that my work could benefit from a more rigorous conceptual underpinning. This is something that I need to address in my work. I do not necessarily want my work to become obvious or didactic but the issue of relevance does concern me.

B.I.12 Relevance and Motivation

The relevance of art is an ongoing debate. The modernist 'art for art's sake' approach has given way to the concern with social and political issues that much contemporary art manifests. Where do I position myself in this debate? When I reflect on my past work, I notice two distinct trends. A major portion of my work shows a concern with visually documenting my everyday environment. Often my response to the subject matter was purely aesthetic and there was no 'deeper' underlying meaning or message. However this began to change when I became aware of how images of the urban environment could be used to reflect the socio-political issues of the place and time I live in. My work underwent a subtle change as I began to bring in an element of interpretation and social comment. In this sense I think I did some of my most 'relevant' work in the early 1990's that expressed concerns about the political uncertainty of South Africa at the time.

This focus on the external world eventually changed as I became more introspective. I began to focus on inner feelings and adopted a more meditative attitude to my work. This was different from my previous work and received a mixed response. It was probably perceived to be less 'relevant'.⁴¹

⁴⁰ Refer to blog on "Not Knowing".

⁴¹ Note that I need to refer to the intrinsic versus extrinsic motivation debate. Refer here to Amabile on creativity.

B.I.13 Problem Finding

Over the years I have developed a tendency to concentrate on one project at a time. This usually involved working in a particular medium or using a particular technique, focusing on particular subject matter, and usually led to an exhibition on a coherent theme. This method grew instinctively and seemed a completely natural way of working to me. What tended to happen was that once I felt I had exhausted a particular theme, way of working, or problem, I would begin to search for new ideas, or a new problem. These periods would be characterised by doubts and uncertainties until a new direction eventually presented itself. During these phases I tended to concentrate on drawing. This is a process that many writers on creativity have referred to as *problem finding* as opposed to *problem solving*.⁴²

As mentioned previously, the body of work under discussion here began with a period of doubt and uncertainty that led to 'problem finding' using computer drawing. What seems to be different from my previous experience, is that the problem finding process not only led to a new body of work (wood-panels) but it also led to a new way of generating ideas.

Whilst working on the wood panels I continued to experiment with computer animations and also began to explore conventional video as a means of generating ideas. I acquired a digital drawing tablet and began to play with the possibilities of combining video imagery with hand drawn images. This work is still in its experimental stages. I am interested in the possibility of using moving images taken directly from my everyday environment in combination with hand drawn animation. I feel that there is a possibility to return to some of my previous themes in a new way and hopefully with a new perspective.

Simultaneously, I began to explore the possibilities of translating my computer-drawn images into hand drawn images using the traditional materials of pencil on paper. Initially I had no idea why I needed to do this except that it felt like a good idea. Possibly I was influenced by a comment made by visiting artist and academic, Prof. Donal Fitzpatrick (2009), in response to my work. He said that in my wood panels I was 'slowing down the digital'. In these drawings, I think I succeeded in slowing down the digital in a literal sense. I set out to transcribe images that I had drawn on the computer, pixel by pixel, using a pencil on paper. My sense is that these drawings are part of a 'problem finding' process.

B.I.14 Slowing Down the Digital

'Slowing down the digital' is a metaphor. Digital technology speeds up just about everything. While this benefits our lives there are also negative aspects. Fast and easy processing of information leads to problem solving and in many instances appears to facilitate, and perhaps

⁴² Refer here to Amabile, Czikszenmihalyi, and Sawyer.

even enhance creativity.⁴³ However as technology speeds up our lives there is a danger that something is lost. Slow, contemplative, and meditative states of mind are not normally associated with new digital technology. Fast and easy access to information has led to a phenomenon known as information overload which instead of leading to clarity, can lead to confusion.

The initial computer drawings had a direct and dynamic quality. I sat at my computer, using a mouse to draw images I observed from my office window, which looks out on a busy traffic intersection. I tried to capture the speed and dynamic energy of the city. The digital medium was well suited to this task. By translating these images into pencil drawings I wanted to imbue them with a different quality. The focus shifted from the dynamism and energy of the subject to the contemplative, and meditative process of drawing. I focused on the abstract qualities suggested by the computer drawing. The slow process of translating each pixel into a slightly different tone meant that I had to concentrate all my attention on the *moment* of making each mark. It became a contemplative, meditative experience in direct contrast to the initial computer drawings. Drawing on a computer does not provide the sense of tactile engagement that drawing on paper does. The 'slowed down', contemplative and tactile qualities of my drawings represented the antithesis of the fast, virtual world of the computer. I felt that I had humanised the computer-generated images. I also felt that I had managed to synthesise the digital and the handmade.

Many of the characteristics discussed above are found in my earlier wood panels that also slowed down the digital. The drawings have a different quality because the medium of pencil on paper allows for more subtle nuances of tone and texture. Drawings are traditionally seen as exploratory. They often lead to works in more 'substantial' media such as paintings, prints or sculpture. Thus I tend to regard these drawings as ideas for future work although I do feel that they can stand on their own.

These drawings have as yet not been exhibited, however feedback from students and colleagues has been positive. Most responses noted the experimental nature of the work as well as the attention to detail and the time and concentration required. I would like to take the process a step further by translating these drawings, which are themselves a translation of digital drawings, into another medium such as woodcut prints or etchings.

⁴³ Refer to Treadaway and others on computer-assisted creativity.

Section II

Drawing Journal Entries

24/02/2011

B.II.1 Drawing Experiments

Yesterday I had the idea to start drawing again using the digital tablet.

I realised how out of practice I am and found it difficult. I think that using this tool is somehow more difficult than using a mouse. Probably the reason is that I have had more practice in using a mouse. All those long hours spent drawing for animation led to a certain amount of fluency.

While drawing and struggling I decided to start using the tablet more regularly and to reflect on my process of learning. It would be interesting to see how quickly my skill improves and it would also be interesting to see what the drawings lead to in terms of ideas.

My intention is to keep a reflective account of my progress and process.



Figure B.1: *Hand*, 23/02/2011, digital drawing

This was my first attempt at using a digital drawing tablet after a lay-off of at least three months.

I am using a *Wacom Bamboo* tablet. The software programme is *Artrage*. I used the *pencil* tool, and am restricting myself to this for now. I used the *plain* paper setting. I also experimented with the *layers* tool.

In this first drawing I decided to simply sketch my hand. My initial idea was to try and create an animated sequence of a moving hand. I will be teaching a drawing module to second year students in two weeks time and I wanted to do something that I could show them. I realized that this was going to be more difficult than I thought.

Lately I have been doing a fair amount of sketchbook drawings using a black pen on white paper. My drawings are fluent and I find it easy to work in this medium. I have been doing it for years. The process is direct and I can concentrate on observation and expression without having to worry about technical issues.

My immediate response to working on the digital tablet was that hand-eye coordination was much more difficult to master. I had recently sketched my hand using pencil on paper to demonstrate to a student who was having difficulty in drawing hands. I had no problem doing the sketch, but when it came to doing the same thing digitally, I struggled.

Hand eye coordination is made more difficult by because the drawing takes place on a blank tablet, which remains blank, while the image appears on the screen. When drawing from observation directly on paper you have to match your hand movements on the paper with what your eye is looking at. There are various ways of training this and with time it may become an intuitive process. The 'feel' of the medium, the sense of tactile contact with the paper and the way the hand moves across the surface with varying pressure is an important part of the drawing experience. With a digital tablet this is missing. The drawing really is virtual and does not exist physically. There is no sensation to guide the hand. The tablet is pressure sensitive but the sense of the pencil dragging across the surface of the paper is missing.

Another challenge was that every time you lift the pen and put it down again you have to be aware of the position of the pen in relation to the drawing on the screen, in other words its virtual position. There is nothing on the tablet itself to guide you. This means that the pen often moves off the edge of the tablet while in the virtual drawing it may be in the middle. I found this particular aspect frustrating. I decided to try a new drawing in which I would try to address this particular challenge.

I decided to draw the objects on my desk using a purely linear style. By using a *contour* technique I hoped to gain more control over the lines. The drawing has a shaky feel to it and I still found it difficult to coordinate my hand movements with what was happening on the screen while at the same time trying to observe the contour lines on the objects. I found it difficult to

maintain a feeling of tension in the lines. It was particularly noticeable in the straight lines, but also on the curved contours of the lamp and the electrical cords.

The second drawing was no easier although I began to loosen up and was less concerned with creating a 'good drawing'. The coordination remained problematic. I also became aware of the scale limitations. The drawing tablet's physical dimensions are A5, which is the size of a small sketchbook. I am used to working on this scale, but somehow I felt cramped. The issue of scale is interesting when working digitally because the scale of the end product is not limited to the actual scale on which one works. The drawing tablet restricts my hand movements and the ability to make large sweeping gestures is severely restricted. I realize now that this may be one of the reasons I find drawing with a mouse easier. There is not the same scale restriction. I could move the mouse around on a larger surface more freely. Another reason may well be that most of my mouse drawings were done purely from imagination and did not involve direct observation.



Figure B.2: *Contour I*, 23/02/2011, digital drawing

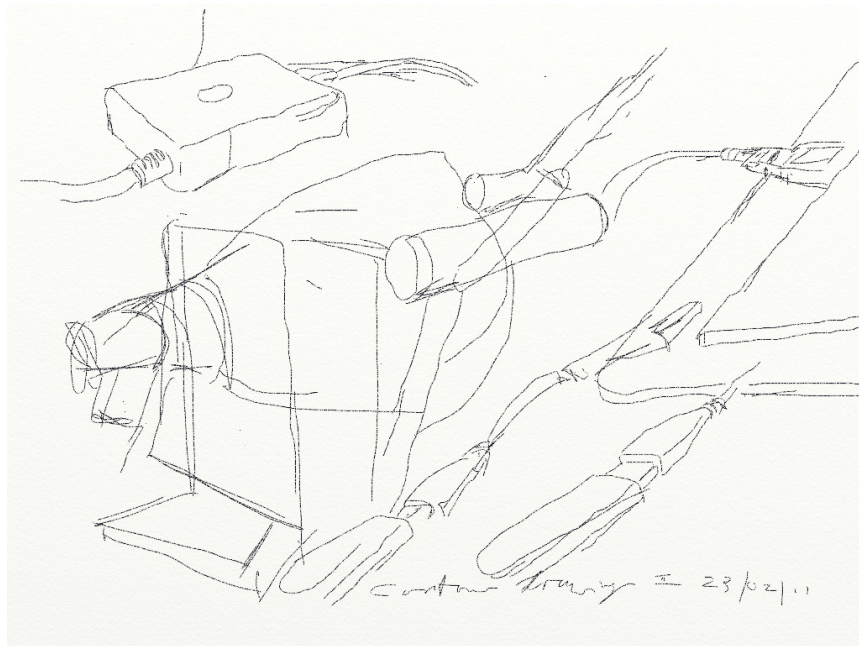


Figure B.3: *Contour II*, 23/02/2011, digital drawing

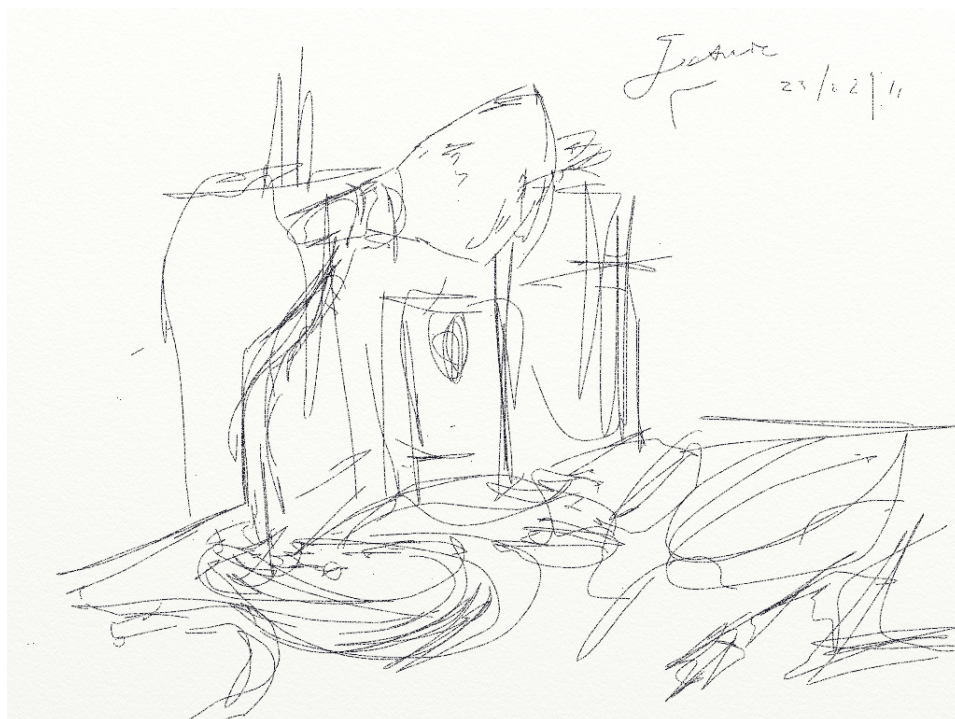


Figure B.3: *Gesture I*, 23/02/2011, digital drawing

In this drawing I decided to vary my approach. Using the technique of *gesture drawing* I attempted to get more freedom of movement into the process and in this way hope to eventually get more used to the medium. Coordination, ‘going off the page’ and tactile feeling were still a problem.



Figure B.4: *Gesture II*, 23/02/2011, digital drawing

This drawing probably expresses my frustration with the process, but it does have a strong gestural quality. Not a great drawing, but strangely alive and energetic.

Today (24/02/2011) I continued with the digital tablet drawings. I decided to try drawing more slowly and used a linear, contour drawing approach. I drew directly from life again. This time I concentrated on trying to keep the lines flowing for as long as I could without lifting the pen. I found that by not looking at my hand too much and by concentrating more on the objects I was drawing, I started to get more control. I also found that if I ran out of space on the tablet surface I could lift the pen and the cursor would remain where it was on the screen. This way I could move back into the tablet and pick up the line where I had left off. I am amazed at how quickly my brain seems to be adapting to this way of drawing.

Because it is essentially linear, this contour style drawing has the feeling of being traced and is flat. I tried to keep the process simple and therefore the lines are all the same thickness and density. Although I used the pencil tool it has the feeling of a pen drawing. It has a graphic quality that would lend itself to etching. The composition was completely spontaneous as I simply started at an arbitrary place and focused on trying to control my hand eye coordination.



Figure B.5: *Contour III*, 24/02/2011, digital drawing

25/02/2011

B.II.2 Hand Eye Coordination

I continued with a contour drawing approach, this time attempting a slightly more complex problem of a view out of the window involving spatial challenges. I tried using a different strength of mark to differentiate between foreground and background, but stuck to a linear contour style. I discovered that by reducing the 'hardness' percentage the lines become lighter. I still have not mastered straight lines. The vertical lines are particularly difficult. This drawing was interrupted and as a result I lost focus. I need to go back to more simple problems and try to master this tool.

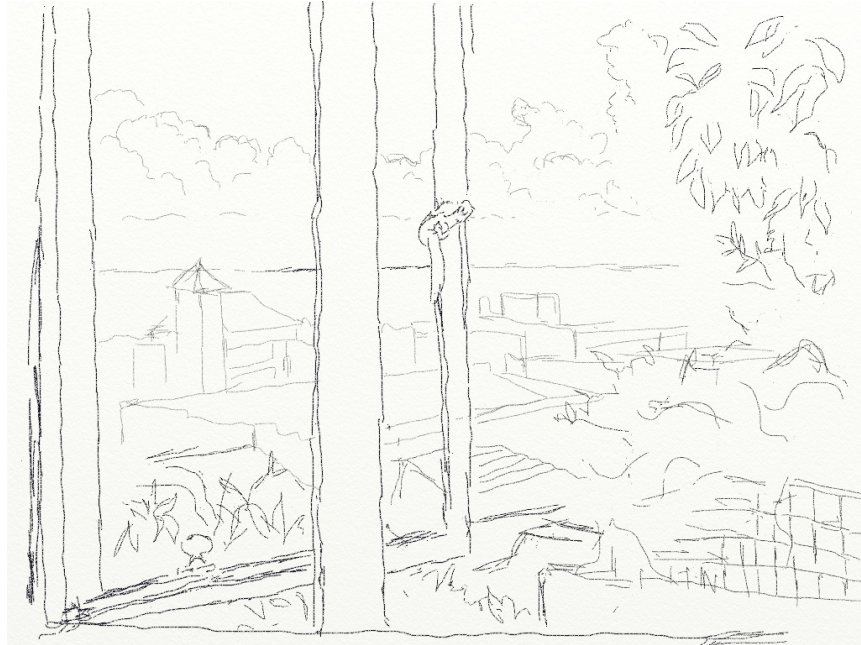


Figure B.6: *Contour IV*, 25/02/2011, digital drawing

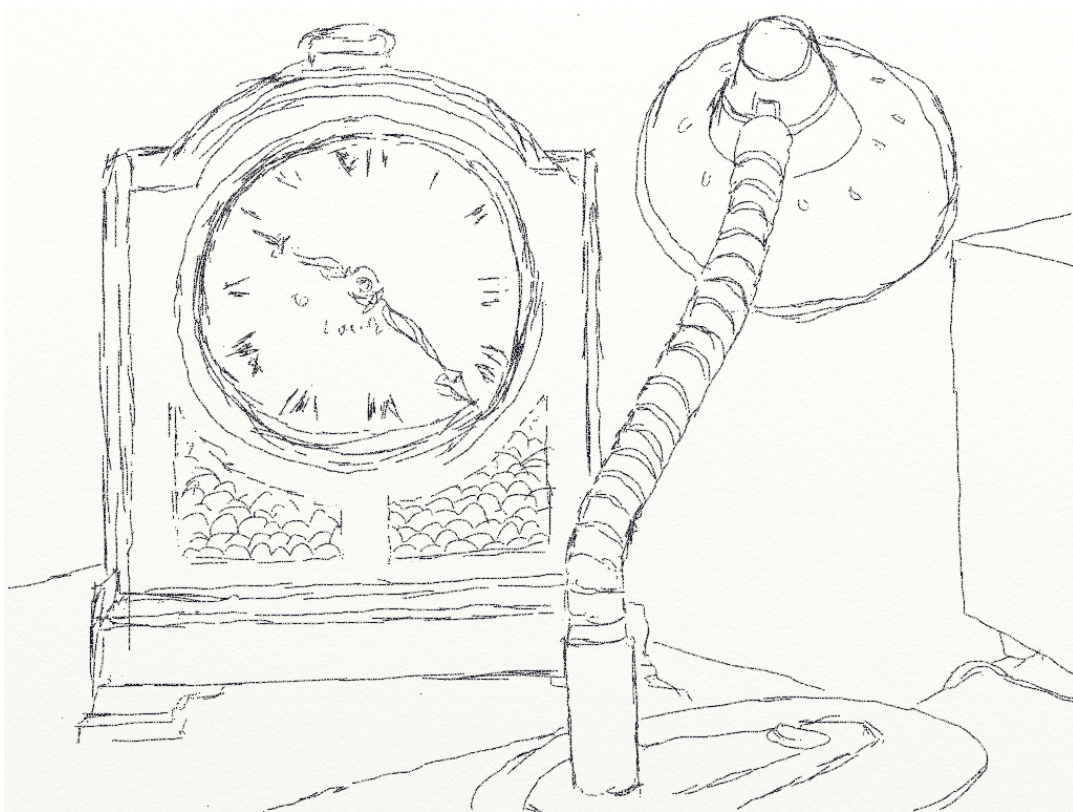


Figure B.7: *Contour V (Time Piece)*, 25/02/2011, digital drawing

28/02/2011

B.II.3 Loss and Effect of Computer Drawing...

I read the paper *Loss and the Effect of Computer Drawing on Time, Revelation, Iconicity, Authenticity and Morphology in Art Practice*, by Bell and Thompson (2010) and found remarkable resonances with what I have written above. I noticed that their findings confirm my own findings in a number of specific instances.

In relation to *time*, Bell and Thompson refer to how the responsiveness of the computer results in a different sense of *productive* time. Particularly when using programming, but also to an extent when using a digital tablet, a different sense of time occurs due to the artist's input, yet the computer completes the drawing. I struggled with hand eye coordination initially. Bell and Thompson explain how *physical control, hand eye coordination, and tactile physical feedback* are all missing in computer work. This resonates with my own observation: 'Coordination, going off the page, and tactile feeling were still a problem.' What I identified as challenges seemed identical to what Bell and Thompson refer to as *losses*.

What I also experienced was the *indirect quality* or *distancing* that occurs when drawing on a digital tablet. This led to a loss of spontaneity. The choice of a virtual medium determines the character of the marks that appear on the screen. In addition, making input to the software via the interface controls the width, and softness of the lines. Thus what is normally a direct, bodily, often instinctive action becomes a conscious premeditated decision. I regard this as a profound difference in the creative process. Spontaneity, if not altogether lost, is much harder to achieve.

There are however also *gains* to be experienced when drawing with computers. In my early experiments with computer drawing using a mouse, I was attracted to what I refer to as the digital mark. My initial intention was merely to make drawings but on discovering the pixellated quality of the marks made by the computer I began to exploit this quality in my traditional media works. Thompson and Bell refer to this phenomenon as *revelation*. By this they mean what is revealed to the artist that cannot be achieved in other media. According to Thompson and Bell there are three aspects to this *revelation*.

- Unexpected 'expression'.
- How computers work, how that affects expression, how through practice perception of what they are trying to do is achieved.
- What the software enables them to achieve.

(Bell and Thompson, 2010)

I certainly experienced all of the above. My fascination with and manipulation of the jagged edge was certainly unexpected. A further unexpected gain was the realisation that I could copy and paste drawings in order to record my drawing process. This led to the further revelation that I could animate the drawings, thereby introducing elements of time and movement into my work. In a profound sense the software I used, despite it being 'basic' or 'dumb', contributed to my creative process. There was a sense of *collaborating with the machine* (Bell, Thompson, 2010).

01/03/2011

B.II.4 Hansen and 'Embodied Perception'

In this regard I am reminded of Hansen's claim that the digital image is not static, but rather it is completely flexible and virtual.

