This thesis is submitted to the Auckland University of Technology for the degree of Master of Arts (Art and Design) by Ann McGlashan in 2005

Attestation of Authorship

"I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the qualification of any other degree or diploma of a university or other institution of higher learning, except where due acknowledgement is made in the acknowledgements."

Ann McGlashan

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abstract

The process of design is both contested and little understood.

This thesis investigates key elements of design as a **process**, in order to establish the notion that design is an individually negotiated process of reflexive practice.

The design practice of four New Zealand designers is observed in order to examine key elements and methods of the process used by each designer. Specific reference is made in terms of the designers' relationship with their surrounding or remembered environment.

Within this work I map my own process as an artefact designer, to contextualise the methodologies employed and to provide broader debate around the interface between the designer, her world and her work.

introduction

This document consists of five sections. It opens with the positioning of the researcher and an outline of the exegesis structure. This is followed by a review of the literature and a chapter discussing the methodological design employed in the research. The commentary consists of four recounted creative stories, with a concluding chapter entitled *finding patterns,* where the findings are aligned with the theoretical structure.

positioning the researcher

This section of the exegesis briefly discusses personal and professional experiences in my life, education and professional background as a designer and educator of design. These experiences provide points of reference for this project.

Many of my life's significant messages were from parents whose own skills and interests lay in sharp contrast between the worlds of the arts and civil engineering. On reflection I can see now that this contrast, rather than being a source of inner conflict, has provided me with a synergetic strength, born out of what were often polarised views of the world. As a child, I leant more towards the comfort of creativity. I discovered that I could tell stories through my art at an early age, and I enjoyed immersing myself in the safe environment of my imagination. Frequently I saw what I was about to create in its entirety in my mind.

However, this emergent *skill* was interpreted and directed towards a vocation in architectural draughting at a time of great disillusionment with my schooling. It led me to finish my secondary education as one of the first New Zealand women in training towards a building cadetship. I became channelled towards a vocation of neatness, accuracy and following *the right way.* I followed a successful career as a detail draughtsman for architects, structural and civil engineers and interior designers.

Eventually I ran my own contract draughting and design business. I became skilled at interpreting and meeting client needs. This career provided me with a body of tacit[1] knowledge that I later imported into teaching.
Working with students as a design and technology teacher for many years, I assisted them in realising their design ideas. This provided me with an insight into the variety of approaches that thinkers bring to design. Young designers, who were encouraged to seek out and follow their own creative pathway, revealed individually unique ways of viewing and interacting with the creative processes of design. I could see, however, that there was little opening for my students to have their creative thinking valued in a climate of rigid outcome-based assessment systems. These were systems developed more for national statistical purposes than for informing educative practice and encouraging true learning. They were systems where fear generated by exams and enforced time restrictions were, I learned, a barrier to creativity. These observations led me to become involved in developing programmes of learning and assessment at a national level in New Zealand education. My work focused specifically on recognising and developing creative processes in design.

My own experiences as a designer, teacher, lecturer, critic and curriculum designer, and my work as a national assessor and moderator in graphics and design technology have provided a relevant starting point to this project, because they have caused me to further question accepted pedagogical approaches to creative process.

On reflection I find that my own method of designing varies depending on project and client requirements. The majority of my early design work originated from a client's need, usually from the domains of light industry, domestic architecture or graphic design. The nature of this work dictated the direction and stages within a process that needed to be identified and addressed in order to meet client requirements and deadlines. In contrast to these needs-driven design tasks, my current design processing, brought about through further study, has tended to employ a more heuristic[2] approach to data gathering, data grouping and design development. This affords a much more contemplative and intuitive approach to problem solving.

The variety of approaches to designing identified in my own practice, and through an observation of the way design students work, brings me to question many accepted, linear notions of '*the design process*'. These suggest a singular and chronological approach to designing. These linear models direct and hold decision-making in a given order and posit a number of steps. While this approach may have its place in some scientific or engineering applications, the design process taught as a blanket approach to all design opportunities, is limiting and I suggest may close down and exclude much creative processing. Furthermore a formulaic approach to designing may be seen as discouraging innovation and the ability to effectively engage with unpredictable and unexpected outcomes.