Following its digitization, the image can no longer be understood as a fixed and objective viewpoint on "reality" – whether it be theorized as frame, window or mirror- ... (Hansen, 2004)

Hansen's statement is in support of his argument for what he calls *embodied perception* (2004: 8). That we have become *active users* of digital devices as opposed to passive viewers of media such as film and television has significantly altered our relationship with technology. Our active use of processes such as zooming, clicking, and hyper linking indicates that our relationship with technology becomes an *embodied experience* (2004: 10).

I agree with Hansen that the computer interface enables us to interact with technology, particularly in the sense that we are not restricted to selecting pre existent images, and that we can now *filter information directly* and so we create images (2004: 11). By using a computer to make drawings this sense of embodied perception is certainly something that I experienced. However, as indicated above, I found there were distinct differences between the embodied experience of working on a computer and that of working in traditional media. It was the virtual and non-tactile quality of digital drawing that prompted me to translate the images into physical, concrete artefacts. Ironically the process of translating digital images into large hand-carved panels was a lot less spontaneous. The experience was more physical and bodily. Creative decisions *were* required in translating virtual, digital marks into real, physical actions, but because the image had already been conceptualised on a computer there was a sense that my work was limited to an almost mechanical transposing of the image. In retrospect I found that the intensely physical activity of carving the images provided the work with an *aura* lacking in the digital printouts. When the images were projected on a large scale as animated movies they also attained a distinctive *aura* in contrast to the carved images.

In my next drawing I used the interface to vary the strength of the pencil marks in order to create a sense of space. I also used a crayon tool to create soft texture in the background. This was difficult to control and it took some time to get used to the softness adjustments. Again I

found the indirectness of the medium hard to adjust to. I would have to work for longer and to make the texture more integrated with the line work. As I was drawing I realized that I was no longer looking at my drawing hand but was focusing on the screen and my subject matter. My hand eye coordination has already improved after ten drawings. If I use this tool more frequently I suspect it will get even better.



Figure B.8: *Line and Tone*, 01/03/2011, digital drawing

03/03/11

B.II.4 Three Self Portraits

The three self-portraits were done from a mirror. The first one started as a contour drawing, with some attempts to add shading. I am not happy with this. It is too stiff and lifeless.



Figure B.9: *Self Portrait 1*, 03/03/2011, digital drawing



Figure B.10: *Self Portrait 2*, 03/03/2011, digital drawing

The second one was more quickly drawn using a gestural approach. Result is looser, more spontaneous and natural. I feel that the gestural style has a lot of potential for increasing fluidity and hand eye coordination.



Figure B.11: *Self Portrait 3*, 03/03/2011, digital drawing

This one was drawn in blue by accident, but the more subtle tone of the blue adds to the quiet mood. The contour line approach gives it a minimal feel and the blue colour adds to the slightly melancholic feeling... blue becomes a metaphor. I think the searching quality of the lines adds expression to the drawing as well.

14/04/2011

I did not journal last week as I was teaching drawing and had no extra time.

B.II.5 Student Project: Animation/Movement Through Drawing

The drawing session with the students was focused on animation and movement and thus was relevant to my research. We started the session with life drawing emphasising gesture and movement and followed this with an animation project. I was pleased with the results. The variety of techniques adopted by the students was unexpected. There was a predominance of stop-frame animation, but the way they approached it varied. The majority of student opted for charcoal drawings that were altered by erasing, but there were others who made multiple single drawings that were scanned. One student opted for a combination of 'claymation', still photos of his fingers walking, and pen drawing. As with previous offerings of this module, I found that the students were highly motivated and showed initiative in finding solutions. The attitude to their drawing was generally highly experimental and not at all precious. In some cases the drawings were completely erased by the end of the project but in many cases they ended up with extremely rich drawings showing lots of the history of the mark making.

The success of this module has prompted me to continue with it in the next module. The students seem keen on the idea. Many of the technical problems that were experienced the first time will probably be ironed out next time. The biggest difficulties were a lack of availability of cameras and tripods. This is a departmental problem, but we will just have to plan more carefully next time. We can also devise alternative devices to compensate for lack of tripods. The other problem was with the editing. Many of the students were unfamiliar with *Windows Moviemaker*, but by the end most of them had mastered it.

I did not set a theme for the week and therefore the content was left up to the students. They had no difficulty in coming up with ideas and concepts. The whole issue of struggling with concepts that had previously been raised did not come up. I found this interesting. It was as if the excitement of making a movie allowed them to generate ideas spontaneously and freely. This resonates with my own experience. The animation process frees up the imagination and stimulates the creative process. I noticed that most of the students were totally absorbed in their work. They worked harder and for longer periods than previously. I would say that they had achieved a state of creative 'flow' (Csikszentmihalyi, 1996).

B.II.6 My Own Work: Animation Series

Seeing the students in action made me want to get started on a new animation series. What has been holding me back? It seems like I have become creatively stagnant again. All the reading and writing about practice-based research has been interesting but my practice seems to have stagnated.

The digital tablet drawings are an attempt to get things going again. I must push harder with this. I also have to get more writing done for the thesis. Seems like I just have to work harder. Tried to work out how *iMovie* can be used for animation. It seems to be too slow. *Moviemaker* works better. Have to find a way. I will keep trying.

15/03/2011

B.II.7 Yesterday's Drawings



Figure B.12: *Drawings for Animation 1*, 15/03/2011, digital drawing

These drawings are potentially the beginning of an animation series. At this stage they are simply part of my 'practice' sessions with the drawing tablet. I am not at all sure where they will lead me, but I am hoping to produce a sequence of drawings that will be edited into the form of an animated film. So far I do not have a story or even a broad theme in mind. I am letting the drawings guide me. I began by using a pen sketch from my sketchbook, made during a drawing class. It depicts one of my students studying his hand. I think there may be a possible concept here...I could develop the idea of his hands starting to take on a life of their own. Perhaps the hands could transform into something else, or perhaps they could start attacking him. I was also reminded of the images created when hands cast shadows on the wall, a game I played as a child. Image such as birds and dogs came to mind. It is only now that I am reflecting on the drawings that I start becoming more aware of these possibilities. I find the process of verbalising my thoughts helpful. I think that this also helps to shed light on my own creative process and hopefully thereby will be of interest to others who are curious about the creative process.

B.II.8 The Relevance of What I am Doing:

As the above statement indicates, I am concerned about the relevance of my work. At a seminar held at the DUT Art Gallery yesterday the issues of relevance, subjectivity, self-indulgence were raised. The seminar centred around questions concerning art and research. It was suggested

that contemporary trends in art were moving away from the production of aesthetic art objects and that artists were being seen as 'service providers' who conducted research. I have ambivalent feelings on this. Clearly my age and my training influence my thinking. I struggle with the idea of an artist not producing art objects or a product of some kind. At the same time I find the practice of challenging and questioning the role of the artist essential to the growth of new ideas. My project centres on my own practice using drawing and technology in order to throw light on the creative process. Art as research or research as art? By using my own creative output as data am I simply using art to conduct research about art? Does this have any relevance outside of my own practice? I am hoping that it does. By including the creative process I think I am broadening the relevance.

I believe that trends in art come and go. The role of the artist is constantly changing and there are a variety of different roles being acted out at any one time. Probably what marks our present era is the possibility for artists to choose from a wide variety of roles or definitions. Subsequently the 'product' (or lack thereof) has undergone significant changes. It is possible for someone to practice as an artist without having any drawing skills in the traditional sense. Digital technology has facilitated this. So has the trend towards forms of art that are more conceptual or social in their methodologies. Yet despite this phenomenon there appears to be a resurgence of interest in drawing. My contention is that drawing plays a fundamental role in the creative process. It always has and I believe it always will.

17/03/2011

B.II.9 The computer as a tool for analysis of creativity

I continued with this series of drawings yesterday despite feeling quite despondent about the project. I have serious doubts about the value of what I am doing, despite my rationalisation concerning the validity of my research. Why should my funny little drawings be of any value? The immensity of the crisis in Japan put me deeper into despair. But I pushed on anyway hoping that something would emerge. If nothing else the process of drawing is a way of giving meaning to my own relatively insignificant existence.

What strikes me as I look at the drawings now is that they are becoming stronger and more intense the longer I work on them. The initial drawing has a detached, objective quality because it is copied from a sketch done directly from life. It is not a great drawing but the lines do have a spontaneous quality. The hand is extremely sketchy. As I developed the drawing relying purely on imagination and memory the character of the drawings changed. The lines became more exploratory as I tried to imagine how the head and hand would move. A history of the mark making and erasures started to develop which adds to the expressiveness of the drawings. As I began to focus on the hands I realised that I could not rely solely on my memory and

imagination. My drawings of the hands moving were awkward and clumsy. I eventually started making use of a mirror so that I could observe how my own hands moved.

The focus of my research is on the relationship between basic digital software and creativity. I am starting to focus a lot on drawing, but it is on drawing using a digital device. The drawings could have been done using charcoal or pencil on paper and the changes could have been recorded on film or through a series of digital photographs. In this way a stop-frame animation could be produced. What makes the process that I am using different? An important factor is that each drawing remains intact in its original form. This means that I can return to any stage of the process and make different alterations thus taking the idea in a different direction. From a creative point of view this allows for far more flexibility. Another factor is that I have direct access to every stage of my visual thinking. This helps with critically examining and analysing my creative process.

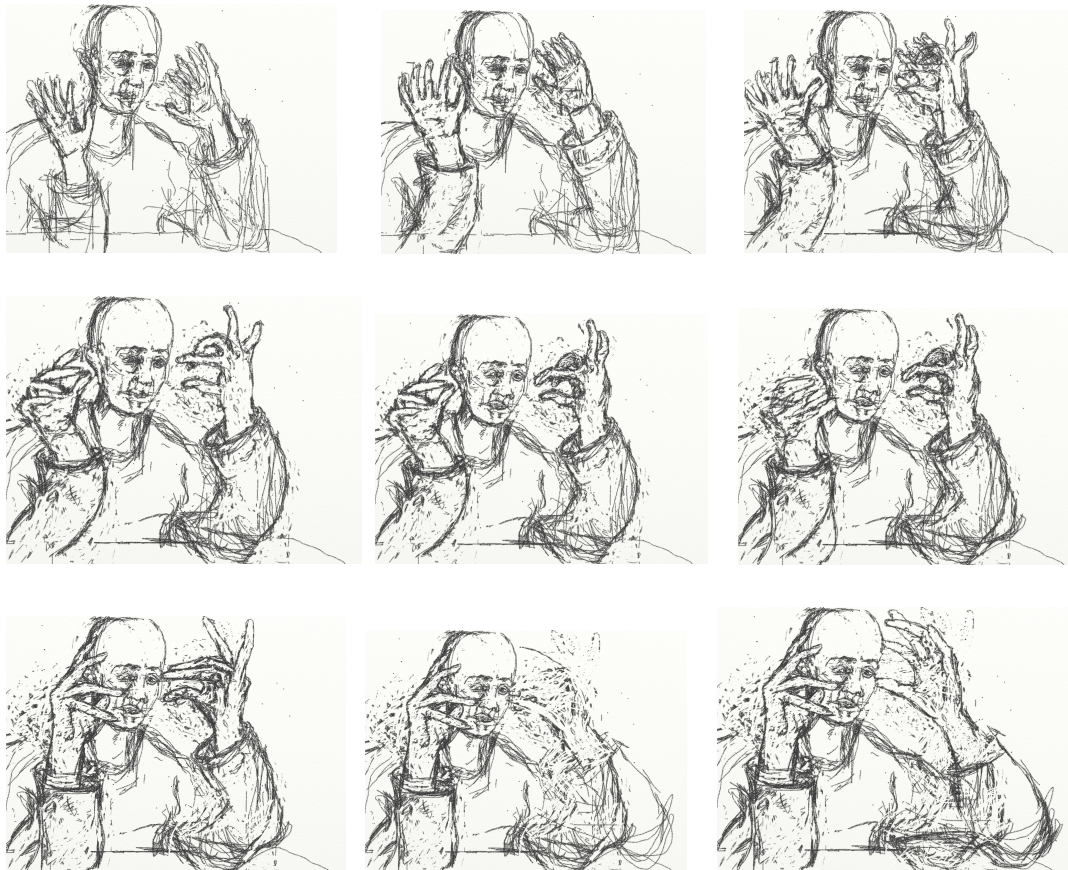


Figure B. 13: *Drawings for Animation 2*, 16/03/2011, digital drawing



Figure B. 14: *Drawing for Animation 2*, 16/03/2011, digital drawing

22/03/2011

B.II.10 Visual Narrative/ 'Artstories'

In my reading of Graeme Sullivan's *Art Practice as Research* (2010), this morning I think I have found a solution to a problem that has been worrying me for some time. Just a few days ago, on the 15/03 I wrote about the relevance or lack thereof in my work. I have had the feeling that the content of my work lacks resonance with a wider audience.

In the section *Working in Communities* Sullivan (2010:168-170) discusses the new opportunities and sites for artistic practice explored by artists who work in communities. He talks about how these artists often combine personal vision and public voice by working as theorists in an interactive and communicative way often exploring history and tradition.

The work of Pamela Lawton (2004) *Artstories*, uses printmaking to recreate narratives passed down through generations. Lawton's PhD applied the principles of integrating visual and verbal stories in an intergenerational study. Teenagers and senior citizens collaborated to produce *artstories*.

On reading about this I realise that my project has the potential to explore narrative and storytelling in a unique and dynamic way. I have already begun to think about stressing the narrative element of my animated movies. This element is already present in my work but I feel that it is too obscure and too limited. The storytelling workshop *The Halo and the Noose* (Harhoff and Williams 2011), that I participated in earlier this year made me consider emphasising the narrative aspect of my work more consciously.

My idea is to start using animated drawings to tell stories of a personal nature and to get my students to do the same. In this way I could set up a dialogue across a generation as most of my students are at least one, if not two generations younger than me.

By doing this I will not be deviating from my proposal because I will still be investigating the use of basic software and creativity. The difference will be that the context of the investigation will be more focussed. The focus on storytelling will add another dimension to my research and should address my concerns about relevance and resonance with a wider audience.

30/03/2011

B.II.11 Art Practice as Research

The last few days have been spent focusing on reading Sullivan's *Art Practice as Research* and on developing a presentation based on some of his ideas. This exercise has helped me to assess my position and re evaluate where I am going.

To be honest I am not so sure where I am going. I still have a nagging feeling that my project lacks a strong purpose. The question prompted by reading of Sullivan is 'What is the point of my research?' Can I answer this?

I think the point originally was to motivate myself. I thought that by undertaking a doctoral study I would be placed in a situation where my art making practice would become more focused and rigorous. This has not really happened yet. The theorising aspect seems to have taken over. I have done a lot more reading and writing than I used to, but probably a lot less actual art making! I am not sure if this is necessarily bad, but it is disconcerting. It seems the more I think about what I have been doing and want to do the more self critical and doubtful I become.

I can justify the relevance of my practice, particularly in relation to my teaching, but somehow I still feel it lacks a broader relevance.

I have found some significant resonance in my reading, particularly in relation to the creative process. So far I would say that my creative process has been mainly instinctive and intuitive. What it often lacks is a focused concept or idea, a clear theme or direction. Although on reflection there have been clear periods in my production that dealt with quite specific themes. Perhaps I need to accept that I work like that. To try and force another way of working seems to be counterproductive.

22/04/2011

B.II.12 Rendering Self

I finished the book on A/r/tography (Irwin, 2004), which gave me a lot of ideas with regard to practice led research. A/r/tographers focus on the 'multilectual' (as opposed to dialectical) relationship between artist, researcher and teacher. Their approach is essentially autoethnographic. As the title says it is about "rendering self through arts-based living inquiry". So the emphasis is on rendering *self* through art and research.

I am drawn to the idea of *rendering self*. In a literal sense this links to the concept of self-portraiture. In chapter 10 *Praxis in Perspective*, Harold Pearce (2004) makes the link between autoethnography and self-portraiture. He asserts that *all* artworks are essentially self-portraits because they reveal something about the artist. He also claims that research reveals as much about the researcher as it does about the researched. I agree with this stance and I think it applies to my own research project. My drawings and animations can reveal insights about me as an artist and as a researcher through my reflection on them. The application of these insights to my teaching transforms the dialectic relationship between practice and research into a *multilectual* one.

In terms of structuring his research Pearce (2004) formulates core questions:

1. What is it I want to know? (Background, lit survey)
2. What did I learn?
3. How did I go about learning it? (Methodology)
4. What were the results of my *Praxis*? (Conclusion)

I think these questions will help guide and structure my project.

This links to Cain's 'enactive' theory (2010). I can bring this in to my 'Drawing and Cognition' chapter: section 'Learning through drawing'.

Now I am going to stop writing as the minutes are ticking away and I want to DRAW. I will take this up later.



Figure B.15: *Self Portrait*, 22/04/2011,digital drawing

This drawing took about 2 hours. It is nowhere near what I hoped it would be. I tried to capture the seriousness of my mood and the moody quality of the light. Drawing digitally is challenging. Again, because I have not done it for a while I struggle with the hand eye coordination. Another thing is the pressure sensitivity. The digital pen is supposed to be pressure sensitive, but I find that it is not sensitive enough when using the pencil tool. I overcame this to a degree by varying the tonal strength using the colour tool. You can get quite a wide range of grey tones this way. As opposed to the more instinctive control you have over tonal modulation when drawing with pencil on paper, here you have to stop and change the setting. It becomes a conscious decision and you tend to work in a more limited range. I started dark and then switched to a lighter tone and then back to a dark tone. Probably best to start light and build up to darks, but you can go both ways. I found that the drawing becomes more interesting when it is enlarged so that the digital quality of the marks becomes evident. I do not really know why, but it is that almost abstract quality that really turns me on. That is why I did the woodcut panel enlargements. Perhaps if I take sections of a drawing such as this one and enlarge it, something interesting will happen.



Figure B.15: *Self Portrait 2*, 22/04/2011, digital drawing

For this one I started with a grey background- a standard pre-set ('black-board'). I used the chalk tool and worked in various shades of grey, on grey. It took about two and a half hours. The result is pastel drawing effect. I prefer this drawing to the earlier one. Practice does make it easier. It looks a bit more like me too, although that does not necessarily mean it is a good drawing. I think this drawing would work well printed on a good paper. But I do not think it would work as a wood panel - too subtle.

What did I want to know by doing these drawings? Does one do a drawing because you want to know something? Usually yes, I do drawings in order to find out something, although I am not always sure at first what that is. Often I only know what the question was when I get to the answer. It is that issue of finding rather than seeking. This resonates with Joel Fisher's *Notes Towards a Propositional Drawing* (2009). It also relates to Csicszentmihalyi's 'problem finding' (1996).

In the case of these drawings I wanted simply to know a bit more about what I can do with the digital drawing pen. Each time I use it I discover new possibilities and also new challenges. I realised today that working digitally is scale-indifferent. By this I mean that even though the drawing appears small on the screen, and the drawing surface, the digital tablet, is small, the drawings can still have a sense of large scale. When I zoom in on areas of the drawing it feels as if I am enlarging the scale. This is purely an illusion I know, but I think because the medium is virtual I am able to imagine that I am working big. The physical gestures remain small, but somehow in my mind they grow to any scale I like.

There were other reasons for making the drawings. I have been thinking a lot about self-portraits and self-expression. The Pearse (2004) article made me aware of the connection between self-expression and research. In my teaching this week I set the students a self-portrait narrative project. This was a follow up to their previous animation project. Due to time constraints they have not completed it yet, but so far there are some interesting outcomes. Many of the students built on their experience of animation and responded well to the challenge. The concept of self-narrative puzzled them at first but once they understood what it meant they all became highly involved. I think that the project proved to be successful in getting them to draw with purpose and it also got them to reflect on the connection between their lives and art making.

I would not have set this project if it were not for the research I am doing into my practice. I think this validates my research and connects it to me holistically. My *praxis* becomes multilectical.

29/04/2011

B.II.133 Portrait



Figure B.16: *Young Man*, 29/04/2011, digital drawing

This is a re working of a drawing from my sketchbook. (The same drawing I used for the animation series I am still working on, which started 15/03/11). Here I experimented with a

coloured ground and worked with tones of grey using the chalk setting. I think the colour helps create a mood. Drawing with this software is mainly a matter of practice. I still feel clumsy every time I start a drawing. But fairly quickly I regain a sense of control and the eye-hand coordination becomes easier as I work. What is really different from 'real' drawing is the indirect way you control tone, broadness of strokes etc. This makes the drawing process a lot more conscious and less instinctive.

30/04/2011

B.II.14 More Self Portraits



Figure B.17: *Self Portraits*, 30/04/2011, digital drawing

Confronting my image in the mirror again... Where is this leading? I chose to work onto a black background. The drawings have a dark mood as a result. When I started out my mood was not really dark but the drawings just turned out that way. Maybe I did reveal some of my dark side. The 'aporia' that I talked about earlier is still there, and it tends to be quite dark. I seem to be going further and further away from the playfulness which features in my title. Where has the 'play' gone? I think that undertaking this research...the gravity of doing a doctorate has influenced my creativity. I seem to be going in a more serious reflective direction with these drawings. Not necessarily a bad thing.

I spent the last two or three days going over my notes on Sullivan's Visual Arts Research framework. He divides research up into three paradigms, the interpretivist, the critical, and the empirical. He says that visual art research moves across all three. I have been trying to see if I

can fit my project into his framework. The paradigm I have the most difficulty with is the Critical. In discussion with N it emerged that this is a problem that I have in general... not able to be critical. She maintains that there is a critical element in my work but I have difficulty identifying it and articulating it. This is something I need to work on.

Now I have spent too long behind the computer. I was in my office at the art school this morning and looked at the boards I prepared ages ago to work on. I am itching to make something physical again. I must start a new work.

Time for a break...

14/06/2011

B.II.15 Taking Stock

As the date indicates, this break was far too long. Have I completely lost focus? So much has been happening but I have not been journaling. I spent a lot of time working through Sullivan again and have tried to work out how I can make use of his ideas in presenting my research. I worked hard on this. Sullivan's writing is not easy to grasp. I think I was getting closer to understanding how his three paradigms intersect and how I can apply them. But now it all seems vague and fuzzy again. I have to go back to my notes and refresh my mind. I really am worried that I do not have the intellectual muscle to carry out this project. Sometimes I do not even know what the hell I am doing? People ask me what are you doing your doctorate on? And I can't even tell them. It sounds so self centred and insignificant.

So what is to be done about this state of affairs? Options:

Give up.

Change direction.

Carry on.

Pretend everything is fine.

Just make it work.

Review my position. Establish what is working and try to improve on it.

It is still this issue of relevance that bugs me. Am I worrying too much about what other people will think?

On Sunday evening we went to a poetry soup kitchen at M's place. She and D read and talked about their poetry. They both write about their own experiences of the world around them. They work from the intensely personal but it resonates with others because we are able to relate to

their personal experiences and identify with them. I was surprised when M read a poem inspired by a story that I had told her. The poem was about her interpretation of an experience I had. I had forgotten that on first getting the poem from Mari I was inspired to make an animated sequence. I remember now that I began working on this but the project got shelved.

I have to stop worrying about what other people think and just get on with doing things for myself. If they are any good, then others will find relevance in them.

In conversation with J last week I spoke about my process of drawing and reflection. She advised me to video my process of drawing so that I could reflect on my body language and emotional state while drawing. I am going to try this.

I set up the video camera and started drawing using the BAMBOO pad. I drew from my imagination using the idea of the Warwick avenue women from Mari's poem. The drawing is still sketchy and I am not at all sure that I will be able to animate this idea. I think it could work as a print or just an illustration to the poem. But I am not happy with that idea. As far as I can see the video of me drawing does not reveal much. It does show that I look mostly at the computer screen and hardly ever at the drawing tablet. But I think I knew that anyway. This little exercise has not helped to change my mood. I am even more despondent. I hope I can change this, and I do not really want to give up at this stage...Perhaps I can still find a solution.



Figure B.18: *Warwick Avenue Women*, 12/08/2011, digital drawing

I look at the drawing now (12/08/11) and am more pleased with it than I was when I did it. I think it has spontaneity and freshness.

12/08/2011

Journaling has lapsed a bit. Have been concentrating on reading and trying to sort out the structure of my writing. Do feel a lot more confident now, but still need to get the writing going. Feel that I have a fairly good structure and now it is a matter of really fleshing it out.

B.II.16 Writing/Drawing Reflective Exercise

Got a new book recently: *Drawing: The enactive evolution of the practitioner* by Patricia Cain (2010). I have found her book resonates with me. She looks into drawing as a cognitive process and as what she calls 'first person methodology'.

Her combination of drawing practice and reflective/narrative writing inspired me to get back to my drawing/reflective writing practice. She also notes that the process of video recording did not work for her. The writing brings in another way of thinking that helps think about the drawing. The video recording is too passive and too objective.

On August 6th I carried out an experiment inspired by Cain's book whereby I started a drawing (using the digital pad) by just making a random mark. The idea was to start without any preconceived idea or concept and simply see where the drawing process took me. I documented every stage of the drawing and also wrote about it as I developed the drawing. The idea was to reflect on my process as I was working.



Figure B.19: *Drawing Reflection, Stage 1-3, digital drawing*

4. First line – just a squiggle
5. Another lighter one – similarly random
6. Another line above –Reminds me now, - suggests rather, a head – do I follow this idea?



Figure B.21: *Drawing Reflection, Stage 4-6, digital drawing*

7. Reinforce top of head – seem to be following this possibility
8. Going with the head- (Predictable?)
9. Continue- what kind of head?



Figure B.22: *Drawing Reflection, Stage 7-9, digital drawing*

10. Nose – I AM being predictable.
11. Mouth and chin- Now I really need to change things.
12. Totally random line- getting away from the predictable.



Figure B.23: *Drawing Reflection, Stage 10-12, digital drawing*

13. Trying to pull away from 'head' into the corner...
14. Random line in top left corner – 'balancing'.
15. Broken line- still random – coming into the 'head'.



Figure B.24: *Drawing Reflection, Stage 13 - 15, digital drawing*

16. Repeating a line I liked- drawing it again, next to it. (Starting to get impatient with this process – too slow).
17. Two lines – trying to formulate something – seems like a body...
18. Lots of broken small marks, around the top of the 'head'- like hair?



Figure B.25: *Drawing Reflection, Stage 16 - 18, digital drawing*

19. Sharpen the 'pencil' (1%). Line of a 'back' going into edge. Want to tie the drawing to the edge. Also added a body-like form in top right – suggestion of something.
20. Starts to become 'erotic'?
21. An eye appears- in response to the newly arrived 'body'!



Figure B.26: *Drawing Reflection, Stage 19 - 21, digital drawing*

22. Some shapes top left to tie drawing to edge and to get 'composition' going
23. Time to bring in tone, to differentiate shapes- change tool to 'pastel'.

24. Add more grey pastel marks on other side of body for balance.



Figure B.27: *Drawing Reflection, Stage 22 - 24, digital drawing*

25. Where to now? Need to 'let go' more. Back to strong pencil lines – returning to earlier marks – hair-like marks.

26. Broken lines – picking up on textured marks – not sure why.

27. Tentatively forming a 'body' for the main head.



Figure B.28: *Drawing Reflection, Stage 25-27, digital drawing*

28. Working on 'background'- some sense of space emerging

29. Fiddling with hair and face- thinking- what is this?- What does it mean?

30. Build up black pencil texture over grey pastel – I like the 'density' of this combination.



Figure B.29: *Drawing Reflection, Stage 28 -30, digital drawing*

31. More texture to top shape – Stronger – more assured – more aggressive – Drawing is becoming more about responding to itself – the drawing is taking over!
32. Softer pencil texture on right – I like the layered effect.
33. Filling in top left corner – too much? – drawing is starting to flatten.



Figure B.30: *Drawing Reflection, Stage 31-33, digital drawing*

34. The darkest marks so far – strong- abstract shape next to head – challenges the whole drawing.
35. Bring in dark patches at bottom, makes central figure stand out.
36. Work back into dark shape, make it denser.



Figure B.31: *Drawing Reflection, Stage 34 - 36, digital drawing*

37. Accentuate female form and male form- still going with semi representational.
38. Bad hand! Needs to go.
39. Erase hand.



Figure B.32: *Drawing Reflection, Stage 37-39, digital drawing*

40. Bring in dark shape- initially out of frustration with hand. Alters mood of drawing – more sinister.
41. Rework lines on 'hair' down back of main figure. Want to bring in another sinister shape – cannot decide where.
42. Found a shape: claw-like. Seems to connect to other sinister shape. (Need a break – 2 hours.)



Figure B.33: *Drawing Reflection, Stage 40 -43, digital drawing*

43. Strengthen the black shapes.
44. Soften shape behind figure on left- make slightly lighter.
45. More work on background shape- figure starts to stand out more.
46. Slight tone into female figure.



Figure B.34: *Drawing Reflection, Stage 44, digital drawing*

47. Added some dark tones around edges- Seems to be working now. Not at all sure what it means -> something strange and dream-like.

B.II.16.1 Reflection after Drawing

What have I learnt from this experience so far?

My intention was to do a drawing with no fixed idea in mind. To start with a random line and see what happens.

I started with a fluid line that did not represent or mean anything. The second line was a sort of repeat of the first line, but broken, slightly overlapping. There was a diagonal movement beginning across the page.

Then came a few more lines that seemed to curve in an arc across the top of the page. Already in my mind I envisaged a head with long hair down the back, but it was still just lines. I was 'projecting' an idea. I drew a line at an angle, curvy, suggestive of an arm, still going with the figure idea.

Then came a 'nose', clearly representational and consciously drawn. This was followed by mouth and chin. A caricature-like head was emerging.

I tried to break away from this image. I drew another curvy abstract line across it, and started drawing another shape away from it. More lines were drawn, going over the initial lines, trying to break up the emerging 'figure'.

Some hair-like marks followed, going back to the 'head' idea. It seems like I was having trouble dropping this idea. Then another shape appeared that looked like a female figure (vaguely). I re-enforced this with genital and leg shapes. An 'eye' appeared in the central head: an eye to look at the girl.

More abstract marks came in now and I started to fill them in with grey tone. I was starting to think about composition. I started strengthening the hair down the back of the figure. I seem to have decided on a figurative drawing now, but also was working on strengthening the abstract shapes. I was conscious of 'composition'.

Mark making and texture started becoming important. I started building up layers of marks to make texture. This went on for a while, all over the drawing around the 'figures', but not on them. The texture was to emphasise the abstract shapes but it also brought out the 'figures'.

I tried to draw a hand for the main figure. Working purely from imagination, with no reference was a struggle. I erased it and re-drew but it got worse. I covered up the hand with a dark abstract shape that felt like a sinister presence. The shape suggested a head or a hat. This

shape shifted the mood of the drawing and set it on edge. It no longer felt playful. Another dark form came into the bottom left corner to re-enforce this mood.

From now on the mood of the drawing was established and I made formal adjustments to 'finish' the drawing.

In the end the figurative element remained dominant despite my earlier attempts to get away from it.

This was followed by further written reflection.

B.11.16.2 Reflection on Reflection (15/08/2011)

This exercise was an attempt to investigate and analyse my cognitive process while drawing. I do not normally work in this way, writing down or recording my process while working. I thought that it would inhibit me and slow me down too much. Actually I found it an interesting process. I had to constantly step outside of my 'drawing persona' into my 'writing persona' and then back again. I did not feel inhibited at all and it started to feel natural quite quickly. It was interesting that my 'writing persona' was trying to push the drawing in an abstract direction and my 'drawing persona' seemed to resist this. There was a battle going on between the figurative and abstract tendencies. I think that this tension is what makes the drawing interesting.

I would like to repeat this exercise and see what effect it has on my creative process.

19/08/2011

B.II.16.3 Reflective Drawing II

This series of drawings repeats the process of the last drawing/reflection.



Figure B.35: Drawing Reflection II, Stage 1- 3, digital drawing

1. Random line at top of the page. Going from left to right. No idea.
2. Careful, slowly drawn line – mimicking first line –below it- but shorter – simply stopped when I ran out of space on the pad. Only lines at this stage. No idea forming.
3. Circle in bottom right – slightly away from corner. All the lines are organic. Still no fixed idea. No reference or image comes to mind, except vaguely organic or natural forms.

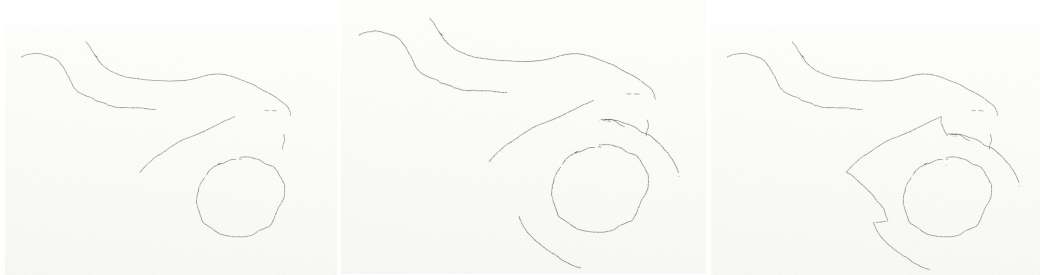


Figure B.36: *Drawing Reflection II, Stage 4 - 6, digital drawing*

4. Diagonal line moving from right to left, slightly above circle. The circle feels like it could become the 'pivot' of the drawing. Still totally abstract, still organic.
5. Two lines, one above and one below the circle, 'holding' the circle. The drawing has a topographical feel to it. Reminds me a bit of a map.
6. Linking the middle diagonal line to the outer circular lines. The circle shape is becoming contained.

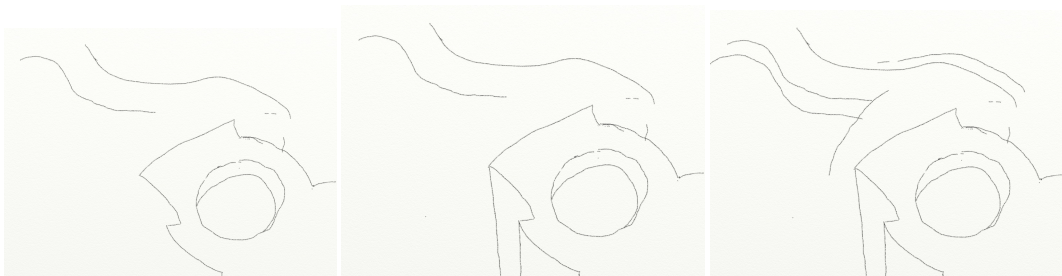


Figure B.37: *Drawing Reflection II, Stage 7 -9, digital drawing*

7. Working inside circular shape. Sense of three-dimensional form beginning to suggest itself.
8. Two straight lines – verticals – linking shape that encloses the circle. Sort of architectural feeling now

9. Working outside of corner shape. Trying to get a feeling of something – not quite sure what – just trying to make connections between wavy horizontal lines and the corner shape.



Figure B.38: *Drawing Reflection II, Stage 10 -13, digital drawing*

10. Lighten the marks. Pencil tool down to 4%. A bunch of short lines around edge of corner shape. A bit aimless at this stage. Not really sure where I am going. The marks are quite decorative. Just filling space.
11. Back to more 'structural' marks now. Drawing is taking on a sculptural feel. Let's see where this goes.
12. 'Shading' marks on inside of circular shape. Gives it a bit of depth.



Figure B.39: *Drawing Reflection II, Stage 13 -15, digital drawing*

13. Back to working on wavy horizontal lines at top of drawing. Unsure of what I am doing here. Tired! Not really feeling creative. Still quite curious as to where I can take this.
14. Adding short, choppy lines to side of corner shape – gives texture and shading – starts to emphasise the shape.
15. More shading-type marks. Going to stop now because I am too tired. Will take it up tomorrow.

An interesting idea is emerging: Sculptural/architectural forms interlocking. Needs a lot more work before it can become anything.

26/08/2011

Have not been able to get back to this drawing for about a week. Let's see what happens now.



Figure B.40: *Drawing Reflection II, Stage 16 -18, digital drawing*

16. Not sure what to do. Like starting all over again. Begin by using a darker line to emphasise one of the existing shapes> goes against the illusionistic quality of the shape, flattens it out and brings it forward.
17. Continue with this process – outline a few more shapes. Unsure of why, or where this will lead. Quite like the idea of interlocking abstract shapes. Ugly drawing at the moment!
18. Continue strengthening existing lines. Not sure what to do. Now, an idea comes! Going to introduce a new element...



Figure B.41: *Drawing Reflection II, Stage 19 -21, digital drawing*

19. Some new shapes to subvert the drawing. Conical shapes coming out of the circle bottom right. Creates confusion. Start to work with the idea of repeating existing lines and shapes. Quite chaotic, but some kind of rhythm is developing.
20. Continue picking up on this rhythm. Starting to get a 'layered' feeling- almost a sense of depth. Still chaotic – intuitive. Really just playing with lines.
21. Erase some of the old lines – trying to break away from the original dominant shape. Want to open up the drawing to new possibilities. (Working more slowly now – taking longer to decide between each step).



Figure B.42: *Drawing Reflection II, Stage 22 - 24, digital drawing*

- 22. A tiny bit of texture. Tentative. Not really what I want. Too superficial, just filling in a space.
- 23. Some lighter lines – creating another structure – going across the existing drawing.

Looking at this 'drawing' now: busy, quite chaotic, seems to lack focus. Am working without an idea, without a reference, looking for things in the drawing itself to give me direction. It does have a topographical map feeling. It seems like I need to relate the drawing to something concrete. Why can't it just be a drawing? It can just relate to itself.

- 24. I decide to go back to dark, strong lines and make a lot of curvilinear lines that feel organic. They pick up the topographical map feeling, but they also remind me of plants or trees, quite organic and flowing.



Figure B.43: *Drawing Reflection II, Stage 25, digital drawing*

25. Introduce some strong black lines to try to re-organize the drawing. Like jigsaw puzzle pieces arbitrarily dividing up the 'map'.

(Tired and uninspired. Need a break!)

29/08/2011

I look at this drawing now and wonder what to make of it. The drawing has a lot of movement, and also has a sense of looking through layers of lines and structures. It feels organic, perhaps a little tree-like, but it also has a sense of looking down onto an architectural structure. I am reminded of Mondrian's tree drawings.

What do I do with it now?

I have been seeing reports about 'Hurricane Irene' on the northeast coast of USA. This drawing really has a wind-swept feeling, yet I was not consciously thinking about that when I made it.

I almost want to leave it at this stage. If it was a physical drawing I probably would. But now, as it is digital, I can save it and move on.



Figure B.44: *Drawing Reflection II, Stage 26 -28, digital drawing*

26. Introduce a grey 'chalk' mark. Tentative. Feeling my way back into the drawing.
27. Add some more texture. No 'big idea' emerging. Want to do something radical, but also don't want to destroy the drawing. Why am I being so precious? It is only a drawing! I can totally destroy it – I have a copy!
28. Will try introducing a 'wash'. Virtual wash is different from real wash. It doesn't run and flow. Takes getting used to.



Figure B.45: *Drawing Reflection II, Stage 29 -30, digital drawing*

29. Starting to get the feel of this 'brush' tool. Need to be sure where you want the brush stroke. Staring to become more 'painterly'. Still don't really like the drawing. Quite decorative, but actually reminds me of some of my woodcuts of leaves (done when I was a student), which were also decorative. Must be a decorative streak in me! Must there always be a deep meaning? – Matisse! Yes it is modernist.
30. Went back to the 'pencil' tool, strengthened some of the earlier marks. This drawing has set up its own dialogue with itself. It is going where it wants. I am just following. Yet I am amazed how much it is like some drawings I did when I was a student, experimenting with abstraction. It seems as if what is coming out is essentially coming out of me and it hasn't changed a lot in 40 years!

Will stop now. Have another look later.

31/08/2011

B.II.17 Reflection and Theory

This is a record of a conversation I had with Joan C last week. I would like to see if I can apply some of these ideas to my reflective drawing process:

This conversation was in response to my query about whether my reflection on practice constitutes 'theory'.

The question arose from reading in Cain that theory should not just explain practice, but should run parallel to it.

My notes:

[Relationship between theory and practice.

How do I avoid the trap of simply 'explaining' my practice through theory rather than theorizing 'parallel to' practice?

Does my drawing/writing methodology only explain my practice or does it go further? I feel it goes further. I think it has the potential to help me understand my practice while I am making drawings.

Therefore it is an active form of theorizing and is parallel to the practice.]

Conversation with Joan:

'Theory is generalization of practice'.

I am finding the generalized in my practice.

Look for repetition - deriving the theory from that repetition.

"There is nothing as practical as a good theory" (Ask Liz Harrison for source of this quote)

Looking for identifiable patterns.

Browne's questions:

What did I do?

What happened?

What did this tell me about my theory?

Look at expression: "What is going on here?"

What is generating what one sees?

Marcell Jousse : Locating the *patterns* in human expression ->

Repeating of behaviours.

Identify unproductive behaviours.

Break unproductive patterns.

Einstein (?) : You can't use the same thinking that created a problem to solve a problem.

In relation to my writing/drawing reflection: I have found a productive pattern. Keep experimenting with it. Ask : How can I improve on it?

What did I do?

I made drawings using a digital drawing pad. I recorded the progress of the drawing visually at regular stages, and made written notes at every stage. I reflected on the process at the end, asking the question: What have I learnt from this process? I further reflected on my own reflection in an attempt to sum up my experience during the process.

What happened?

This is outlined in my reflection after the drawing. This describes the development of the drawing as well as my responses to it.

My awareness of the thinking and decision-making that takes place during drawing was heightened.

An important thing that happened was that I began consciously thinking about my decision-making and thinking process while drawing as well as immediately after drawing.

What did this tell me about my theory?

The main theory (derived from Cain) I was testing, is that the cognitive process of drawing can only be fully understood or comprehended by the practitioner *while* he/she is in the process of drawing.

Based on my previous experience as an artist I suspected that Cain was right. This exercise confirmed my assumption. I found that the exercise revealed and also confirmed things about my creative process such as the intuitive, tentative and searching nature of drawing. This was not totally unexpected, but what was different was the conscious recording of my process.

Something that I had not expected was that I became aware of how the drawing seemed to take on a life of its own. At times I was almost reduced to an outside spectator. The drawing itself seemed to dictate to me what to do.

I also did not expect that I would be able to identify two distinct 'personas': the drawing or visual persona and the writing or verbal persona. I was surprised to find that these two sides of me contributed in different ways to the creative process.

In the first drawing I noticed that a 'battle' between figurative and abstract tendencies took place, with the figurative tendency eventually dominating. In the second drawing a similar tension developed but in this case the abstract tendency eventually dominated. In both cases this was something that was not pre-determined but just seemed to 'happen' as the drawing progressed. I was however, consciously aware of this in both cases. It is possible that in the second case I opted for the abstract tendency as a result of my previous experience, but this was not a conscious decision. It happened sub-consciously. My written reflection seems to indicate that I wanted the drawing to have a connection to something concrete, yet the drawing became increasingly abstract. As with the first drawing, it seemed like the drawing itself ultimately determined where it wanted to go. I can only interpret this as being the result of subconscious or intuitive decision-making. The decisions had more to do with my visual responses to relationships set up in the drawing than with a pre-conceived idea of what I wanted to achieve.

I suspect that the outcome would be different if I were to set out to draw something pre-determined. I would like to try this and see what happens. I have, of course, made 'pre-determined drawings' many times before, but not using the drawing/writing method.

Section III

Self Analysis of Creative Outputs

B.III.1 Content in Animated Videos

23/11/2010

Something that concerns me and requires a lot more thought is the content of my work. I am not really clear about the aim or purpose of my work. But perhaps if I try to put this into writing it will become clearer.

I have already identified that the digital phase of my work started as a response to a creative impasse. It became a means of generating ideas. They developed from static drawings that became the background for animated narratives. The next step was to use a kind of visual stream of consciousness in order to generate ideas and images.

What I have not done very thoroughly is to analyse the "meaning" of the animated films. If I do this perhaps some central themes and ideas will emerge which I can expand on in future work.

One of the things that excited me about the work of animator Yuri Norstein (2010) was his use of visual strategies.⁴⁴ His work contains very subtle messages and undercurrents that are reinforced by technical and stylistic devices. I also noticed that he references memory and personal experience. I think I need to examine my work and see if I can become more innovative in the use of devices and style as a way of reinforcing the content.