Scrivener (2000, p.21) suggests that in design,

> *some students' interests, intentions and ways of working, although concerned with the creation of artefacts, cannot be moulded into a problem-solving project and that to do so would somehow be a failure of imagination.*

Therefore, the purpose and direction of this study is to explore ways of designing so that a variety of approaches may be recognised and an overall, more accepting view to designing encouraged. In this project, I record and reflect on the work of three New Zealand designers whose artefacts and thinking processes are reflective and non-linear. Through these observations I am able to readdress my own methods of design, and consciously allow my own thinking and design resolution to extend beyond the systemised and formulaic.

literature review

overview of the chapter

The nature of design and designing is interpreted and viewed in a number of ways.

To understand what is meant by design requires a definition. However, seeking a finite definition for design and ways of designing is problematic. Alain Findeli (1995, p.29) observes,

> *Anybody who has been confronted with design education would readily admit that proposing a satisfactory definition of design is a rather risky, if not impossible enterprise. Its definition indeed depends on whether design is considered to be an idea, a knowledge, a project, a product, or even a way of being.*

An examination of discourse relating to design as a method of thinking reveals degrees of contention regarding its nature.

Buchanan & Margolin (1995, p.xix) suggests that,

> *The traditions of anthropology and cultural theory have paid insufficient attention to design as a cultural practice; its effect on individuals and the world at large have been little understood.*

historical context

In endeavouring to provide a definitive model for a process of design, one needs to consider historical, vernacular processes where designing and making were inexorably linked. Lawson (1997) explains that the craft-based design process was built on many years of evolution where the end product became a totally integrated response to a specified problem.

Alexander (1964) argues that this unselfconscious, craft-based approach to design inevitably gave way to the self-conscious, professionalised process when society was subjected to a sudden, irreversible and rapid change. Changes such as those initiated by colonisation, invasion or the Industrial Revolution Lawson (1997) proposes are all examples of this. He also suggests that the seeds of the nineteenth century's respect for professions and the twentieth century's faith in technology were influential in this process and that changes in both the materials and technologies available, became too rapid for the craftsman's evolutionary process to cope. Both Lawson and Alexander argue that the traditional approach to design thinking, where it evolved inside the process of making, is now anachronistic.

Wood (1998), however, building on Schön's (1985) observations regarding the role of the craft guilds in shaping design thinking, analyses the issue of design thinking in some philosophical depth. He suggests that in viewing the origins of design thinking in the craft guilds, rather than in the universities, design could be seen as concerned less with the pursuit of a single truth arrived at via linear deduction or rhetoric and more with result-oriented knowledge. He suggests that,

> *whereas we associate scholastic knowledge mainly with 'truth' claims, design knowledge is oriented to making practical, appropriate, and elegant interventions within actual situations* (Wood, 1998, p.2).

This difference in the positions adopted by academics and design thinkers, he argues, may be attributed to the values held by the institutions that gave birth to them. Academic thinking [and thus University thinking] emerged from the cloistered scriptoria of the monasteries. They employed linear, rhetorical thinking processes in the pursuit of truth. Conversely, design thinking with its task oriented, interventionist and less linear processes had its origins in the craft guilds. It was not concerned with the pursuit of single truths, but with the development of *working* solutions.

Inherent in this was the appreciation of the potential for more than one effective answer. The approach towards 'the realisation of a solution' taken by craft guilds was more cumulative than the reductive, 'truth revealing' approach employed by academics.

design as linear thinking

Design thinking has historically been concerned with what may be argued as *non-scholastic* processes and there has been considerable debate regarding how it occurs. Discourse surrounding its nature may be divided broadly into two arenas. First those theories that emphasise linear processing and second, those that argue non-linear approaches. Sidney Gregory (1966, p.30) in his early writing on the subject of design methodology proposed that,

> *The process of design is the same whether it deals with the design of a new oil refinery, the construction of a cathedral or the writing of Dante's Divine Comedy.*