Two other issues that I like about Norstein's work are his playfulness and his meticulousness. These seemingly contradictory elements are both present in his work. The playfulness comes through in the subject matter, *imagery* and style of animation. The meticulousness comes through in the technical complexity that creates the illusion of a child-like vision.

In my own works (especially the first two), there is also a child-like quality. The drawing and the technical means reinforce this. The imagery and narrative has a naïve quality. The use of primary colours emphasises this.

⁴⁴ Yuri Norstein [Yuriy Norshtein] (1941) is a Soviet and Russian animated filmmaker.

What is the imagery saying?

Circling the Island was my first animated piece. I started off by drawing an imaginary landscape. The drawing depicted a fairytale-like, idyllic scene with a road winding its way down from a hilltop castle. Below is a pond with tall trees reaching up to the cliffs above. The drawing felt like an illustration to a children's story. In response to how the drawing turned out I decided to emphasise this quality by introducing two narratives. One depicts a biplane that circles the island and drops a paraglider who floats across the landscape and lands in the pond. The other depicts a road accident resulting in a car crashing over the cliff and bursting into flames. The driver escapes and runs down the road. Both the events are potentially disastrous, but the style of the piece makes them appear harmless, even humorous.

While working on this project I was reminded of a painting attributed to Pieter Bruegel the Elder *The Fall of Icarus* (ca. 1560's). In Bruegel's interpretation of the myth Icarus is shown splashing into the sea very quietly and discreetly in the lower right hand corner of the painting. Visually the main focus of the painting is the landscape that has a peasant ploughing in the foreground. The message Bruegel seems to be portraying is that everyday life goes on as normal despite catastrophic events. The peacefulness and tranquillity of the landscape belies the tragic fall of Icarus.⁴⁵

In my next work, *Helicopter Ride*, I explored a similar idea. In this case the landscape was also drawn from my imagination. It included a cityscape seen from above that referenced my earlier woodcut prints. Also referenced was Smithson's *Spiral Jetty* (1970), as I was teaching a course in land art at the time. In a similar fashion to *Circling the Island*, a narrative element was introduced. This involved a toy helicopter, two dancers, and some swimmers in a rooftop pool. In this case one of the narratives ends happily but the other ends badly. A swimmer is thrown off the roof of a skyscraper and falls into the traffic below. This incident takes place quietly in the corner of the screen and is easily overlooked due to the dominance of the helicopter narrative that happens simultaneously.

Restless Monk was created after *Helicopter Ride* and was shown together with *Circling the Island*. The three works were shown together on the exhibition *Press Delete and Start Again*. In *Restless Monk* a similar naïve and childlike aesthetic is used. As in the other two works a simple narrative unfolds in a relatively static setting. In this case the screen is dominated by a slightly agitated monk-like figure that fills the left foreground. An animated stream runs behind him. The action takes place in the sky behind the figure. Two toy-like aircraft are seen manoeuvring in

⁴⁵ W.H. Auden refers to this painting in his poem *Musée des Beaux Arts*.

what appears to be aerial combat. The sky and landscape become filled with the smoke of battle. Throughout this episode the monk stares downward and fidgets constantly.

Once the aircraft have gone and the smoke has cleared the monk raises his head and smiles. Here a peaceful activity, meditation, takes place against the background of a war. Unlike the other two narratives where the catastrophic incidents are almost unnoticeable, the war narrative is dominant. The agitation of the monk only ceases once the war is over. When the sky clears the monk stops fidgeting and the landscape becomes peaceful and idyllic with only the sound of the running stream.

These animated movies were not scripted. The stories evolved spontaneously along with the drawings. Each frame was redrawn in response to the previous one. Initially my intention was simply to document the process of drawing. Once I realised that an animated sequence was emerging I began to explore the possibilities of a narrative.

At first I simply introduced movement into the drawn landscape by making the leaves on the trees appear to rustle in the wind and by creating a sense of flow in the stream. This was easy to do by simply copying one frame, altering the position of the leaves and changing the ripples on the stream. By alternating the two frames repeatedly a sense of movement was created. Upon realising the potential for animation that I had 'discovered' I became excited at the possibility of creating a short movie. I began to improvise and make up the story as I went along.

This lack of any predetermined story line reminds me now of the way I used to make up stories for my son and his friends many years ago. I would start with the first idea that came into my head and improvise in exactly the same way as I was doing in the video pieces. The children always responded positively to these often outrageously implausible tales and preferred them to stories read from books.

In a later work *Journey into the Ineffable* I found myself taking up the method of improvisation again.

I began by drawing a head. (Something that I often do when doodling). The first drawing was a frontal head and shoulders view of a man. I wanted to create the impression of aging and movement. Each drawing was copied and then altered to create a sense of movement as well as a sense of the aging process. Each new drawing carried with it the history of the previous drawing/s. The initial drawing was a fairly 'clean' line drawing. As the work progressed the drawings became more cluttered with expressive lines tracing the alterations, erasures and additions made each time.

On reflection, I became aware that the drawing process echoed the aging process itself. Each frame became more and more covered with lines in much the same way as a human face

becomes more wrinkled with age. Eventually the entire frame became covered with criss-cross lines and the head slowly disappeared.

The animation continued to develop using this improvisatory technique. Each frame was drawn in visual response to the previous one. The title of the work reflects this non-verbal thought process. Ideas grew subconsciously.

When reflecting on the work after it was completed I identified certain themes. The narrative started by showing a head that aged and decayed, eventually disappearing into a black void. A planet emerged out of the void and it in turn evolved into another head. The animation explores the cyclical themes of transformation, growth and decay, life and death, in an organic, dream-like, surreal way.

B.III.2 Reflection on Large Pencil Drawing: *Intersection II*

21/06/2012

Intersection II was made in response to the good reception I got from *Intersection I*.

Encouraged by the sale of that drawing I decided to make a larger work exploring a similar idea. This makes me realize that feedback and recognition are strong motivating factors for the creative process.

Yesterday I met the buyer of the drawing *Intersection I*, (the curator of the KZNSA Gallery) who was full of praise for the work and this made me feel good. It also motivated me to continue on this path in my work. I am often overwhelmed by self-doubt and think that what I am doing is of no interest to anyone else. Bren's comments on what he and others saw in this drawing were gratifying to me. He commented on that there were no 'patterns' in the work despite being made up of hundreds of similar blocks. I think what he meant was that the drawing does not become decorative. This is good because I want the work to express energy and spatial ambiguity rather than decorative pattern, although it does have a sense of repetition and pattern.

Making *Intersection II* felt good. Even though it was a slow and painstaking process, it gave me a sense of great satisfaction. The process of making a drawing like this is close to meditation. Filling in one block at a time means that you become totally focussed on that one simple task. I became totally immersed in the work. As the drawing began to develop I would have to make decisions about the tonal strength of each block. This meant stepping out of the work, looking at it analytically and then immersing myself into it again. The layering of different levels of tone gives a spatial dimension to the work.

The drawing is based on an image made using a computer. The original image was made quickly and spontaneously in response to a real life situation. I was looking at the traffic intersection through my office window and trying to capture the dynamic energy of the scene. I chose to

restrict myself to a basic software programme (*Microsoft Paint*) and therefore the image has a strongly pixelated aesthetic.

Transferring the computer image into a large-scale pencil drawing slows down and transforms the original image. To me it felt like I was carefully mapping out and recording the frenetic energy of a past event or experience. Much like a graph would record the events of a lively day at the stock market.

Another revelation occurred yesterday while at the KZNSA gallery. I was there to look at Louise Hall's exhibition *Fine Lines*. Hall is also engaged in a practice led doctoral study. I found a lot of parallels in her work. She also focuses on drawing as a creative tool. But what interested me more was the underlying theme of her work – transformation and journeying. She is dealing with the uncertainties of contemporary life. Her metaphors are figures, vehicles and motorcycles. In an indirect way I feel there is a strong connection between her work and mine. It made me aware that my work also has an underlying theme that is similar - journey. The title of the animated series *Journey into the Ineffable* confirms that this has been a concern of mine from the start of this project. My first two animations, *Circling the Island* and *Helicopter Ride* both deal with movement and a sense of journeying, even though it is in circles. In these works the movement is not only suggested, but the images actually move. The transformation theme is also made apparent through the animation process. Images are literally transformed, particularly in the *Journey into the Ineffable*. There is both a humorous and a dark side to these works. The playfulness is juxtaposed with seriousness and a sense of violence or danger.

The two drawings that have come out of the *Journey* animation address the same themes but in a different way. Here the movement is not literally presented but is rather represented by a series of small static pixel-like squares. The painstaking process of gridding up the drawing and filling in each pixel by hand is the exact antithesis of the fast spontaneous way in which the computer animations were made. Here we have a map or a graph of movement. The imagery that inspired the drawing has been reduced to a code – something like Morse code. The cityscape imagery has been transformed into an almost abstract code, although the reference to the source is maintained.

The title *Intersection* has a multi-layered meaning. On one level it refers to the initial reference point for the drawing, a traffic intersection. On another level it refers to the intersection between the pedestrians who have to negotiate their way through the traffic. Thirdly it alludes to the intersection between the digital source and the hand-drawn image.

APPENDIX C

Published Papers

C.1

Drawing in a Digital World:

A self-reflective critical analysis of the creative output of John Roome⁴⁶

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Abstract

The paper will adopt a reflective approach to my practice as a fine artist, exploring the interface between "new" and "old" technologies. I will provide a brief historical context by referring to the work of selected artists who work at the interface between "new" and "old" media. I will trace my creative process in making a body of works which used computer drawings as a starting point. The influence of the "new" technology of computer drawing on the "old" technology of woodcut will be examined in relation to my creative process. I will reflect on various critical responses to my work with a view to further developments.

Journey into the Ineffable (see figure 1) consists of two hand-carved wood panels and a digitally animated sequence of drawings which were projected onto one of the two panels. The work was presented as part of the Department of Fine Art and Jewellery Design Department staff exhibition titled *New Connections* at the KZNSA Gallery in 2009. The intention of this exhibition was to showcase the creative output of academic and support staff in the newly merged department. The exhibition was curated by Brenton Mart, Director of Exhibitions at the KZNSA Gallery. Final decisions regarding the positioning and presentation of the work were made by him.

⁴⁶ Published in *TRACEY Drawing and Visualisation Research*, April 2011, Available:
<http://www.lboro.ac.uk/departments/sota/tracey/journal/dat/roome2.html>



**Figure C.1.1: *Journey into the Ineffable*, John Roome, 2009. Digital animation and wood panels.
Dimensions variable.
Installation view, KZNSA Gallery**

Firstly I need to place this particular work within the context of my own creative output to date. I have been working and exhibiting as a professional artist for over thirty years. During this period my interests have been focused on drawing, painting, printmaking and hand papermaking. I have used these media to explore my immediate environment, placing a strong emphasis on drawing as a means of engaging directly with my subject matter, but following this with a fairly indirect process of working. Although trained as a painter in the traditional medium of oil on canvas, I have constantly sought alternative means of expression through technical experimentation. My preoccupation with process led me to work with techniques such as "wash away" where the image was arrived at through a process of resist and layering. This relatively indirect and labour intensive process of working also applies to hand papermaking and printmaking. A series of multiple block colour woodcut prints enabled me to further explore the possibilities of indirect process. On reflection I have found that the meditative process of drawing directly from life is echoed by the technique used to transform the drawing. It is this process of meditative observation, reinforced by a labour intensive, indirect technical means that characterises most of my work. In a sense the meaning or content of the work is directly expressed through the process.

My drawing media have always been the traditional ones of pencil or pen on paper. However, recently I began to explore the use of the computer as a drawing instrument. This was a natural development as a result of my lifelong fascination with technical experimentation. The experimentation with digital drawing also came out of an attempt to break a period of creative block. My initial approach in getting used to a new medium was playful. Drawing with a computer mouse felt awkward at first but once mastered, it allowed for a fairly fast and easy way of working. The ability to copy and paste and re- do at the click of the mouse was a revelation to me. I soon discovered that a series of slightly altered drawings could be converted into an animated sequence. It was thus almost unwittingly that I entered into the field of computer animation. Whilst I was fascinated by the possibilities of this medium I was frustrated by its purely virtual nature. Digital prints lack the physical richness of traditional media. For this reason I decided to translate some of my digital images into hand carved wood panels. I exhibited these wood panels and showed the digital animations alongside them. It then came to my mind to explore the possibilities of projecting an animated sequence directly onto the wood panel, thus completing the cycle of my process.



Figure C.1.2: *Journey into the Ineffable*, John Roome, 2009. Still from animation projected onto wood panel

Susan Buchan in an editorial for the journal *Animation*, stated

As technologies develop, artists not generally associated with the moving image are exploring animation and digital manipulation techniques, and there are growing numbers of artists whose work is unthinkable without the digital (Buchan, 2008).

As an artist not generally associated with the moving image, I place myself within this category. Working digitally has provided me with a new visual vocabulary and a new way of working. As Buchan suggests there are many artists whose work would be unthinkable without the digital. But it is ironic that American photo realist painter Chuck Close is reported to have said “*I absolutely hate technology, and I am computer illiterate, and I never use any labour saving devices...*” (McCarthy, S. 2005). Despite this statement Close's work with its grid structure closely resembles the pixellated look of digital imagery. His images consist of hundreds of tiny squares which when viewed from a distance create a photographic image. Close's process involves interpreting a photographic image by means of hand drawn or painted marks organised according to a geometric grid. Although he expresses a dislike for computers, Close appears to be imitating the language of digital printing. It is this quality that attracts me to his work as I am also interested in imitating the computer in my wood panels. I do not share his dislike of technology; on the contrary I am fascinated by it. Whilst I do not consider myself to be computer illiterate I have limited knowledge of graphic software programmes such as Illustrator, Photoshop and Flash. Initially it was because of this lack of knowledge that I chose to use Microsoft Paint which is an easy to use programme and available on most computers. I found that the limitations of this programme actually enhanced my work as it provided the raw and crude aesthetic which I desired. The aesthetic quality of the work I was able to produce matched that of the woodcut prints I had previously been making. I therefore made a conscious decision to continue using this programme. As Professor Ian Calder in his review of the exhibition remarked;

Powerful imaging software is known to render often facile digital effects; Roome avowedly uses minimal computer tools to create his animated images. In self-consciously avoiding flair, the authority and potency of his autographic skills in observational drawing is expressed most cogently (2009).

The realisation that I could animate my computer drawings fairly easily came out of my initial desire to document my drawing process. This reminded me of the work of William Kentridge whose animated films developed out of a similar desire to document his drawing process. Kentridge began

by making charcoal drawings on paper. As he made changes to the drawings these were documented on film. His films incorporate the effects of erasure and re-drawing of the original drawing. In this way the physical drawings are transformed into moving images on film. My process differs from his in that the initial drawings are virtual although in other ways the process is similar. The virtual drawings are copied; parts of them are erased and changed. In my process the virtual drawings are projected onto wood panels and translated into physical objects. Thus in a sense mine is a reversal of his process, whereby the virtual is translated into the physical. By projecting the video onto the carved wood panel I try to emphasise the relationship between static and moving images and between the virtual and the real.

The interface between the virtual and the real is explored in the work of Brazilian artist/researcher Guto Nobrega. In a live performance titled *Interface Concert* Nobrega created his drawings, accompanied by live music which was composed specifically for the performance. Working on a computer drawing tablet he developed a drawing which was projected onto a screen. In other works he has explored the interaction between live performers and projected animations. This interface between digitally produced (virtual) elements, which are projected, and physical (real) elements is what fascinates me. I am also interested in the way digital aesthetics can interface with traditional media.



Figure C.1.3: *Journey into the Ineffable*, John Roome, 2009. Sequential digital drawings

The animated sequence for *Journey into the Ineffable* was produced by making approximately 300 individual drawings using Microsoft Paint and drawing with a computer mouse. The work started with a simple line drawing. Each drawing was copied and then altered or embellished. The transitions between each frame are relatively crude and the images of heads tend to "morph" considerably from frame to frame. (See figure 3). It is interesting that when watching the animation the eye tends to ignore these inconsistencies. As Norman MacLaren noted; *What happens between each frame is more important than what happens on each frame* (Solomon, 1987: 11). It is what we do not see that enables our brains to read the sequence. We want to believe that we are seeing the same head even though they are actually quite different.



Figure C.1.4: Work in progress showing traced digital drawing

The next step in my process was to create carved wood panels which I intended to exhibit together with the animation. I chose two of the drawings which I felt conveyed two different aspects of the series. The first image (figure 5) was of a single head which I felt had a relatively static quality. The image was projected onto a wooden board which had been painted white and was then traced onto the board using a pencil. I used wood cutting chisels to carve out the lines using only vertical and horizontal cutting. This was an extremely labour intensive process as, like Chuck Close, I tend to avoid labour saving devices. My intention was to create an image that makes reference to digital technology but is clearly handmade. Juliette Leeb duToit in her review of the exhibition made the following observation.

The aged head that fragments as it is displaced in motion and space, is partly transcribed in the faceted marks associated with the pixellation (sic) of digital imagery together with more conventional striations that reflect the gesture of the artist's hand in the animation and in the low relief. He engages in a subtle irony here, in which the computer generated marks, incised by hand, initiate a discursive on the interface between the man-made and technology. Roome is a master in various two-dimensional media, printmaking, linocut, woodcut and painting, and this facility is easily transcribed into the incising of pristine white gesso covered board (2009).

Judging from Leeb du Toit's remarks my intention to establish an interface between the digital and the manmade was successful. This is further substantiated by Ian Calder when he states:

Responding to the pixelated (sic) qualities of digital images, Roome carves equivalent marks into two painted wood panels in representation of the faces in his animation. The resulting surfaces of his still images resemble a traditional lino- or woodcut: cut through a painted layer into the wood substrate, the directional strokes of his carving and chisel-marks render static the restlessness and agitated movements of his digital animation (2009).

Calder's reference to the static rendering of the agitated movements of the digital animation succinctly clarifies my intentions with this image. Whilst the image is static the agitated marks behind the head provide a record of the changes made during the animation process. In a sense this image contains the history of all the images that lead up to it.

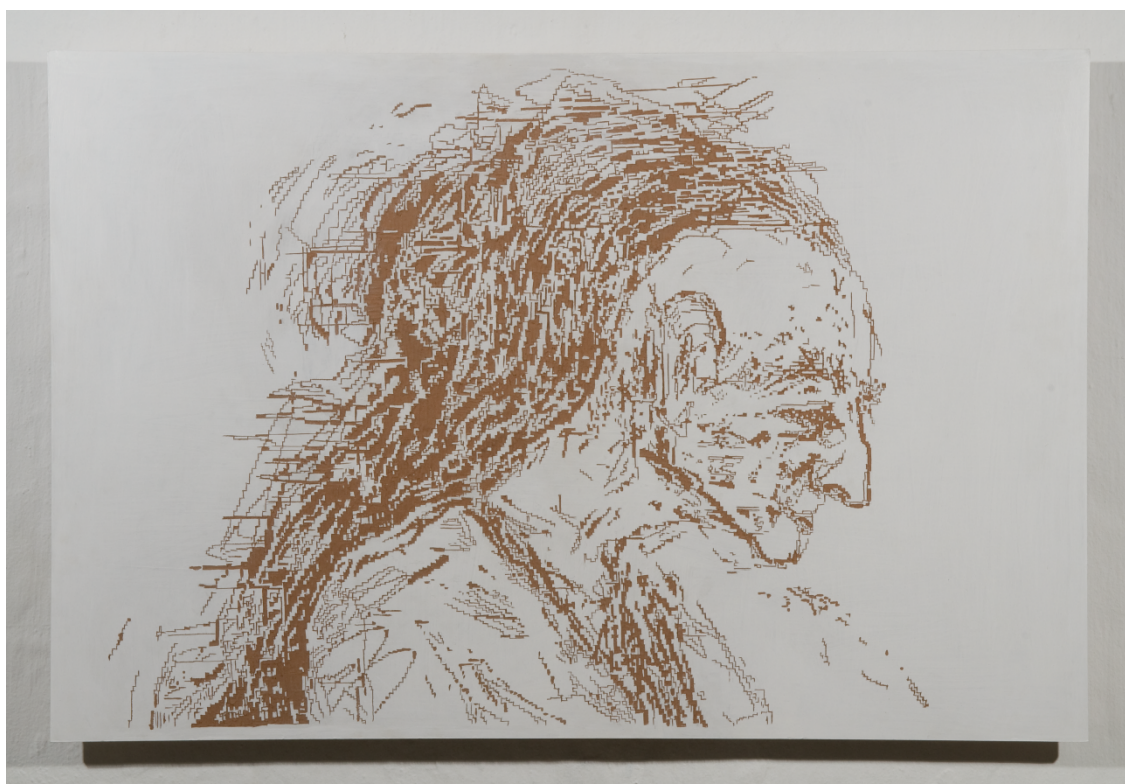


Figure C.1.5: *Journey into the Ineffable*, John Roome, 2009. Wood panel, 92.5 x 138.5 cm

Both Calder and Leeb du Toit make reference to pixels and pixellation. In my woodcut panels the marks are handmade or autographic but imitate the mechanical quality of computer pixels. In his article *The Art of the portrait, the Pixel and the Gene: Micro Construction of Macro Representation*, McCarthy (2005) makes the distinction between autographic and allographic mark-making. Autographic marks are handmade, each one being unique, whereas allographic marks are designed to be repeated in order to reproduce an image or artwork. Pixels fall into the category of allographic marks as they are mechanically produced and designed for endless reproduction. Original art works which consist of autographic marks can be translated by means of digital media into allographic marks (pixels) which allow for the image to be reproduced endlessly. What tends to happen as a result of this process is that all images reproduced in this way are reduced to a kind of "sameness". By starting with the digital process as a means of image generation and then translating the images into handmade artefacts, I am subverting the process. The originally allographic, mechanical marks become autographic and are "humanised". As Leeb du Toit remarks, this *initiate(s) a discursive on the interface between the man-made and technology* (2009).



Figure C.1.6: *Journey into the Ineffable*, John Roome, 2009. Detail of wood panel

The second image I chose to carve was one that clearly shows the transition from one image to another. I felt that it provided a record of my thought process. One image is in the process of disappearing and a new image is evolving. This also references the essentially visual and intuitive approach which I take. One image leads to another and there is no story-line or script. The image also contains a strong sense of movement. According to MacLaren; *Animation is not the art of drawings that move, but rather the art of movements that are drawn* (Solomon, 1987: 11).

It was the transitional nature of this image that prompted me to use it as the background on which to project the animated video. I found it interesting that some viewers did not realise that there was a carved image on the screen. So in effect the interface between the two became subliminal. The static, handmade image and the animated mechanically reproduced images were successfully synthesised.



Figure C.1.7: *Journey into the Ineffable*, John Roome, 2009. Wood panel, 92.5 x 138.5 cm

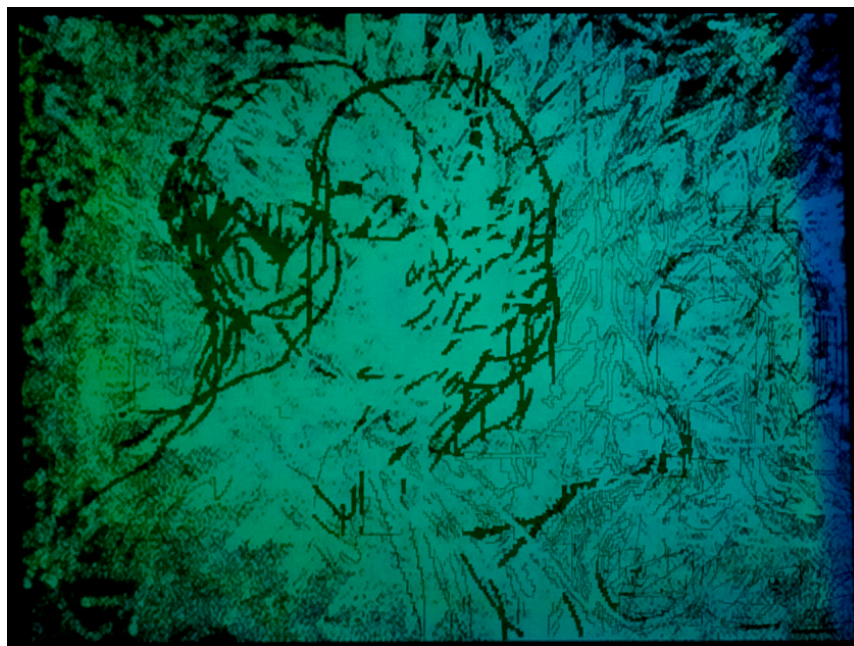


Figure C.1.8: *Journey into the Ineffable*, John Roome, 2009. Digital projection onto wood panel

In describing the animation Calder noted that

Roome's projected animation, 'Journey into the Ineffable' explores a digital form of pictorial narrative where, as he explains about his title, 'words have no place.' In a darkened room in the exhibition, Roome projects an animated series of numinous overlays of linear faces, vivid in their neon colours. This is the cerebral work of a mature artist, eager to take on fresh creative opportunities offered by digital media (2009).

His description of the work as a pictorial narrative affirms my intentions. As previously stated the work was not scripted and does not follow a linear or literal story line. I began by drawing a head which then led to variations of the first drawing. By erasing one image a new image began to emerge and I instinctively followed what was suggested by the process. Thus there was a strong element of chance and intuition. The process allowed for easy repetition of the drawings and this led to the repetition of certain sequences. Thus a cyclical element began to emerge. I feel that the work expresses the repetitive and cyclical nature of life. The narrative, like life itself, takes unexpected turns but also reflects back on itself and returns to certain points only to make new departures.

As I have indicated, the critical response to my work was generally encouraging. Working with digital animation as a way of generating visual ideas seems to hold enormous potential. In addition the digital medium is an excellent means of recording and analysing my creative process. It is my intention to continue the "*discursive on the interface between the man-made and technology*"(Leeb du Toit: 2009). I intend to broaden this to the interface between humanity and technology.

Whilst the main strength of this work seems to lie in the transition of the digital images into woodcut panels, the potential of using other traditional media can be explored. I am currently developing a series of drawings that imitate the digital aesthetic. In these drawings I have used images gleaned from the internet as the starting point. These images are fairly low in resolution and therefore the pixellated quality is pronounced. I have used charcoal and pencil on paper to translate the images into autographic marks. In the charcoal drawings the character of the drawing medium re-enforces the autographic quality of the marks. I used a free-hand approach and the drawings, whilst maintaining their reference to the digital source, take on a distinctly organic character.



Figure C.1.9: *Sprout and Lung*. John Roome, 2009. Charcoal on paper 70 x 50 cm

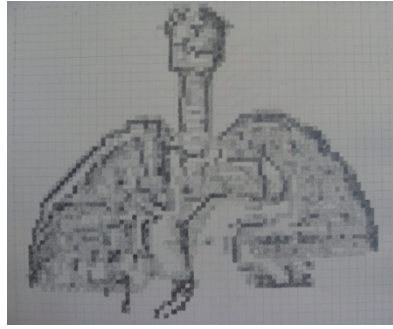


Figure C.1.10: *Lung*. John Roome, 2009. Pencil on paper (In progress)

In the pencil drawing I adopted a more mechanical method. The page was divided into a mechanical grid and the image was translated almost pixel by pixel. This has resulted in a drawing which has strong mechanical feeling but retains the sense of being handmade. In this sense it is reminiscent of the work of Chuck Close.

The inspiration for this new series of drawings came from a news story gleaned over the internet. It is the story of a Russian man who was suspected of having a tumour in his lung. Doctors discovered that that a pine tree had sprouted in his lung and the pine needles were piercing the lung tissue causing him severe pain. This story struck me as being a metaphor for humanity's relationship with nature. When searching for images of lungs and pine trees on the internet I found a remarkable similarity between the inside of the human lung and a forest. I was also reminded of the fact that the pixellation of the images enhanced any similarities they may have. The computer screen tends to emphasise "sameness" rather than difference. The work is still in progress and it is my intention to develop a digital animation on this theme. In this case my process will be the inverse of the one used in *Journey into the Ineffable*.

The journey that my work has taken me on has led me to engage with new technology in a creative way. In 1993 Stephen Wilson of San Francisco State University answered the question;

How Can the Arts be Part of a Technological Era?

There is an acknowledged danger that technology is advancing much faster than the culture's ability to make sense of it. The arts have traditionally been a place where understanding, integration and preparation for future developments takes place. There are several competing visions of how artists can most fruitfully work with emerging technologies: treat them as new media, deconstruct their cultural implications, or participate in the processes of invention and extension (Wilson: 1993).

Computer technology has become an almost unavoidable component of our everyday lives. Being part of a generation who did not grow up with computers, I regard this new technology with a sense of awe. I have to admit that I often struggle to make sense of it. Unlike Chuck Close who claims to *absolutely hate technology*, I am intrigued by what it can offer me as an artist. As I have shown, my interest is in using easily accessible computer technology as an interface with traditional media. I found that working on a computer provided me with creative stimulus and a means of generating new concepts. By exploring the interface between new and old technologies I believe that I can contribute to an understanding of how new technologies impact on the way we see and interact with the world. Drawing is not only a form of visual expression but it is also a means of gaining an understanding of ourselves and the world around us. Drawing in a digital world has broadened my understanding of how new technology can enhance my creative process.

The Video

Journey to the Ineffable can be viewed on You Tube at
<http://www.youtube.com/watch?v=vqDABn2iphQ>

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C.2

Digital Drawing and the Creative Process:⁴⁷

In Response to Dr. Paul Hamilton, *Drawing with printmaking technology in a digital age*,
(Published in TRACEY, 2009)

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Summary:

Hamilton (2009) in *Drawing with printmaking technology in a digital age* discusses the role of drawing in relation to printmaking in the light of current digital technology. He argues that digital technology could pose a threat to the development of traditional drawing skills. Digital software makes it possible to produce visual images without requiring any drawing skills. The danger of this is that the work lacks originality and becomes slick. The question is raised as to whether digital technology poses a threat to the “nature and value “of drawing in a printmaking context. Hamilton goes on to discuss what he considers the value of drawing and looks at ways in which digital technology can be used to enhance the creative process.

This paper was written in direct response to Hamilton as the issues that he raises resonate strongly with my own creative project. In my own paper *Drawing in a digital world* 2009 there are a number of interesting parallels. Coming from a printmaking background as I do, I value drawing as an essential part of my creative process. My experimentation with digital drawing and digital ‘cross fertilisation between traditional and digital platforms’ (Hamilton, 2009, p.14).

⁴⁷ Published in *TRACEY Drawing and Visualisation Research*, April 2011, Available:
<http://www.lboro.ac.uk/departments/sota/tracey/journal/dat/roome1.html>

Drawing as the 'essence of creativity'

Hamilton (p. 2) associates drawing with creativity and sees it as a way of realizing potential for 'real innovation':

The value of drawing is associated with the knowledge that drawing is the essence of creativity and its measure would lie in the individual artists ability to continuously express and create, using self-exploration and creative thinking through the process of drawing, linking together „interesting ideas" and „technical know-how", enhanced by assistance and interaction with print media.

The idea that drawing is the 'essence of creativity' is one that I share. I regard drawing as an essential element in my creative process. This dates back to my art school training with its strong emphasis on drawing.

A threat to drawing

Hamilton (p. 3) raises the point that computers could be seen as a threat to drawing. This fear is based on the fact that the use of computers can lead to 'instant art' that is superficial and slick or kitsch. He warns against the use of programmed simulation and calls for students to be 'exposed to more quality drawing time'. In my case, having come to computers late in my career, this is not an issue that overly concerns me. I have a solid grounding in drawing. On the contrary, I do not see computers as a threat to drawing, rather, I am interested in how they can influence and enhance my drawing skills.

Drawing with new technology

New media can offer the artist the opportunity to go beyond manual technologies. Drawing with new technology need not be limited to the imitation of 'manual technologies'. Hamilton (p. 2) quotes Eames (2004) who explores the 'opportunities and possibilities particular and peculiar to that realm as opposed to the imitation of manual technologies'.

When reflecting on my own use of the computer I recognise that I am beginning to break away from imitating manual technologies in terms of the aesthetic look and way of thinking about drawing. What has brought about this change is the introduction of digital animation into my creative process. I think that the realisation of the ability to animate my drawings, afforded by the computer, brought about a significant shift in my creative thinking. In this sense I began to explore the opportunities mentioned by Eames. Not only did the use of computer drawing allow me to explore animation, it also influenced my conceptual approach to drawing. Rather than using drawing as a purely perceptual tool to explore physical phenomena, I began to use it as a tool to explore my imagination and my emotions. Although, admittedly my traditional drawings do have imaginative and emotional qualities, the computer allowed me to develop a series of

drawings relatively quickly in a kind of stream of visual consciousness. This was something entirely new for me. The computer provided me with a tool that actively stimulated and enhanced my creative process in a way that traditional tools had not done.

Hamilton (p. 3) points out that the digital medium ‘has constraints, qualities and limitations just as traditional media do’. One of the characteristics of computer drawing that distinguishes it from traditional media is its lack of physical interaction. Hamilton refers to Cohen (2002) who says that “computer-based art making processes are medium-less, consequently, (there are) no skill-based disciplines to learn.”

It was this very lack of physical interaction that influenced my decision to interpret my digital drawings in an extremely physical and tactile medium, viz. woodcut panels. In these works I emphasise the ‘constraints, qualities and limitations’ of both the virtual and physical media.



Figure C.2.1: John Roome, 2006. *Helicopter*, Digital drawing



Figure C.2.2: John Roome, 2006. *Helicopter*, Wood panel, 120 x 92.5 cm

Unique visual qualities of computer drawing

Hamilton (p. 4) refers to the 'unique visual qualities' of computer drawing.

The quality of the computer line is similar in visual appearance to conventional drawing media, but possesses qualities that differ from traditional lines, this becomes more obvious as the computer line is enlarged and begins to demonstrate pixelation.

The mark-making and overall aesthetic look of my wood panels references the pixelation of the digital mark. The process of enlarging the digital drawings and hand carving the lines using only vertical and horizontal cutting, emphasises the pixelation.

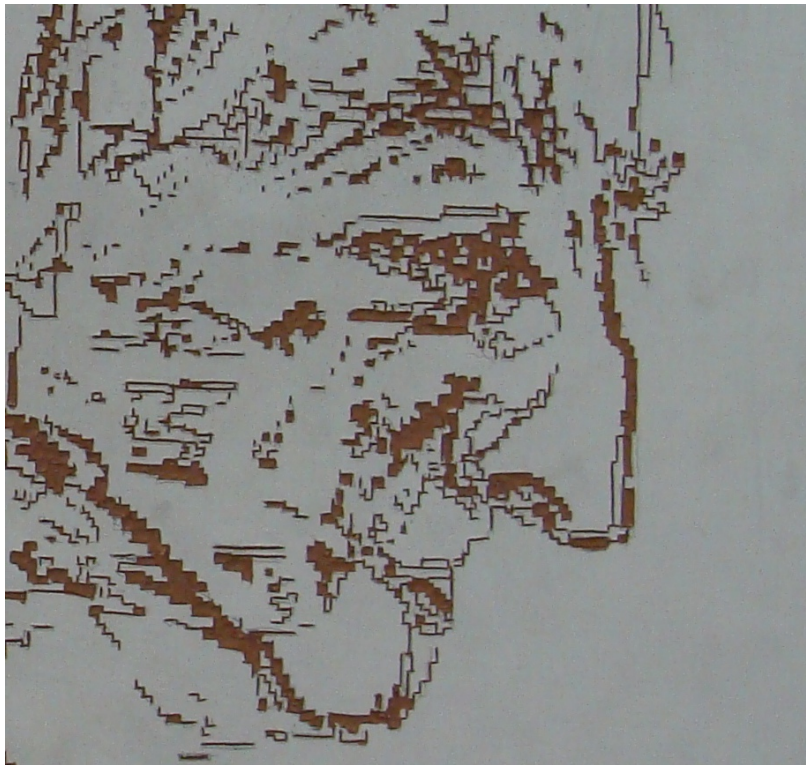


Figure C.2.3: John Roome, 2009. *Journey into the Ineffable*, (detail), Wood panel, 138.5 x 92.5 cm

My laborious, labour-intensive technique of hand carving is the direct antithesis of the high-speed computer drawing process. These woodcut drawings literally ‘slow down’ the digital and perhaps in this way they can be seen as a comment on my own ambivalent position in relation to technology. It is one of fascination and fear, acceptance and rejection. In Prensky’s terms (Prensky, 2001) I am a typical digital immigrant struggling to adapt to my fast changing environment whilst still holding on to my traditional values. Unlike ‘the children of the digital age (who) expect things to happen fast, because in their world things do happen fast’ (Tapscott: 1998, p.74, in Hamilton, 2009), I am desperately trying to slow down my world.

When giving a presentation on my work to a group of first year media-design students (Roome. 2010) I was struck by the fact that they were much more interested in my digital work than in the hand-made work. They seemed to be unable to understand why anyone would want to spend so much time and hard physical labour making art. In fact, even the way I use the digital medium appears to be too slow in the eyes of these ‘digital natives’. Upon explaining my animation process I was met with comments that this was far too laborious and time consuming. I am certain that it is possible to create animations using sophisticated software in less than half the time. However the aesthetic look and feel of the work, which is a direct result of the ‘quaint’ process, did meet with their approval and was agreed to be ‘cool’.

Journey into the Ineffable can be viewed at: <http://www.youtube.com/watch?v=vqDABn2iphQ>

I have found examples on *You Tube* of young artists (mainly printmakers) who use even more labour intensive means of producing animations. Mark Andrew Webber has coined the term 'linomation' for his method of animating lino-cut images. Webber produces 1.5 minutes of animation using a process that took him 450-500 hours. He produced 296 individual lino cut blocks that were scanned and animated. He then printed all 296 blocks and scanned and animated the prints. Interestingly, my process involves making a similar number of individual images, but in my case the frames are drawn digitally. In my case the carving or cutting is used to make large woodcuts that are exhibited together with the animation.

Slowing down the digital

My need to slow down the digital may have a lot to do with my training as an artist in a tradition that valued drawing not only as an investigative, and analytical tool but as a reflective and expressive medium as well. Working at speed enhances spontaneity and the free flow of ideas but it does not allow for reflection. I agree with Eames (2004, in Hamilton 2009) who believes "drawing promotes individual thought, action and, critically, reflection upon that action." Working digitally does not prevent one from being reflective. I have found that drawing on a digital tablet can be as slow and reflectively engaging as working in traditional media.

Tradition

One of the unique aspects of digital media is their lack of an established tradition. Hamilton suggests that this is why many artists using digital media make reference to traditional media for authentication (p. 6). When I started working digitally, I instinctively imagined what the images would look like as prints or paintings. Showing them as animated sequences allowed them to exist as purely virtual images, but I was not satisfied with this and felt the need to translate at least some of them into traditional, tactile, physical, real objects. Hamilton (p.6) explains this reaction:

It would appear that the tactile aspects of traditional processes remain important to artists and the physical dimension is attributable to the relationship with technology and visual dynamic content. There can be a blending of traditions that appears to function as correlation between technology, simulation, representation and visual language.

The value of drawing

Hamilton's description of the drawing process seems to suggest that the change of tool does not alter the essential nature of drawing, as a means of enquiry and expression (p. 5).

The drawing process involves moving a line that carries emotion and reaches out in a way that touches our senses as well as informs both the artist and eventually the viewer. These emotions and feelings can be found within man

from birth, and best channelled by using pencil, brush, pen and now mouse and drawing tablet.

Hamilton is suggesting that computer technology, if used in a creative way, in the 'spirit of adventure', can enhance creativity. He is further indicating that the investigative attitude associated with traditional drawing can be incorporated into digital media.

It is precisely this ability of drawing to carry emotion and to inform both artist and viewer that I value. Drawing has this ability regardless of the medium employed and there is no reason why digital drawing cannot do this equally as well as traditional drawing. However, I suspect that this would depend largely on the attitude that the individual artist has to art-making.

New possibilities and dangers

The switch to virtual or digital drawing introduces a further influence on the creative process. Hamilton suggests that digital technology need not spell the end of creative drawing. In fact it can open up new possibilities and stimulate creativity. However there may be dangers.

This is not to say that computer technology has only a negative response, Garner (2004) refers to Goldschmidt who suggests, „computer based drawing can require the maker to approach the creative task with a greater level of predetermined ideas about both the subject and the process.“ Goldschmidt's statement is somewhat misleading and must be challenged as it is reasonable to suggest that those using the computer and pre-programmed software are dependent on the „predetermined ideas“ of others namely those who have programmed the effects within the software (Hamilton, p.8).

In my work I initially did not use sophisticated software simply because I did not have the skills. My lack of computer knowledge turned out to be a blessing in disguise as it forced me to improvise and invent my own processes for drawing and animation. I was aware that there were faster and more sophisticated methods of producing animation effects, but I was also aware of the ubiquitous quality of work produced using animation software. The method I developed had a lot to do with my experience with traditional media, particularly woodcut printmaking. The limitations imposed by the software I had available (*Microsoft Paint*) echoed the limitations of the relief print medium. The end result, I feel, bears more of my own signature than that of the computer. In my case the decision to avoid sophisticated software reduced the danger of “predetermined ideas”.

Amongst artists and designers there are different approaches to new technology. There are those who are interested in creating their own computer programmes that they employ in their art making process. Many of the early pioneers of digital art fall into this category. Recent

developments in commercially available, and user friendly, creative software have allowed artists with no programming skills to make use of the computer for creative work. Hamilton cites American artist Bonnie Meltzer as an example:

With Painter Classic or PhotoShop I can draw directly into the computer. Instead of big pads of newsprint I can draw on any colour paper with the click of the paint bucket. Painter"s tools simulate traditional art materials, and the Wacom pen is pressure sensitive so the lines and shapes are more like "real" drawings than you would think (Meltzer, in Hamilton, p.10).

As Hamilton points out, the computer can now be used to simulate pencil on paper, or brush on canvas. In this way new technology is directly applied to drawing, which is one of the oldest forms of communication.

My initial excursions into digital technology did not involve sophisticated programmes, and neither did I make use of a digital drawing tablet with a pressure sensitive pen. In contemporary terms, the tool I used (*Microsoft Paint*), is considered to be "dumb software". As a printmaker I tend to favour the relief process above others such as lithography, etching and screen-printing. Relief, the oldest of all print processes, may very well be regarded as the dumbest of the processes as it reduces everything to positive and negative shapes. Tonal and textural variation depends entirely on the artist's skill at manipulating the cutting process. Similarly in *Microsoft Paint* you are provided with a relatively limited range of options. I felt at home in this environment, and discovered that the limitations could become strengths.

I have subsequently acquired a digital drawing tablet, pressure sensitive pen, and more "intelligent" software. This tool has enabled me to produce work that, to quote Meltzer, looks 'more like "real" drawings than you would think ' (In Hamilton, p. 10). The prints made from these virtual drawings look a lot like lithographic prints. It is only upon close inspection that you realize that they are digital prints.



Figure C.2.4: John Roome, 2009. *Journey into the Ineffable*, Digital drawing (using a mouse and *Microsoft Paint*)

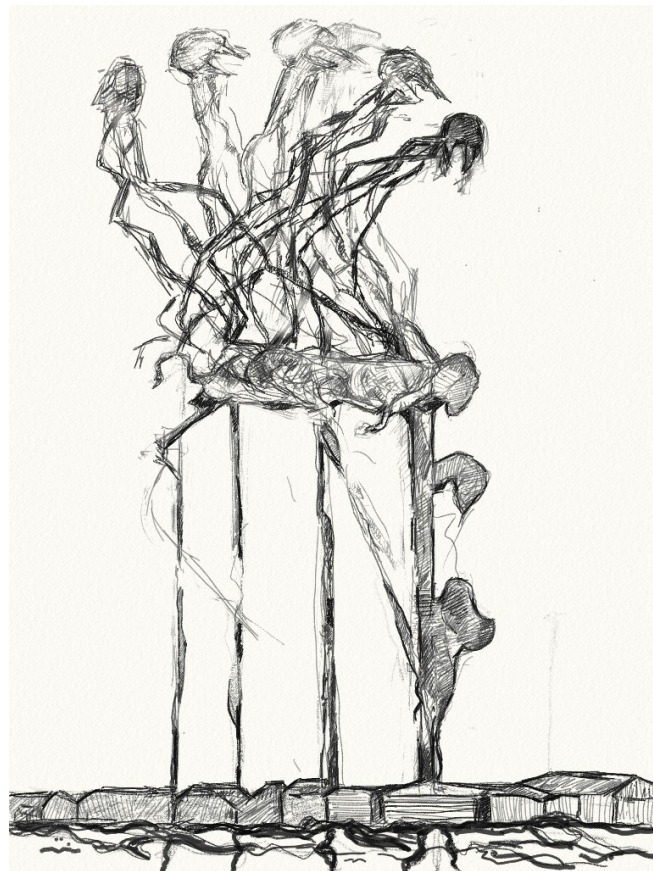


Figure C.2.5: John Roome, 2010. *Harbouring Aliens*, Digital drawing (using digital drawing tablet)

Curiously, I have rather ambivalent feelings concerning this. Whilst I am more than satisfied with the ability of this tool to make sophisticated drawings, I feel that my creative thinking has not been challenged, stimulated and enhanced to the same extent as it was when using the dumber software. By using software that was not designed to simulate traditional art techniques, I was forced into a situation that required innovative thinking. Sophisticated software tends to make the computer invisible and allows one to work in an already established visual language. In most instances this may well be an advantage as it enables the artist to focus on the task at hand without having to learn a new language. The benefits of using the computer in this way are, as Meltzer points out, a saving of space, and materials. The actual creative process is not significantly altered.