Gregory's statement suggests that practice follows a similar set and sequence of activities. Many writers have documented these activities, and the order in which they occur, in an attempt to strike the definitive model of a design process. The RIBA *Architectural Practice and Management Handbook of the Royal Institute of Architects* (RIBA,1965, as cited in Lawson, 1997, p.32) sets out a design process that is divided into four phases[3]. An order is implied within these phases that Lawson (1997, p.33) explains is problematic in that "*it is quite difficult for a designer to know what information to gather in phase 1 until there has been some investigation of the problem in phase 2*". Lawson (1997, p.33) further suggests that although the RIBA handbook does attempt to acknowledge the potential for a variety of approaches by "*declaring that there are likely to be unpredictable jumps between the four phases,*" essentially its paradigm of thinking suggests a linear process of development.

A linear process that progresses through ordering, investigation, refinement and communication.

In a further attempt to capture a definitive sequence of activities within current design practice [to offer as a guide to designers and educators of design], Johnsey (1998) found a consensus of opinion as to the nature of the design process[4]. After studying a wide range of publications, he identified fourteen common process skills that may be seen as a linear in their progression (Johnsey, 1998, p.9).

Implicit in Johnsey's ordering of processes is a sense of linearity. His list of activities identified design as almost an atomistic process and his list is problematic in that it gives little indication as to the amount of intellectual rigour inherent in each part of the design process. Lawson discusses a map of design processing developed by Markus and Maver (Markus, 1969 and Maver, 1970 as cited in Lawson, 1997) which provides what they consider to be a complete picture of design method. Their model includes detailed stages of *design processing or morphology* aligning to some extent with Johnsey's activities. The second stage of their model, *design sequence,* requires the designer to employ analysis, synthesis, appraisal and decision, at increasingly detailed levels throughout the process.

Thus theorists like Markus, Maver, Johnsey and traditional design texts like the RIBA handbook have tended to suggest chronological stages in

design processing. However, more recent theorists like Mawson (2001) have cautioned against the use of linear approaches to design. Following the international institution of design processing into secondary education (through Technology, Graphics and Art based curricula), a pared down, linear model of design processing has often been introduced with little understanding of how designing actually works. Mawson (2001) suggests that this approach has caused teachers, and therefore students, to structure designing activities as a sequential rather than an iterative process.

design as non-linear thinking

In contrast to the linear approach to design practice, there is a body of discourse that argues that a design process should not be seen as a linear progression, but rather a series of stages that are addressed as they arise. Lawson (1997, p.13) suggests that the Markus/Maver map of the design process for architects, which moves from overall organisation in the early stages to selection of materials and detailing later, "*turns out to be yet another example of what may seem to be logical from a superficial study but where reality is more messy*". Writers who have contested the linear nature of the design process include Anning (1992 and 1997), Chidgey (1994), Johnsey (1998), Jones & Carr (1993), Moreland & Jones[5] (2002), and Roberts & Norman, (1999). The notion of design as a non-linear system of processing by visualisation has been discussed by Schön & Wiggens (1992), Middleton, Oxman (1999), Chester and Morland and Jones.

literature relating to heuristics

There is significant literature relating to heuristics[6] a non-linear, reflective methodology that has begun to profile in critical writing on design processes in the work of a number of contemporary British theorists including Wood (1998), Scrivener (2000) and Gray (1996). Prior to their essays, the domain of psychology provided valuable material suggesting that this methodology increased richness of data collection and pattern-finding, when searching questions for which no known formula existed. In the gathering, assimilation and processing of research material, the methodology's non-linear sourcing and manipulation of data allows design room to more flexibly explore a wider range of options.

Wood (1998) in his discussion of academic rigour in design sees design essentially as the outcome of a non-linear, heuristic approach that encourages innovation. His contentions are supported by other writers from the separate disciplinary fields of science; (Kleining & Witt, 2000) and psychology; (Moustakas, 1990).