The relationship between digital and traditional technology

In my work with *Microsoft Paint* I felt that I had entered into a far more challenging relationship between digital and traditional technology. If I had begun by using more sophisticated software I probably would never have come to the idea to translate the digital mark into a hand-carved mark and the resulting series of works may not have been made. Furthermore, my awareness of, and fascination with the pixelated quality of the digital image may not have come about if I had used a drawing tablet. In addition my experiments with making pixelated drawings by hand would also not have happened.

I am not saying that working with more sophisticated software is not useful, and I will continue to explore the possibilities offered. The idea of generating images by means of a computer that are then printed on paper using an inkjet printer, is not that far removed from the tradition of printmaking. The drawings made on a lithographic stone are also virtual and do not become physical until they have been printed on paper.

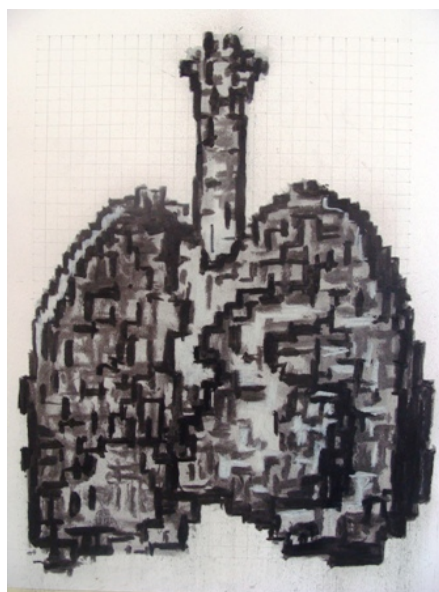


Figure C.2.6: John Roome, 2009. *Black Lung*, Charcoal on paper

What interests me, more than the ability of computers to simulate traditional techniques and processes, is their potential for creating a new way of looking and thinking. Hamilton refers to the 'paradigm shift' which is 'fundamentally a new way of looking at something' that has come about with digital technology. What Hamilton suggests is that 'it would seem appropriate to blend traditional with digital, increasing the creative capacity of printmaking' (p.11). In my work I combine traditional and digital processes with the aim of increasing my creative capacity as an artist.

I agree with Hamilton in his prediction that digital technology will become more sophisticated and will offer artists increasingly exciting possibilities. However, as he says, it does not automatically follow that traditional technology will become redundant. Particularly for artists like myself who grew up with traditional media, it is the possibility for 'cross fertilisation between traditional and digital platforms' that is exciting.

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C.3

Old Fashioned Drawing in a Digital World Presentation by John Roome

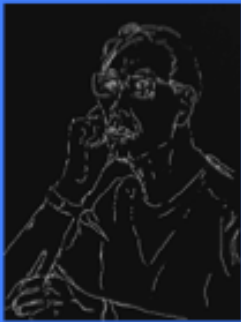
Living in the 21st century, with technology, webinar, 11th e Learning Festival, Durban

DRAWING IN A DIGITAL WORLD

Hypothesis: The use of digital technology can provide a way of understanding the relationship between drawing, thinking and learning, and can facilitate creativity.

e

digital



learning

(through) drawing

John Roome
Artist/Lecturer
"Digital Immigrant"

Working title of D. Tech:
The mouse, the muse and the machine: A practice-led investigation into the creative use of basic software for art making through digital drawing and animation.

Figure C.1: Webinar Slide 1

Introduction

Prensky talks about "digital natives" and "digital immigrants" (2001). Without giving my age away I should say that I *can* only fall into the latter category.

Some years ago I was a complete computer-phobe. Then my colleague and wife, Nirmi, persuaded me to enroll for Mari Pete's *Pioneers Online* course. Kicking and screaming, I went. It changed my life in a number of ways. Not only did it change my attitude to computers, it changed my approach to teaching. Unexpectedly it also changed my approach to making art. I became interested in how basic programmes such as *Paint* and *Moviemaker* can be used to make drawings and animations. I have introduced these ideas to my students with great success and I am now embarked on a new adventure: a doctoral study with the initial title " *Creativity, play,*

and basic computer programmes: an autoethnographic exploration of fine art practice". The title has now changed slightly to the one you see on the slide.

In my presentation I will share some of my findings. Mine is a Fine Arts practice-led study and you might be wondering what this has to do with e learning. I am investigating the use of digital drawing (that is the 'e' component) as a tool for creative practice and creative practice is all about learning. I will also go into practice-led research and what that entails.

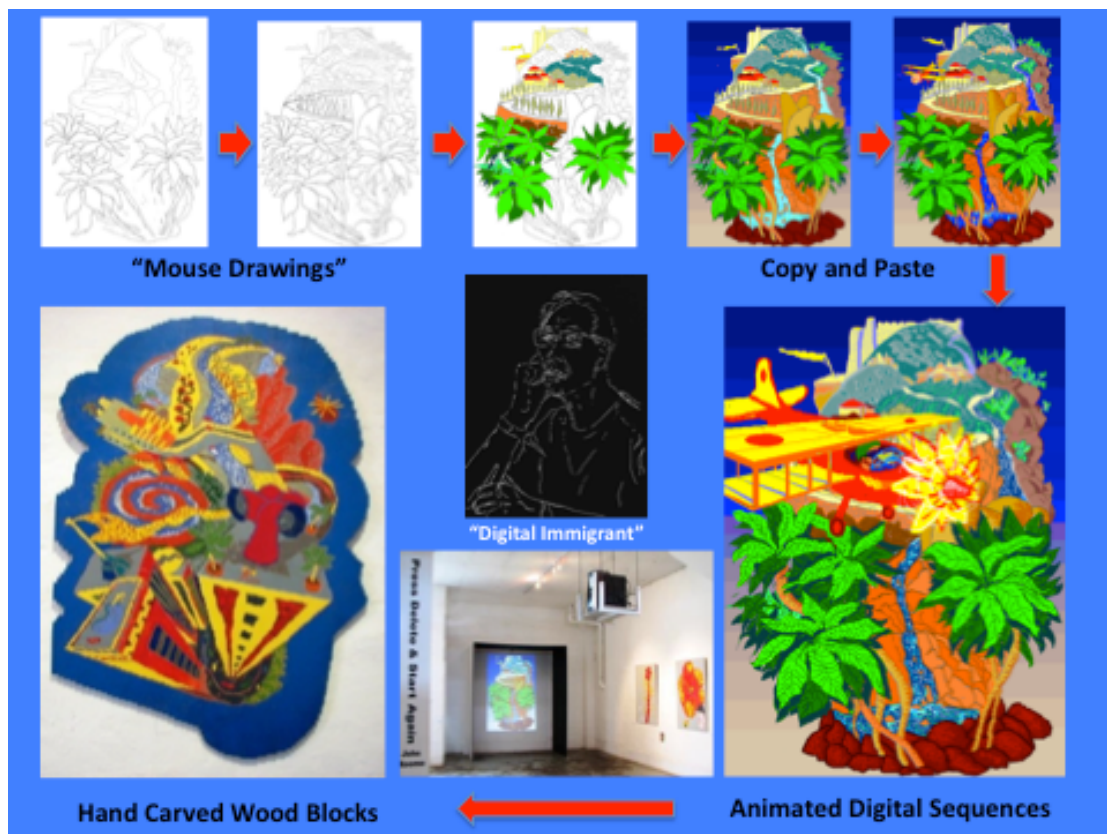


Figure C.2: Webinar Slide 2

What happens to some creative people from time to time is that they get "blocked". A few years ago when I found myself in this unfortunate position I began doodling on my laptop using a mouse and Microsoft Paint. My intentions were far from serious and I just wanted to have fun. As I was drawing I thought it would be interesting to save copies of my work at regular stages as a way of documenting how a drawing developed. As I began playing the images back I realised that the drawings began to move and come alive when the individual slides were viewed quickly. So it was unwittingly that I began to make animated movies. In the beginning I simply put hundreds of individual slides together and ran them as a high-speed slide show. The result was a quirky, jerky, but interesting form of animation. What fascinated me was the aesthetic of the digital images. Because I used the basic software Microsoft Paint, the colour was flat or unmodulated. This reminded me of the colour woodcut printing technique which I was very

familiar with. I thought it would be interesting to translate some of the digital images into woodcut. Instead of making woodcut prints I decided to make large wood panels which were inked up in flat colours that mimicked the digital images. In order to make the digital reference stronger I used the digital zig-zag mark in my cutting. I ended up with physical and tactile hand-made artefacts that evolved out of computer-made virtual images. By exhibiting them together with the projected digital animations I wanted to bring attention to the relationship between the virtual and the physical.

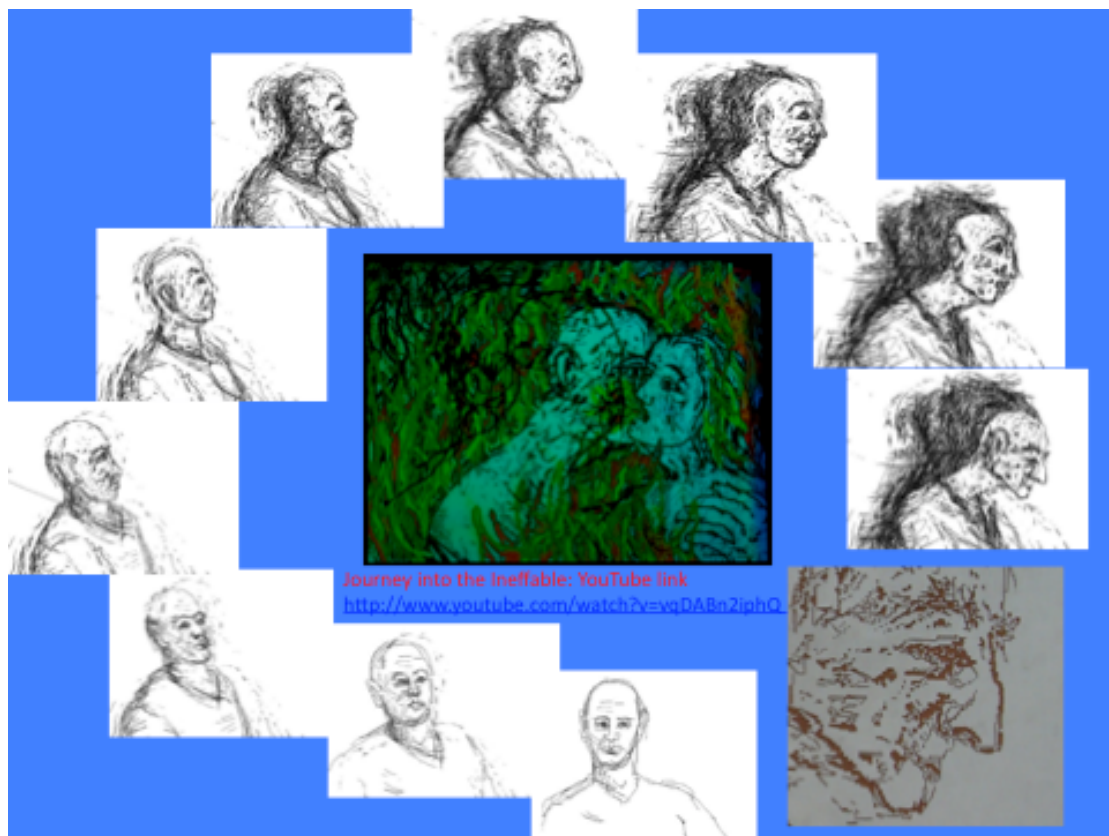


Figure C.3: Webinar Slide 3

I continued working in this way and decided to emphasise the virtual/physical relationship more emphatically by actually projecting the computer animation onto a woodcut panel. The images in this slide are a series of digital “mouse” drawings that form part of an animated movie titled “Journey into the Ineffable”. I had now graduated from using a fast slide show to converting the slides into video by using windows movie-maker. You can view this on YouTube if you are interested. In the bottom right corner is a detail of one of the wood-cut panels. Here you can see how the digital mark has been translated into a series of zig-zag cuts that reference the pixelated mark.

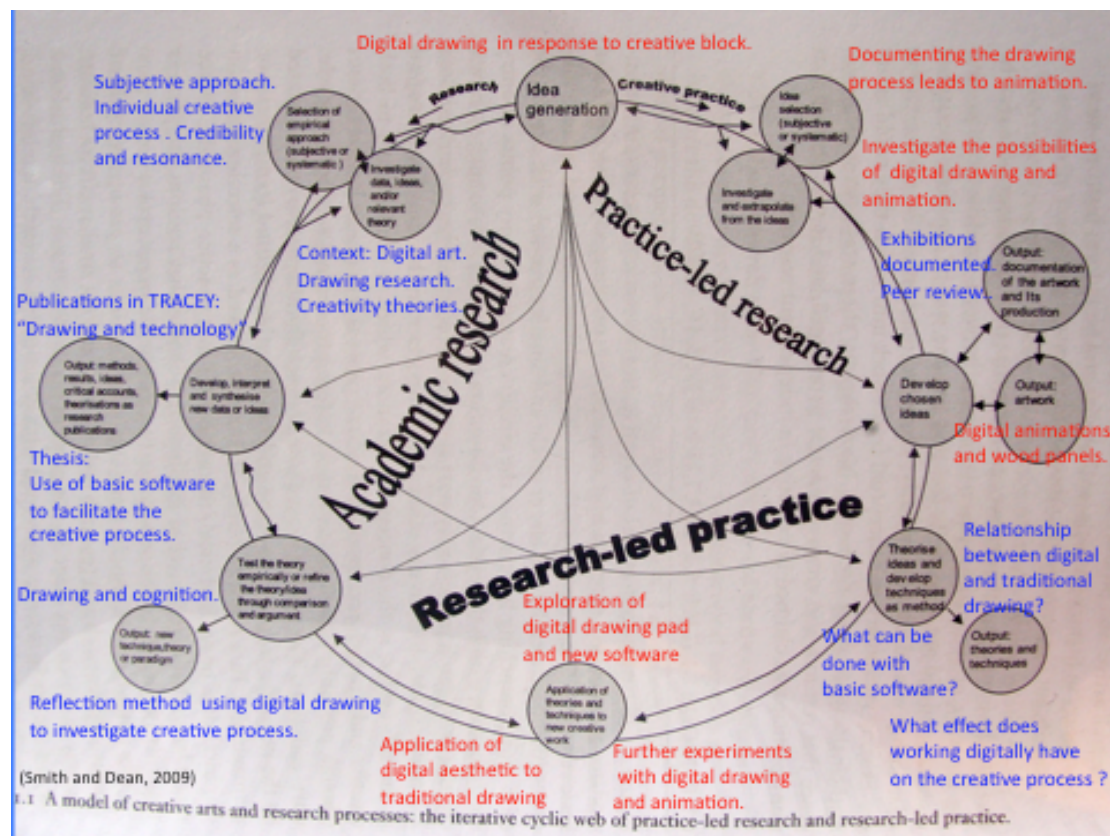


Figure C.4: Webinar Slide 4

My interest in digital drawing grew out of my creative practice and was a way of dealing with creative-block. Discussions with peers and colleagues encouraged me to register for a doctoral study and formalize my investigation. This was a huge challenge for me. It is one thing to make images and exhibit them (something I have been doing for decades). But it is another thing to present this work as academic research. It took me a long time to find a framework that would suit my needs. Practice-led research in the visual arts is a relatively new field. Fortunately it is gaining momentum and there is a growing body of literature. The framework presented here was developed by Hazel Smith and Roger T. Dean from the University of Western Sydney (Smith and Dean, 2009).

The text in red and blue shows how my study fits into their model.

Smith and Dean's 'Iterative Cyclic Web' combines a cycle with sub-cycles and a web structure. Fundamental to their model is the concept of *iteration*: the repetition of a process several times with some variation. Iteration leads to alternative results as choices are made regarding what aspects to focus on during the creative process. Their model allows for both practice-led research and research-led practice, as it is possible to move in either a clockwise or anti-clockwise direction. The web makes it possible to pass across the cycle transversely at any stage. This model incorporates the trajectories of traditional academic research as well as creative practice as research and allows for an integration of both.

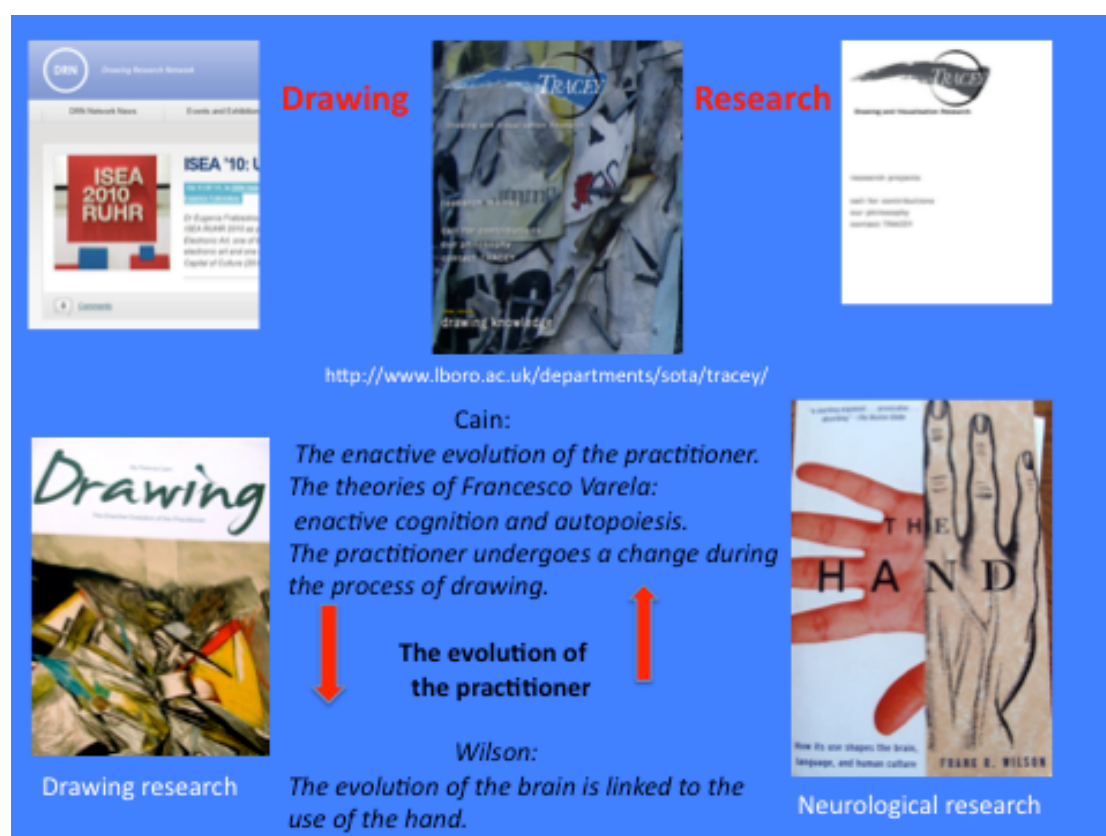


Figure C.5: Webinar Slide 5

The theoretical research was a real journey of discovery for me. One of my discoveries was something called the Drawing Research Network. This on-line network is facilitated by the University of Loughborough Visual Arts Department. It is a forum where artists and researchers can share ideas related to drawing. Attached to the DRN is an on-line peer reviewed journal TRACEY, specializing in Drawing and Visualization Research. They invite submissions according to various themes. A recent theme was "Drawing and Technology". Last year I submitted two papers on that theme and to my surprise and delight, both were published this year. I have provided the url so that you can go and check them out if you are interested.

Patricia Cain is a young British artist who has also published in TRACEY. She recently completed a Doctorate in Drawing. Her book "Drawing: The enactive evolution of the practitioner" is based on her doctoral research (Cain, 2010). Many of Cain's findings resonate with my own. I found her insights regarding the relationship between drawing and creative thinking particularly interesting.

The experience of 'discovering' the digital process of drawing as a method of generating creative ideas led me to think about drawing in a different way. I began to understand that the series of drawings I was making represented a visual record of my spontaneous and intuitive thinking. I became interested in how this process of drawing in a virtual medium had enabled me to generate new ideas and images that led to the making of physical artworks.

Similarly Cain notes how, in the course of her enquiry, her views about the activity of drawing changed.

From initially considering drawing as a finite event toward the production of an artefact, I began to consider drawing as *process* – as an end in itself. As a consequence, my focus became the evolution of the practitioner rather than the evolution of the drawing, and how to map this evolution became equally as important. The vital question was not as my tutors had asked, ‘what is this drawing about?’ but rather ‘what have I come to know about the world through making this drawing?’ (2010: 19)

Cain made a connection between Francesco Varela’s theory of *Enactive Cognition* and the activity of drawing which she sees as an enactive phenomenon. It is beyond the scope of this presentation to provide an in-depth discussion of Varela’s *Enactive Cognition* theories. However Cain provides an introduction to *Enactive Cognition* and applies Varela’s theories of *Autopoiesis*, *Embodied Thinking*, and *First Person* methodologies to her research on the drawing process (2010: 48).