Scrivener (2000) in his paper documenting the thinking processes of doctoral design students identifies two types of design process. One he calls *problem-solving* and the other *creative-production*. Thinking employed in *problem-solving* design he sees as essentially concerned with the testing of an emerging solution to a pre-established problem [as in some product, technology and engineering design]. He suggests that such design "*satisfies specific norms and tests and which, in being designed to meet these criteria,*

contribute systematically to the development of the discipline" (p.12). In these kinds of design, the thinking process may be more linear and related to fixed systems of testing. However, design thinking employed in *creative-production* projects Scrivener argues, may be concerned with "*exploring manifold interests and goals and the priorities given to them may change as the work progresses" (p.3)*. He suggests, that the thinking processes employed in these types of design project, are often less linear and may be considered in terms of Schön's theories on design thinking as reflection on emerging practice. Schön's (1983) theory argues the role of tacit knowledge in competent practice. Like Scrivener he argues that problem setting and solving may not be linear, "*but something that recurs throughout the process in response to difficulty or uncertainty encountered during the task" (p.7)*. He also argues that the process of reflective practice in design is subjective. His emphasis is not on the linearity of a thought process but on the exploration and the opportune import from past, personal experience. Design thinking he suggests may be seen as something far more flexible than a linear or cyclic model because the designer is the centre of the process.

design processing through immersion and communication

Virgina Woolf said,

"*It is in our idleness, in our dreams, that the submerged truth sometimes comes to the top.*"

Scrivener (2000) suggests that, "*past experience provides examples, images, understandings and actions, rather than generalised theories, methods, techniques and tools*". He argues a form of design thinking that places the designer at the centre of the process and draws on a wealth of personal and professional experience. While this experience may be broadly considered as having generated and drawn on tacit knowledge, it also recognises the significance of the sometimes nebulous nature of subjective memory, impression and feeling. Schön (1997), Scrivener (2000) and Wood (1998) have suggested that common themes forming the content of design processing, may be addressed in broad terms, such as times of immersion or communication. They suggest that immersion may be seen as part of a system of reflection.

Mawson observes that children in his 2002 study were involved in an initial stage of 'total immersion.' The idea that design thinking employs a process of immersion, contemplation and reflection is further discussed in the writings of Miller, Bruce, Cassie & Drake (1990), Miller (1993), Ings (2003). Miller (1993, pg.74) where creative design is "*linked to a state of consciousness where images appear. This is usually a passive state where we are not trying to be creative but are receptive to experience and ideas*".
These writers all emphasise Schön's (1983) construct of the designer as a 'reflective practitioner' and all argue for non-linear and subjective gathering and processing of data. It is significant that among these theorists, that four (Gray, Ings, Scrivener and Wood) are also practicing designers.

the designer's journal as non-linear processing

Notions of immersion and communication as coexistences may be referenced in the research of Darren Newbury (2001). He outlines methods of researching that employ journals that do not, by their nature, limit the researcher to linear models of designing. The designer's journal as a method of processing and reflecting on knowledge is well established and Newbury suggests that a possible reason for the effectiveness of journals is their ability to capture something of "*the real inner drama*" of research "*with its intuitive base, its halting time-line, and its extensive recycling of concepts and perspectives*" (p.2). He suggests that the employment of diaries and journals can facilitate a less prescriptive approach to thinking and allow for a discourse between different ingredients in a research project, such as prior experience, observations, readings and ideas. These operate as a means of capturing synergetic interplays. Such manipulation of thought can be seen to provide a further role in design processing where the resolution of ideas in this manner, avoids the cost of trial and error experienced by the vernacular craftsman whose practice was to test ideas by constructing each outcome (Jones, 1970).

Goel (1995) argues that designers may employ different proportions of types of thinking when sketching and this thinking, especially when lateral, is not necessarily linear.

conclusion

Thus design processing may be seen in as varied a number of guises, as the nature of the tasks in hand.
An overview of current literature appears to suggest that in developing effective methods of working with this thinking process, we may need to encourage the development of more flexible, reflective approaches. Significant ideas contributing to this view therefore are Schön's (1983) notion of the *reflective practitioner,* Scrivener's (2000) *concept of creative-production* as the exploration of manifold interests, goals and priorities and Gray's (1996) findings on *inquiry through practice*. Wood's (1998) theory of the nature of design as heuristic research, Johnsey's (1998) concept of *process skills*, and Newbury's (2001) theories on the use of designer's journals, contribute differing ideas to the ways that design may be researched and processed. However, these theories meet at a common understanding that design is a complex and protean system of thinking that requires flexible structures for defining and systematising. All of these theories draw into question established concepts of an essentially, linear process of design thinking.

While there is some tension evident in writings between the linear and non-linear models of design thinking, this thesis, posits that fixed notions of linear progression do not help in understanding design thinking. It will, through consideration of four New Zealand designers' reflections on their own practice, suggest that 'designing' may be a deeply personal, contemplative

and reflective process, significantly influenced by things unobservable to the outside viewer. This may be likened to what Hastrup (1992, pg.117) calls fieldwork "*situated between autobiography and anthropology",* and what Scrivener (2000), Schön (1983) and Gray (1996, p.13) argue as the highly subjective nature of design thinking.

The next chapter of this exegesis will consider the research methodologies utilised in the generation of creative artefacts. The methods employed in their development are compared to reflections of four other New Zealand designers. Through this process I argue the significance of subjectivity and reflective processing in design thinking.

methodology

overview of the chapter

This chapter describes the research by justifying its interpretive stance and multi-faceted approach. It also describes in practical terms how the research for this thesis was implemented. The first part of this chapter considers my own practice as a reflective practitioner[7] working through the creation of conceptually related artifacts. This is followed by an outline of the methods used for data collection. This final section has described the appropriate methodological approaches employed in the thesis.

research methods employed in my own creative production

Two creative reflections on my past are used to introduce this exegesis. The recollections are significant because they recall sensory layers of past environments that serve as a starting point for this research.
This multi-faceted recollection is indicative of both the ethos of my own creative process and the research method employed in the development of the exhibited works. These works had to effectively accommodate the subjective and complex nature of such enquiry.

The research methodology employed in this project may be best described as heurestic. Heuristics from the Greek word '*heuriskein*' meaning '*to discover*' was a methodology developed as a means of employing a qualitative, approach to research that involved intuitive questioning as a means of discovery. This approach may be understood as a methodology employed in a process of designing, where there is an openness and flexibility to change as the preliminary question or preconceptions shift direction. Significant realisations occur during the evolution of this process.

When employing a heuristic research methodology, a flexible approach to the gathering of data is undertaken from numerous viewpoints. This allows the full potential of ideas room to develop from the outset of the creative process. Early thoughts are captured *as and when* they occur in a portable, always on hand, journal. This first capture of seemingly random, loosely related ideas, (present often while at rest in dreams or during conversations) may be seen as the recording of brief moments of synchronicity where influences align to influence current thoughts. Such capture needs to be immediate and undiluted, collected faithfully in its original form so that the unadulterated data can be returned to at a later date[9]. When the capture of ideas is satiated, influences and findings are analysed to find patterns and synergies within the material. Subjective analysis[10] and synthesis[11] that include internal dialogue, selections, observations, modelling, hypothesis testing and serendipitous connections are recorded in journals that operate dialogically[12].

It is through the discourse of this data that potential solutions to emerging problems are identified and developed.

research methods employed in collecting designers' profiles

Lawson (1997, p.39) in his search to find a definitive process to designing, cautions that the attempts to map design processing "*tend to be both theoretical and prescriptive*" and that these maps "*seem to have been derived more by thinking about design than by experimentally observing it*". He suggests that "*it would be much more interesting to know how very good designers actually do work than to know what a design methodologist thinks they should do*".