In essence Varela theorised human cognition as self referential and self-producing processes. *Autopoiesis*, “the biological theory of autonomous self-organising systems” can, according to Cain, be literally translated as meaning ‘self-creation’. When applied to drawing, the theory of *autopoiesis* enabled Cain to recognise how knowledge emerges as the drawing process unfolds and how the drawing practitioner is changed in the process. The practitioner is not seen as an individual entity operating in isolation from the environment, but rather as part of an ecosystem in relation to the world around her. Thinking occurs within the process of interaction. Cain could move “away from the conventional view that drawing is a discrete activity, and think of drawing as a process of open-ended discovery which can be investigated through action”(2010: 48).

Digital drawing as a creative and reflective tool

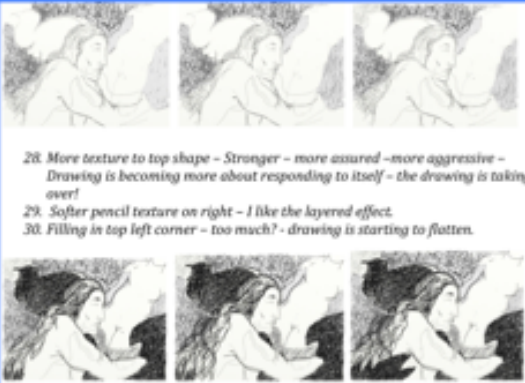


Developing an idea through drawing

Working digitally makes it easy to record every stage of the process. It also makes it possible to return to early stages and take the drawing in an alternative direction.

Reflective method for recording the drawing process digitally

Reflection and questioning set up a dialogue between the researcher and the researched, in this case between the artist and the creative process



28. More texture to top shape - Stronger - more assured - more aggressive - Drawing is becoming more about responding to itself - the drawing is taking over!

29. Softer pencil texture on right - I like the layered effect.

30. Filling in top left corner - too much? - drawing is starting to flatten.

37. Bring in dark shape- initially out of frustration with hand. Alters mood of drawing - more sinister.

38. Rework lines on 'hair' down back of main figure. Want to bring in another sinister shape - cannot decide where.

39. Found a shape- claw -like. Seems to connect to other sinister shape. (Need a break - 2 hours.)

Figure C.6: Webinar Slide 6

The idea that drawing can be thought of as an unfolding process of self-creation, prompted the investigation of my drawing process by means of visual and verbal reflection. I became interested not only in how the drawings progressed and changed, but also in how *I* changed as a result of the process.

A process of art making that leads to the production of unexpected or unpredictable artefacts, would seem to indicate that the thinking of the maker undergoes some sort of transformation during the process of making. Following from that it could be concluded that the practitioner him/herself undergoes a process of transformation.

The fact that a series of drawings with unexpected results led to new developments in my approach to art making, seems to indicate a significant change in my approach to creativity. Further, one could say that this indicates that I had learnt something through the process that brought about a change in me. 'Something' happened to me while in the process of drawing. Trying to pin down exactly what that 'something' was, proved difficult. Cain reflects on the difficulty of identifying the knowledge that is generated during the drawing process:

The notion of thinking within the medium also prompted me to think about what form the unstable knowledge occurring in the loop of activity between artist and drawing might take. How would I be able to identify what I could know in this kind of process? I conjectured that knowledge, which evolved from the making process, might

accumulate not only from an accretion of events, but ‘within’ the events themselves as they took place. In effect, thinking would take place ‘within the flow’ so to speak, rather than simply retrospectively. Moreover, this might be a matter of learning as much as it was a matter of thinking (Cain, 2010).

As the title of Cain’s book, *Drawing: The Enactive Evolution of the Practitioner*’ (2010), suggests, it is the practitioner who undergoes transformation during the process of drawing. In seeking to understand one’s creative process, learning takes place which leads to transformation.

A Method of Enquiry

The learning and transformation that takes place during the creative process can only be experienced directly by the practitioner involved. Reflection and questioning set up a dialogue between the researcher and the researched. In this case the dialogue is between the artist and the creative process. In order to facilitate this dialogue a method of enquiry was required.

The ultimate question that Cain arrived at was “how I know I make sense of what I do”. She notes that although this is a seemingly personal and subjective topic, her enquiry became an in-depth and rigorous example of the nature of learning in creative research (2010: 19).

‘Making sense of what I do’ is at the core of my research enquiry. The notion of ‘the evolution of the practitioner’ (Cain, 2010) provides a way of thinking about art practice that could help answer the question: “How do I improve what I am doing?” (Whitehead, 2009). In order to address this question I need to understand or ‘make sense of’ my art making process, and further to that I need to understand *how I know that I make sense of it*. I think of practice-led research as a learning process and therefore need to understand what the nature of my learning is.

In order to ‘make sense’ of my art making practice I need to investigate what Cain calls “the symbiotic relationship between *what* I know (my subject matter) and *how* I know it (my methodology i.e. the principles and ideas which govern how I go about my practice)” (Cain, 2010). My initial approach to the research was to examine the products of my practice retrospectively. While this revealed ‘what’ I had achieved, it did not adequately provide an in-depth understanding of ‘how’ I had achieved it. I realised that I could not go back and repeat or re-live the experience of works that had already been completed. For this reason I began to develop a method of documenting my experience both visually and verbally *while* creating new work.

The examples on the slide are taken from a series of journal entries that document the process of making a digital drawing. The drawing was made using a *Bamboo* digital drawing pad. The software used was *Artrage*. By means of ‘copy and paste’ I visually documented 44 stages of the

process. Each stage was also documented in writing by means of brief notations. At the end of the process a more detailed reflective account was written in response to the visual and verbal documentation.

Working from the Unknown

The advantage of this reflective method is that it visually records the result of intuitive and sub-conscious thinking while at the same time verbally recording conscious responses to these decisions. I agree with Cain that “thinking is not simply a consciously reflective post-activity event but ... a process which occurs on an innately self-reflective subconscious level as part of activity – a process where ‘not thinking’ or ‘not knowing’ might be valued” (Cain, 2010). What I have attempted to capture with the visual journals is the experience of being engaged in the creative process. For me this often involves starting from a position of not knowing where or what the activity will lead to. My experience is echoed by Cain who aimed to “share a flavour of the experience of what it is like to be engaged in a process, where often the questions which are at the core of the enquiry are not always visible at the outset but emerge only as the enquiry progresses” (Ibid.).



Figure C.7: Webinar Slide 7

Drawing and Thinking

This project started with the intention of making sense of ‘discoveries’ made through art practice. I began by analysing the artefacts that I had produced. This led to literature research around the issues of drawing (particularly digital drawing), animation and theories of creativity. As the study progressed the focus shifted more towards how drawing (digital drawing in particular) facilitates creative thinking.

It became clear that these ‘discoveries’ were not entirely new and that there were multiple resonances with the work and ideas of other artists and theorists. However, I also became aware that my working methods and thought processes were idiosyncratic and unique. Drawing plays a major role in my creative process. Digital drawing provided a tool that was not only helpful in generating ideas for works in other media, but together with the process of animation, provided a means of visually recording the thought process *while* drawing. This allowed for a shift of attention from the artefacts to the cognitive process that led to their creation. Like Cain, I began to ask: “How do I think as I draw?” (2010: 27) A corollary to this question is: How does the process of digital drawing influence or assist my thinking?

If one accepts that drawing is a thinking process, the question “how do I think as I draw?” seeks to unravel the mystery of a cognitive process that does not express itself in words. How then does one go about answering this question? Cain, in her attempt to “investigate the role of drawing in the creative process and its relationship to thinking” (2010: 27) set out to examine the “conscious and unconscious aspects” of drawing as a thinking process, as well as “the notion that thinking might not just involve knowing with the head, but thinking through the body.”

Thinking through the body brings me to the neurological theories of Frank Wilson (Wilson, 1999). He makes a convincing argument for the importance of the hand and its use in our cognitive development as a species. But I will leave that discussion for another time.

Instead we are going to do a little drawing experiment. I would like everyone to participate in the making of a digital drawing. Do not worry if you cannot draw. All you need to do is make one mark. We will take it in turns and work our way down the list of participants. The first person must simply make one random mark somewhere on the whiteboard. The next person will make one mark in response to the first mark. Then each person in turn will make a mark in response to what they see. Wait for the person before you to finish. Have fun. Simply respond spontaneously, try not to think. Let your hand do the thinking.

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Mind the gap: Drawing Theory and Practice Together⁴⁸

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KEY WORDS: Drawing, animation ,education, critical thinking, integration of theory and practice, basic technology

ABSTRACT

South Africa's educational landscape is scarred with economic and educational inequalities. South African tertiary education today has to deal with a variety of challenges including the lack of funding, both on the student's side and on the side of the institution. The most prominent challenge relevant to our research is the extensive lack of skills and knowledge of students when coming from secondary school where they are rarely exposed to cognitive skills. Our students struggle to understand the notion of a 'concept' or 'metaphor' in an artwork: that art is not just representative or aesthetic, but communicates a message, an idea, a criticism, or appreciation. This requires creative and critical thinking.

We present a case study of a drawing and animation project that aimed to facilitate this. We argue that through the integration of art theory and drawing practice, students came to understand not only how to detect critical thinking by other artists, but how to implement concepts, metaphors, or symbols in their own work. Through this project we explored drawing

- as a tool for creative and critical thinking,
- as a bridge to close the gap between theory and practice, and
- as a means to introduce technology on a basic (low-cost) level.

Our finding was that this approach enhanced creative and critical thinking, resulting in student work of greater conceptual quality.

⁴⁸ Research paper presentation at the DRN Conference *Drawing Knowledge*, 2012 Loughborough. Published in *TRACEY Drawing and Visualisation Research*, 2013. Available at: <http://www.lboro.ac.uk/departments/sota/tracey/journal/edu1.html>

Biographical data

Roome and Ziegler teach drawing and art theory in the Fine Art department at the Durban University of Technology and have 35 and 13 years of teaching experience respectively. Both are working towards PhDs, John Roome in practice led research and Nirmi Ziegler in e-learning.

1. Introduction

The idea for this paper came out of a collaborative project run by two lecturers in the Fine art department at DUT. We both teach the same group of second year students. I teach drawing and Nirmi teaches art theory. In an attempt to break down a perceived divide between our two subjects we coordinated our efforts.

To distinguish between our two voices we use different fonts:

John: Cambria

Nirmi: Candara

Understanding the South African context is vitally important. We introduce the issues currently affecting education in our country. South Africa is a postcolonial country which displays all known symptoms of poverty, severe crime, corruption, extended cultural diversity, and language multiplicity. In addition, we are a young democracy, a country that comes out of a prolonged period of suppression and domination of the majority. This transformation from a racist society into a democratic one has been a slow and arduous one. Our extreme diversity in cultural, religious and social context earned us the name ‘Rainbow Nation’, a challenge which asks for multifaceted attempts to ease tensions, inequity, inequality and discrimination. Issues that negatively affect the majority of students include the paralysing effects of poverty, a society in crisis, and an educational system that is largely dysfunctional. Poor matric⁴⁹ standards and the (connected) overall poor situation of secondary education shifts the burden of ‘catching up’ and delivering a proper education to the universities (Parker 2012; Murray 2010; Davids 2010; Dugmore 2012; Pooe 2012;). Language constitutes an essential tool for learning, but because of its postcolonial history, the language of instruction is not the mother tongue of the majority of learners. And as non-indigenous languages are associated with an oppressed past, the issue is complex, politicized and problematic (Msila 2007; Seligmann 2011; Plessis 2005; Visser 2004;).

South African students are in general underprepared for tertiary education. They lack basic general knowledge, numeracy, critical skills and the necessary standard in the language of

⁴⁹ Matriculation (matric) refers to the final year of high school and the qualification received on graduating from high school (Matriculation in South Africa, 2012).

instruction. In order to correct and counteract this, and to prepare students for the 1st year level, most universities have put one year of so-called 'bridging courses' or 'foundation courses' in place. In our faculty the course unfortunately fails to address critical thinking, numeracy and writing.

According to Levy, the lack of money is the largest single problem for our higher education. At the same time higher education is the single largest inhibitor of reform programmes (1999). Public funding has decreased between 1986 and 2006 for higher education from 0.86% to only 0.66% of GDP (De Villiers, Steyn 2007). As the majority of our students come from a disadvantaged background, they need funding. 50% of the income of our university comes from the state and 36% from tuition fees (DUT annual report 2010). For many students fees become a stumbling block. The unrest through student strikes, which often become violent are about fees and accommodation (Cops put DUT under surveillance 2010). Financial constraints have resulted in a low budget allocation for our department which does not allow for new equipment. Staffing has also been affected. The number of lecturers has steadily decreased to less than half in the last ten years while student numbers have remained constant.

The only thing that is not under-resourced is creativity.

The majority of our students arrive with only basic English language skills, and no culture of reading and self-study. Many of them are first generation tertiary students. This means that these qualities were not nourished at home. The general struggle with language, cognitive skills and the generating of one's own ideas leads to a tendency to concentrate on techniques and practice as this is more rewarding. Students prefer practical subjects that avoid written assessments, the construction of arguments (in writing or in a debate) or other critical thinking skills. So the gap between theory and practice keeps widening. One of the aims of our intervention was to counteract this tendency. It is also of great concern in our current re-curriculation process.

Contemporary art has moved away from a representational and aesthetic focus towards a conceptual one. This is a new territory for most of our students, who often are not even familiar with the technical side of producing art, or with the notion of 'contemporary art', as they never took art as a school subject. Most of our students therefore have a limited idea of what to expect from studying fine art. The perception of creating decorative and useful objects dominates. Fine art as a concept developed in the Western world is foreign to the Zulu culture, which has a rich tradition in craft. These products are useful and decorative and mostly embedded in a ritual context. The encounter with a conceptual approach is therefore not an easy one.

2. The Theory/Practice Gap

The integration of theory and practice is an issue in various disciplines and has its roots probably in the invention of the university itself, originally the place to discover and understand the ‘theory’ behind (natural) phenomena. Today this is called ‘research’. With rapidly growing technology, the demands on human resources have increased. We need to think on our toes, and solve (complex) problems that didn’t exist before. The crucial skill today is to find, understand and evaluate relevant information for one’s purpose. The values that stand out are those of information literacy, critical thinking, problem solving, reflection and cognitive skills. These skills are rooted in the ability to analyse, systemize and evaluate data, in other words, complex thought.

Theory driven university degrees are currently criticized for their lack of practical application, yet practice based courses, especially in art and design, have in turn, changed their curriculum towards a more theory oriented, cognitive approach. In fine art, the shift towards theory happened in the art production itself⁵⁰, and through educational reform⁵¹ during the 1960’s (Candlin 2001)⁵². The trend deepened with postmodernism, which picked up on these beginnings and today contemporary art is deeply engaged within a conceptual mode (Stezaker 1997). Because of this radical shift away from focusing on teaching technical skills and the turn towards theory, art production was now imbedded 1.) within a critical discourse that creates a dialogue and 2.) within the grand narrative of its time and context. Yet this shift has been problematic for a variety of reasons.

The difficulty of integrating theory and practice raises various questions: why is it so difficult to integrate the two or even, why are the two separated in the first place? It also demands an answer to the question: what is it that we need to integrate, or, what do we hope to achieve through integration? Theory and practice are separated in our educational system, but in reality they are deeply interwoven. ‘Man cannot be in any kind of practical relationship towards the world, not even on a very primary and simple level, without some kind of ‘theory’, without certain purposes, attitudes, concepts, ideas’ says Vranicki. He concludes ‘... to separate them would be to allow the possibility of a kind of practice which did not include consciousness, hypotheses and theory: as if theory were possible which did not involve the total experience of man’s sensuous

⁵⁰ the most prominent movement being ‘conceptual art’

⁵¹ The National Advisory Council on Art Education (1960), better known as The Coldstream Report (in Great Britain)

⁵² South Africa had a time delay in this regard, and still tends to favour non-conceptual art. A correlation is possible.

activity... Practice of this kind would be animal practice, and such a theory would be nonsense' (1965).

Then, why did we end up separating the two? The reason lies in their different functions within the process of 'problem solving', - practical as opposed to factual. But it is the thinking that leads the way to the solution, not the doing. This separation of thinking and doing causes the problem. By separating the two, we are tempted to see them as not related, which is a fallacy. According to the philosopher Immanuel Kant *theory* deals with the principle, the rule that represents its universality (*Allgemeinheit*). This involves a process of abstraction from various conditions that influence the situation at any given time (*practice*). It is essential to extract a theory, because it constitutes the key to solving new problems (1977). At high school our students are not asked to apply theory to solve problems. They are trained to memorize and to learn by rote. But Kant makes it clear that 'No-one can pretend to be practically versed in a branch of knowledge and yet treat theory with scorn, without exposing the fact that he is an *ignoramus* in his subject' (1977).

In order to solve new problems, one needs to know the theory and how to **apply** it to a given practical situation. In order to do so, Immanuel Kant suggests an element of connection between the two (*Mittelglied der Verknüpfung und des Übergangs*) that of **judgement**, in order to transfer the theoretical principle to the practical situation (or problem) we want to solve. Rachels concludes: "This implies that those who lack judgement might be helpless" (2001). And this helplessness is what we observe and witness when teaching our students. They engage in 'theory', but are not able to apply or connect judgement to their practical subject in the studio. This inability explains why integration in education is so problematic; numerous research papers bear testimony to this. The tale reads almost like a mantra: students know the theory, but they struggle to implement it once they are confronted with the practice of their profession (Waghorn, Stevens 1996).

How do we assist with the process of critically reviewing what was learned in theory and applying such knowledge to the practice? Or, as Kant would put it: judging (*Urteilkraft*) a practical problem through the light of theory in order to find solutions and/or a new approach. One of the main barriers lies in the different structure of theory and practice. Art history for example is organized chronologically, whilst studio based practice is arranged along techniques and topics. This forces an asynchronous delivery of often related contents. Students often fail to make the connections.

Artists are visual people. According to Howard Gardner, they fall under the 'spatial intelligence' category, but are not necessarily talented in 'linguistic intelligence', the gift for language and words. Surely, if tested, all individuals show abilities in more than one 'intelligence' (as there are

nine), though due to education, support and encouragement, we end up specializing and concentrating on particular trades. Contemporary art clearly favours individuals who are strong in both spatial and linguistic intelligence, and who then, in addition can bring in other intelligences to refine their art.⁵³ But if the talent or skill for language and words is lacking, such a person would struggle to succeed in a contemporary art school.

3. Addressing the Gap Through Drawing

In order to address these challenges we designed an intervention that combined theory and practice. A drawing project that investigated movement and animation was introduced during art theory periods and was linked to art historical precedents and art theoretical concepts. We both participated in the introduction to the project as well as the final critique of the work. Our project was an attempt to make students aware of what artist/researcher Barbara Bolt refers to as the 'double articulation of theory and practice whereby theory emerges from a reflexive practice, and practice is informed by theory' (2005:4). By combining drawing and art theory into one collaborative project we hoped to make this 'double articulation' evident to students.

In our experiment we coordinated the art history of 'movement in modern art' with the drawing module, which aimed to produce drawings that expressed 'movement'.⁵⁴ We also re-introduced the notion of a 'concept' in art, but this time in art theory, by showing art examples and discussing them, making it clear that the focus was on a practical outcome. We expected the students to come up with, implement and explain their own 'concept' in the artwork they were going to produce in the studio. The next step was then to 'detect' concepts in existing artworks of modernism within the theme, and identify metaphors and symbols, in other words, interpretation, an activity associated with art historians. But here the purpose was different: it was a means to train the budding artists to understand these principles in order to create meaning in their own artworks.

This shift towards integration was also reflected in the theory assignment. We focussed on the discussion of the concept, metaphors and symbols not only of an existing modernist work, but also (by comparison) of the student's work inspired by modernism. The aim was to emphasize that the 'only difference' between theory and practice was the 'direction' in which the SAME task was executed: In art theory we investigated a finished artwork and detected how the artist had applied meaning to it and what that meaning was. In the studio practice the student tried to create an artwork by finding out what meaning could be applied.

⁵³ An artist with musical or bodily-kinaesthetic intelligence would probably chose performance art or installation, whereas an artist with existential intelligence would have a more philosophical approach.

⁵⁴ The duration of the drawing module was one week with 2 x 3 hours of art theory during that week.

In our department students have tended not to engage with drawing in a conceptual way. A solution to this deficiency presented itself to me serendipitously as a result of an intervention I tried three years ago with a particularly unmotivated group. Inspired by my own experience, I introduced them to animation. Using traditional drawing combined with basic computer software, the students produced short, stop-frame animated films. This project brought about a change in attitude and approach. There was a sense of excitement and total engagement in the studio. Drawing was seen as a means to an end. The 'safe' and representational approach to drawing was replaced by a more experimental and investigative one.

Students were encouraged to explore available technology as a creative tool. The technique of stop-frame animation using digital cameras or cell phones to record the stages of their drawings was introduced. Students were shown how to use Microsoft Paint and Windows Moviemaker as editing tools. This meant that they could work in the open access computer lab or on their laptop or home computer (if they had one). The animation project served as an introduction to the potential of digital technology. Through spontaneous sharing and teamwork, students began to understand and exploit this potential. The limited resources meant that students had to be innovative and experimental in the way they incorporated technology. Most students preferred to work with traditional drawing media rather than computer drawing software. By recording their drawings digitally students were able to reflect on the process of developing a concept through drawing. The final editing and production of the videos required teamwork and skill sharing. Adding sound to their videos was an option that provided scope for further creativity.



Figure C.4.1: Keketso Letlape, 2012. Drawing for animation



Figure C.4.2: Koketso Letlape, 2012. Drawing for animation



Figure C.4.3: Students editing animation videos



Figure C.4.4: Cell phone used for stop frame animation



Figure C.4.5: A selection of student animations, 2012. Video, 3 minutes 21 seconds

To reinforce the idea that drawing can act as medium to integrate theory and practice, the project was presented as a joint assignment with art theory. Concepts informed by art theory were developed through drawing and finally reflected upon in the students' journals. The 'double articulation of theory and practice' (Bolt, 2005) thus became evident. Results indicate that the exposure to art historical precedents and complex concepts led to drawings that were

technically and conceptually more adventurous, and the perceived gap between theory and practice was narrowed.