The methodology employed in observing and recording the activities and design processing of three contemporary New Zealand design practitioners follows an interpretive[13] approach to research. The researcher focuses upon the design practice of each designer, viewing them as unique practitioners of design, actively involved in creating solutions within their own complex reality. It is impossible to predict or to generalise about their activities or the sequence in which they may occur with accuracy. This is because their pratice is uniquely linked to the situation, individual and context.
A methodological approach that lends itself well to research in an interpretive paradigm is the case study[14].

case study research

Case study is not a methodological choice but a *choice of object to be studied*. From the three basic types of case study; intrinsic, instrumental and collective, the type of case study utilised in this research is intrinsic.
An intrinsic case study is undertaken because one wants to better understand a *particular* case, it is undertaken because the case itself is able to capture the unique nature of an individual approach to designing that would be lost in larger scale data collection methods, such as in a survey. According to Guba and Lincoln (1989) the inclusion of more, rather than less detail, is the hallmark of effective case studies.

The disadvantages of the case study are that it is prone to problems of observer bias and it is not easily open to cross-checking, hence it may be selective and subjective (Nisbett & Watt, 1984) Cohen, et al. (2000, p.105) state: "*At best we strive to minimise invalidity and maximise validity*".

In this research I interview David Truebridge, Carin Wilson and Dean Poole. I use a range of recording methods including; observation, note taking, audio and digital recording of interviews, still camera capturing of images, journal, models and environments. Reflective questioning in line with the conversation is employed as prompts when needed.

This method of research enables me to build complex, multi-layered profiles of verbal and non-verbal data.

research methods for data collection

Methods of data collection vary to reflect the open nature of the research. Typically, in qualitative research, data analysis commences during the data collection process. One of the main reasons for this is '*progressive focussing*' where the researcher begins by taking a wide-angled view to the gathering of data. Then, by sorting and reflecting on this data, the most important features of the situation emerge (Cohen, et al). Qualitative data identified as the content within the case studies can present itself in numerous ways such as design journals, or field notes, sketches, digital imaging, modelling and narrative accounts. The recording of these events will depend on the availability of evidence and the willingness of the participant to share the confidences of their own process.

The case studies serve to illustrate the central contention of this thesis that traditional, linear framings of design thinking may be part of an inappropriate and limiting paradigm. A paradigm that in practice has little in common with the way that many designers think.

methods used in interviewing designers

The main method chosen for this aspect of the thesis was the primary interview[15] with case study participants. Interviews carried out were mindful of the overarching premise of research within the interpretive paradigm, that situations occur naturally and should not be manipulated.

The purpose of the interview in this research was to attempt to understand the world of design practice from the designer's point of view and to faithfully represent their experiences. The employment of an *unstructured* approach to the interview provided a relaxed environment where roles of the respective interviewer and interviewee were variable.

An initial focusing comment was prepared to open the conversation and set the scene for informal dialogue. The informality needs to be understood as a means of creating a feeling of acceptance and trust. This approach does not belittle or invalidate the shared experience.
The interview was driven by the interviewee. They provided a commentary on their process. This process was shared and understood in retrospect due to the unpredictable nature of future work. Refocusing questions were employed sparingly, to maintain focus, ensuring that the information sought was addressed.

Recording the interview needed careful consideration. Anderson (1998) suggests that using an audiotape to record the interview is the best method for recording data. However a more faithful capture of sound was found by using a digital movie camera. The advantage of this system is not only the quality of the sound but its synchronisation with image. The documentary evidence supporting the interview, included images, sketches, models and a record of the surrounding environment. The interviewer needed to address issue relating to the mode of material capture early on in each interview as

the interviewee may have found the use of a digital movie and still camera intimidating. I addressed these issues in an initial interview. This interview established a protocol for discussion. All interviewees were comfortable with the method of recording. In terms of presenting the data at a later date, digital methods of recording[16] were far more reliable than a reliance on memory and/or hand written notes.

To achieve a climate of trust, certain agreed upon protocols were established where the privacy of design ideas was respected, the status of this kind of information needs to be clarified before the interview commences (Cohen, et al., 2000). At the conculsion of the interview participants were given a copy of the interview transcript and supporting collected material to verify the content. They were also assured that they had the right to retract or change comments they did not want included in the research analysis.

organisation and synthesis of data

The valued time and information shared during the three interviews with designers addressed a directive, mentioned previously, by Lawson (1997, p.39) that

> *"it would be much more interesting to know how very good designers actually do work than to know what a design methodologist thinks they should do".*

The intrinsic nature and content of each practice was recorded. Each designer touched upon influences and qualities within their own creative process that gave insight into the guiding *truths* in their work.
The researcher at this stage of data processing needs to be aware of any held preconceptions or assumptions anticipated at the outset of this journey. A balance was sought by the researcher to maintain a comfortable discussion rather than the rigorous focusing on preconceived indicators such as the stages within each process. Any mention of indicators may have contributed to a restricted response from the participant as they attempted to make their process fit perceived expectations.