Figure C.4.6: Jessica Bothma, 2012. *Industrial Balloons*, Installation with balloons, helium, stencils, spray paint, Dimensions variable

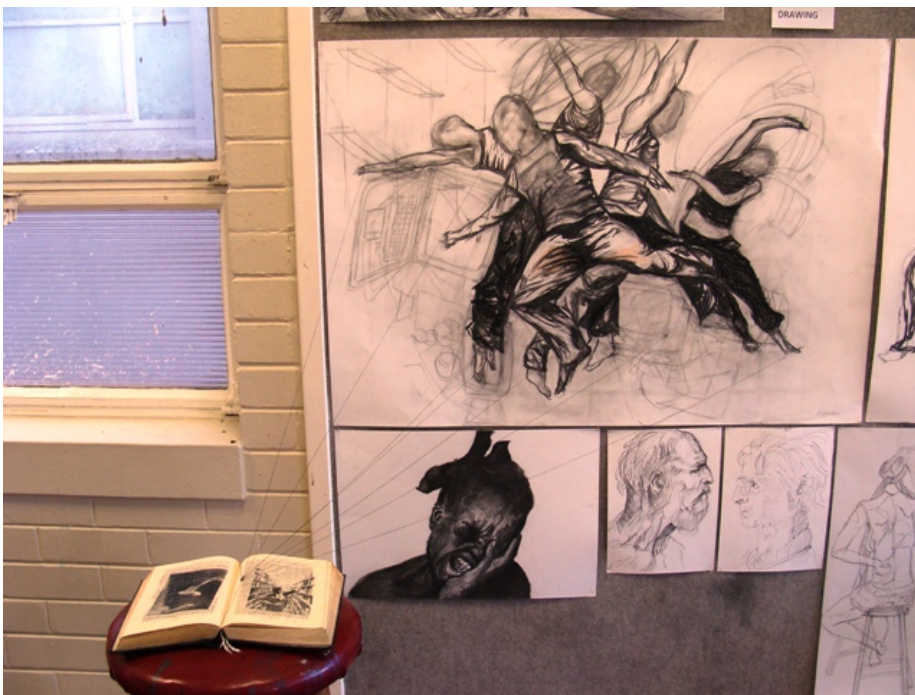


Figure C.4.7: Zinhle Khumalo, 2012. *Movement Installation*, Found object, thread and charcoal drawings on paper, Dimensions variable



Figure C.4.8: Kimera Appalsamy, 2012. *It's a Dog's World*, Installation with ink drawings on paper, Dimensions variable

Students keep a cognitive–reflective journal for every module where they relate information, ideas and concepts gained through theoretical research directly to their practice. In addition the journal encourages daily writing, which assists with the development of writing skills -a challenge many students face. Journal entries show that the student response to integration was positive. In many cases concepts and examples discussed during art theory provided inspiration for students to develop their own concepts through drawing.

The students were introduced to examples of Futurist art. Siyanda Xaba found their depiction of movement to be ‘what one would expect under the subject of movement’.

I came up with an idea of doing a series of drawings using facial expression and I even told John that I could focus on that. It wasn't much of a strong concept. It was more of illustration, as I told John, I saw it in his eyes that he wasn't that satisfied, so I got worried and started to try to think of another solution (Xaba 2012).

His inspiration came from a Bill Viola video shown to the students during art theory.

My idea was to move away from the ordinary classical movement e.g. moving by walking from one point to another, but my idea is about movement in terms of EMOTIONS. I used the topic in order to find my concept behind it which is searching for IDENTITY. That was my idea and the only thing that made me to get ...closer to my concept was the movie that Nirmi played, which was about 5 people showing movement of facial expression as well as slow, gradual movement of body (Xaba 2012).



Figure C.4.9: Siyanda Xaba, 2012. *Self Portrait*, Charcoal on paper, 594 x 420 mm

Sibonelo Ndwane integrated ideas taken from the life drawing class with ideas from art theory.

I've started my drawing which should depict movement. I've decided to use what I learned in figure drawing depicting movement, and also I have looked at Muybridge and Duchamp's works and sort of combined the two into one piece.

I am using Duchamp's drawing depicting movement with a horse and a man riding and Muybridge's man climbing steps. I think the combination of charcoal and oil pastels should work (Ndwane 2012).



Figure C.4.10: Bongani Khanyile, 2012. *Life Drawing*, Charcoal on paper, 594 x 420 mm

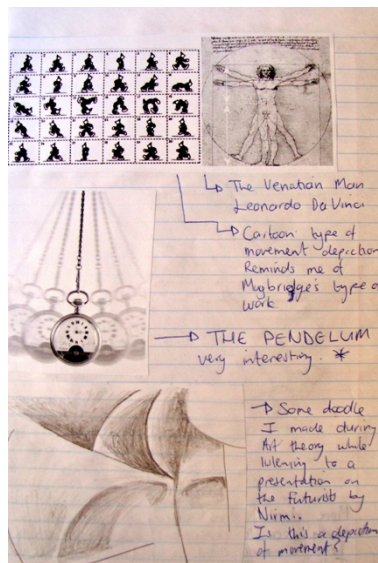


Figure C.4.11: Sibonelo Ndwane, 2012. *Burden*, Pastel on paper, 300 x 650 mm

Students were asked to develop their own concepts related to movement and animation. Koketso Letlape's concept evolved out of a series of doodles done in response to ideas presented during art theory lectures.

More doodles done during art theory. I'm really keen to experiment with the pendulum. The lines of the pendulum shifting (or the after shadow) must be as light as possible. So the main event will happen in the middle. This is as much mathematical as it is art. I want to show the mechanics of time as much as I want to show the movement of time within the pendulum shift (Letlape 2012).

He linked the seven stages of his pendulum movement to the seven deadly sins, and further linked these to animal symbols.



In my work the pendulum will explain or give the impression of a movement in time and situation or character. Characteristics I myself show during my lifetime as a human. With the seven pendulum balls or circles a characteristic will be shown...

(Letlape 2012)

Figure C.4.12: Koketso Letlape, 2012. Journal entry, 297 x 210 mm



Figure C.4.13: Koketso Letlape, 2012. *Seven Deadly Sins*, Charcoal and pastel on paper, 594 x 841 mm

In both art theory and drawing students were encouraged to think critically. Siyanda Xaba reflected on how to improve his work:

Look and think cognitively, don't go for the obvious.

To obtain brilliant ideas question myself about my ideas, whether they work and how to make them better. Don't look for a solution, but rather question and try to solve things and break them to simplicity (Xaba 2012).

In art theory we presented and discussed new material such as the Enlightenment and Descartes. These ideas challenged students from religious and conservative backgrounds. Siyanda Xaba acknowledges this challenge.

My work is about existence and it questions existence in some way. In the world that we live in there are many influences and things that make us reason and when we reason we sort of become confused of where we belong or what to follow.

So basically all of these confusions are all unclear and makes a person like me to not know where I stand in life 'existence'. So in my art I try to show that 'unclearness' through my movement drawings. What I did was I made drawings showing a blurred effect which clarifies confusion and unclearness and that was the kind of effect I intended to capture (Xaba 2012).

Many of our students were not familiar with the concept of metaphor. In art theory they learned to look for visual metaphors in the works of other artists. Nosipho Myeza was finding her feet through metaphor.

My concept was inspired by the fact that everyone's life seems to be logical and rational and controlled by systems and laws to such an extent that they cannot identify or find their true selves or true sense of identity, which of course can also make them forget what it feels like to be experimental.

Execution of my conceptual idea:

For my concept I will document a movement of feet that find their way into shoes of different pairs to express my way of defying what is considered to be normal or rather breaking out of the laws and systems that govern our life.

Symbolic Representation

The feet are a metaphor for a person that finds his/her own feet, which in this case is being experimental.

The two different shoes – represent being experimental, spontaneous and breaking out from the comfortable way of living which is guided by laws and systems (Myeza 2012)



Figure C.4.14: Nosipho Myeza, 2012. Journal entry, 297 x 210 mm



Figure C.4.15 Nosipho Myeza, 2012. Drawing for animation



Figure C.4.16: Nosipho Myeza, 2012. *Happy Feet*, Charcoal and pastel on paper, 594 x 420 mm

Sibonelo Ndwane made drawings of himself carrying a bag around signifying the high expectations placed on him. He wanted to express the challenges he experienced as a first generation tertiary student in his family.

I am using the baggage/bags as my metaphorical object which is intended to signify a feeling of having a burden (Ndwane 2012).



Figure C.4.17: Sibonelo Ndwane, 2012. Journal entry, 297 x 210 mm



Figure C.4.18: Sibonelo Ndwane, 2012. Drawing for animation



Figure C.4.19: Siyanda Xaba, 2012. *Self Portrait*, Charcoal and pastel on paper, 594 x 420 mm

Many students drew on their own life experiences, confronting issues of identity and personal development. Others expressed ideas that indicated a concern for broad social issues that affected their lives. Siyanda Xaba's drawings and animation are an expression of his personal quest for a sense of who he is.

My concept is searching for identity through emotional movement in terms of facial expression. I wanted the viewer to see me as a person moving from a certain stage to another through facial expression, e.g. starting from a happy or should I say a normal depiction of myself, to a very confused and lost person.

I try to achieve my soul searching identity by starting showing me as a happy person and as it moves on I begin to change mood and become a different person as it continues until it reaches the point where I become a confused person who doesn't know himself (Xaba 2012).

Similarly Bongani Khanyile wanted to depict a sense of hope and the development of an individual identity.

My idea is to depict different scenes of my timeline life. I am going to begin my animation from nothing to something visible and take into action with movement a life observation, trying to remember a certain age frame and to show movement in the actions of motion that came toward me and that I approached and how did they effect or had an impact on my life (Khanyile 2012).



Figure C.4.20: Bongani Khanyile, 2012. *Thrown and Turning Life*, Charcoal and pastel on paper, 841 x 594 mm

Nhlakanipho Ndimande's city drawings express his concerns about the challenges facing his generation.

In the city that I live in life is very tough, it is in a fast lane... Considering the events that take place now and then, the ongoing circle of crime rate, the abusive usage of drugs which lead to brothers and sisters to kill each other...Drugs are destroying the youth every day, their future, they are driven by the longing to belong and understand who they are (Ndimande 2012).



Figure C.4.21: Nhlakanipho Ndimande, 2012. *Rushing where?* Pastel on paper, 841 x 594 mm

One of the aims of our intervention was to make students aware of the value of research both in a theoretical and in a practical context. Students clearly began to value research as a tool for helping them develop creative ideas. Siyanda Xaba wrote:

Research is important and serves as a foundation for work and I've realised this through searching information myself and thinking cognitively. At times Ideas or Concepts don't appear imminently (immediately), they take a process of research and questioning as well as thinking cognitively (Xaba 2012).

The movement and animation projects were aimed at getting the students to view drawing as a process through which concepts can be developed and expressed. Bongani Khanyile found the

drawings of Clara Liev who uses a technique of blurring or agitating the edges of her figures to suggest movement. He experimented with this technique and used it to develop his concept of movement. His comment indicates that he worked instinctively, responding to his medium.

I was still working on this piece, I am wondering how it is going to look like in the end. I don't want to know. All I'm interested in is to experiment more with my medium (Khanyile 2012).

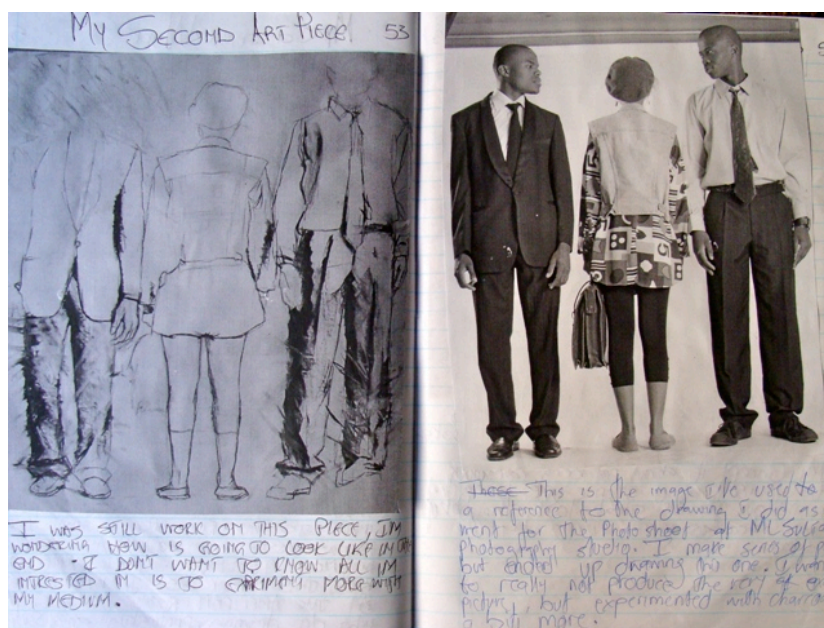


Figure C.4.22: Bongani Khanyile, 2012. Journal entry, 297 x 420 mm

Siyanda Xaba reflected on his own process of drawing:

When I was drawing there was one thing that kept on ringing in my mind and that was: every mark that I make was a history. This idea made me to not have the perception of making a perfect drawing without mistakes but I let the hand flow, creating lines that ended up shaping my work (Xaba 2012).

Students were encouraged to develop an innovative attitude. They were dropped in the deep end and had to find solutions to a variety of conceptual and practical problems. Limited resources led to the need to 'make a plan' and they coped well. Jabulani Mbili reflected on his struggle with equipment and technology.

In this module as I started I had a challenge of getting the equipment which I needed to use which is a camera and a tripod but I made a plan...As I was starting to draw with charcoal on paper I did not have any knowledge on how I would make my drawings work as animation. But when I started taking pictures it became easy for me to progress with my animation and I had a clear vision of how it would be at the end. Which gave me more ideas and how to do other complex drawings in order to improve my animation (Mbili 2012).

Student response indicates that there was a sense of enjoyment, achievement and pride at the end of the project.

Nhlakanipho Ndimande:

I enjoyed doing animation, and I was pleased by the outcome of my work, because at first I couldn't understand what I was doing and I wasn't sure of how to do it, but not until I relaxed and let my hand flow onto paper freely (2012).

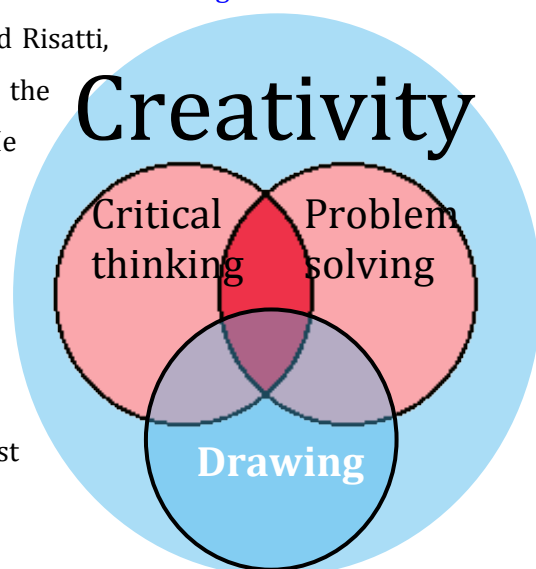
Jabulani Mbili:

This was a successful module which was challenging in approach and ideas it was a learning experience as I learned how to make animation and challenges which came with animation... (2012).

Siyanda Xaba:

I am proud of what I've achieved personally. I know that I worked hard because I did over a thousand drawings if I am not mistaken, in a space of just three days and I think that is an achievement in itself (2012).

The student responses indicate that their creative and critical thinking skills were stimulated and enhanced. In addition there was evidence of a deeper understanding of the nature of drawing itself and the skills required to execute it. Howard Risatti, in a *Theory of Craft*, points out the difference between the knowledge and skills required for craft and fine art. He explains that the aim of figure drawing is not so much to master a technique but to see and understand the figure as a form in space so that it can be conceptualised as a two-dimensional or three-dimensional sign. The *conceptualising* nature of drawing means that the knowledge gained through drawing can be applied to almost any other medium (2007).



There is some debate as to whether or not the act of drawing is a form of thinking. Artist Joel Fisher's paper *Notes Towards a Prepositional Drawing* given at the Drawing Research Network Conference, London, 8 October 2009, addresses the relationship between drawing and thinking. He concludes that drawing is related to, but differs from thinking.

Drawing is like thinking, but not what we might call a 'mode of thought.' It is too multifaceted to be proposed as a single system or lens able to give us a specific understanding of the world (Fisher 2009).

Patricia Cain in *Drawing: The enactive evolution of the practitioner* explains why she chose to focus on the activity of drawing for her research. The immediacy of the activity lends itself to the direct and unencumbered expression of visual ideas. There are no complicated technical intermediaries that stand between the artist and what he/she wants to express. She notes that

drawings provide a unique form of access to the thoughts of the artist and that the activity of drawing has been defined as a 'cognitive tool to facilitate and assimilate information' (2010: 28).

To engage students in the quest to find a concept for their new project, is probably the main focus in the studio, alongside the technical realization of the work. The process demands a critical view into one's subjective world in relation to the objective, outside world. This is where art theory can assist, as it trains information literacy to help gather ideas, as well as the cognitive skills required for the task.

Drawing, as well as other forms of visual expression, provides a means of generating knowledge that differs from language-based knowledge generation. Author of *Art Practice as Research*, Graeme Sullivan refers to this as 'thinking through a medium' (2010). Thinking through the medium of drawing is a different form of cognitive process to what is normally considered as thinking in academia. Academic thinking requires competence in language, more particularly academic language. Linear, logical, language-based thinking is often of less use when drawing than instinctive, innovative and 'creative' decision-making. Our assumption was that a more critical engagement with art theory would impact positively on studio practice. Conversely a more critically reflective approach to practice would lead to a better understanding of theoretical concepts. Students have begun to engage with concepts in art theory and develop concepts through drawing, bringing about a deeper and more critical understanding of the 'concept in art'.

Through our collaboration we emphasised the educational and creative potential of new technology. Many of our students have little or no computer literacy when they come to us. In art theory the use of e-learning has made technology an integral part of the syllabus and gives students the tools they need to succeed in the working environment of the 21st century. The 24/7 accessible learning material and instructions of the classroom assist the student centred learning approach. Even though the majority of our students do not own laptops, the majority do have digital devices such as smartphones, i-pods, and digital cameras. One of the reasons for the popularity of the drawing and animation project was the link to new technology, which students considered 'cool'.

4. Conclusion

Our collaborative teaching experiment was a response to the perceived gap between art theory and practice in a South African tertiary art school context. We looked at various factors that brought about this perception and presented a possible solution through a drawing and animation project. Our hypothesis was that drawing could become a means to close the theory/practice gap. We found that despite our demanding expectations students were comfortable with the integrated approach. The integration made sense to them, therefore the

response was positive, leading to a more critically and conceptually aware approach to drawing. The attitude to both subjects changed beneficially. Student feedback supports the following findings:

- Ideas and concepts presented in art theory were integrated into drawing.
- Critical thinking was evident in both art theory and drawing.
- Students began to think through the medium of drawing.
- Students began to use metaphor as a means of expressing concepts in their own drawings.
- Personal and social concerns were linked to concepts developed through drawing.
- There was evidence of an innovative approach to drawing.

By emphasising its conceptual and cognitive aspects, drawing became an effective means of bridging the preceived gap between theory and practice. Concepts dealt with in art theory were explored *through drawing* and then developed in the other practical disciplines. Thus we encouraged students to develop visual thinking skills through drawing as a means of generating and expressing concepts in relation to both theory and practice. The improved standard of drawings, together with the generally positive feedback, indicates that we were successful in our aim.

This project marks the beginning. There is scope for further development. Potential spinoffs include the integration of all subjects offered. Our aim is to bring all the practical subjects closer together conceptually by structuring a fully integrated course.

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APPENDIX D

PEER REVIEW

Reflections on “Creative applications of basic computer software: a practice led exploration of visual art and design thinking through drawing and animation” - a project by D.Tech candidate, John Roome.

I first encountered the ‘new’ work of artist and educator John Roome ‘visually’. As a fine arts curator and writer I am typically drawn like a moth in the dark to the light of what I consider to be ‘innovative practice’, something fresh, artwork that intrigues me because I have not seen anything like it before. In this instance a graphite on paper work at a local exhibition offered what appeared to be a complex and chaotic arrangement of gridlines with the resulting small ‘blocks’ filled in, or not. My immediate and guttural reaction was ‘more computer generated art posing as drawing’. This intriguing artwork was in fact composed of a myriad of handmade markings depicting the urbanity outside of the artist’s office window.

Little did I know that this casual assumption would lead me to further interrogate Roome’s fascinating and innovative practice led thesis. In conversation with Roome it quickly became clear that he had opened the proverbial Pandora’s box on a heated debate, namely the abject failure of logical positivism to drive a human(e) explanation of (here artistic) creativity. The contradictions of positivism’s birth mother, naïve realism, led scientists and philosophers to understand that information must be placed into pre-existing forms. Just as a computer must be programmed prior to data being inputted. Simply put, resorting to logically connected prepositions allows us to accurately predict what we experience. Not very creative, one would suppose, ergo computers don’t make art. Cognitive psychologists commonly depict human creativity as a defocused experience of secondary (or long term) memory banks as opposed to the primary (logical) functioning of short term memory which is typically more literal and logical ...rather like the binary code of a computers silicone chips.

Roome attempts to re-root artistic practice where knowledge is not limited to the content of one’s own mind. A real world exists outside our sense perceptions. A humbling idea that questions the dogma of 400 years of Cartesian dualism and its influence on existentialism and the science of being. A cliché is anything one has heard before...‘cognita ergo sum’ – ‘I think therefore I am’ comes to mind. His postmodern approach rejects empiricist philosophies because no regular laws can predict human behaviour (or creativity).

The knowledge generation driven by new technologies that are fast approaching a credible materialisation of ‘artificial intelligence’ raise interesting questions surrounding the relative autonomy (or not) of a computers ‘brain’. This is an epistemology that suggests that whatever is known is known relative to the knower. This self-reflexive and self-reflective aspect of the artistic process is Roome’s central endeavour and achievement in this doctoral project. His apparently computer generated drawing that had first caught my attention now readily emerged as an investigation by the artist into what he describes as ‘the cognitive role of drawing in the creative process’.

By engaging directly with computer software could Roome have unearthed the neo-realist holy grail of the elusive 'ghost in the machine'? By his own admission this thesis and body of work raises more questions than it answers, and therein lies the rub. History is made by journeying down paths where others fear to tread.

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