Temperate refocusing prompts were employed during the interviews to provide a broad focus back to key aspects of a creative journey. Refocusing occurred with little disruption to the flow of information shared. This helped to maintain a faithful representation of the experience of each designer.

The selection and sorting of research material kept pace or drove the process in a *needs- driven* manner causing, at times, a pause or change in direction. The ability to change and adapt to influences identifies *flexibility* as a necessary trait in the persona of the design practitioner. The heuristic nature of data gathering allowed each interview to take its own direction depending on the interpretation of the question. The lead question evolved constantly depending on the stage of work cycle of each participant. The time to share frequently was specified as that occurring after a major design

project ended. At this time the residual influence of that project was often foremost in the mind of the designer.
Generic research questions were used to provide a grouping strategy for the interview findings. These questions gave an indication of the broad theme of a topic to again allow an open view to each practice. This approach encouraged any areas of commonality or contrast to emerge, these then could be presented as they appeared, with no attempt to make comparisons between each practice.

It is necessary to explain the evolution of the initial focus question prior to the first interview and then its trial. After some debate as how to best initiate discussion on the way designers design, the question *How do you design?* required modification to cater for the unpredictable and very varied nature of prospective work. Evidence therefore could only be faithfully gathered at the time of the design journey, alongside the process. The opportunity did not arise to observe a process as it evolved. This was because of the possibility of distraction, time availability and privacy issues. These issues were all acknowledged by the researcher as valid reasons to wait until an appropriate time presented itself to reflect on a process that could be shared retrospectively.

At the outset of planning for the interviews it became apparent to the researcher that emphasis needed to be given to the initiation stage of the interview. This is because the nature of the beginning would dictate

the efficacy of the generation and sharing of information. An introductory statement was included to assist the participant in selecting from a favourable position for reflection. The opening statement to the interviews became: *Think back to one of your most memorable design projects.* The prepared question that followed the statement was then: *Can you describe, talk me through the process/journey that you undertook in realising the project?* This approach also required more thought as the researcher realised that frequently aspects of the process undertaken were foremost in the designer's minds without the designer alluding to what had instigated the project[17].

The insertion of an initial focus question ensured that the recounting of the journey began at the beginning: *Can you tell me what instigated or triggered this project?*

The question on the journey or process followed with prompts at times when there was a lull in the dialogue.

Questions prepared to encourage and explore activities further within each process were as follows:

- *Are there any stages within your remembered process that were essential to the working of that process?*
- *Do you have any documentary evidence of the stages within your process that I may see or record?*
- *Does the immediate environment have impact on or influence your work?*
- *Can you identify any barriers to your design/creative process?*

the collation of findings guided by focus questions

Mention needs be made at this point that the quotations as they appear in the section of the research work are not the 'pure' printed speech. The quotations have been selected from the transcriptions made from the interview tapes. These have been edited to assist in the flow of the message given, through the removal of unintentional repetitions, fillers, phattic communion, false starts and grammatical errors. The changes serve to remove ambiguity only, and not to alter the intent of each message.

Each discussion had its own direction depending on which process each participant chose to address. At times focus questions gave rise to further questions that generated more discussion for the participant, therefore an even spread of participant response to the focus questions has not occurred. Other valid points were addressed, providing propitious outcomes that have added depth to this research. These outcomes validate Kleining and Witt's (2000) third rule for increasing the quality of heuristic research[18].

Conclusion

In essence then the methodology employed in this research can be seen in two distinct but dialogic arenas. The first is the development of my own work as non-linear, heuristic research. This employs a transactional relationship with emerging data via a series of designer's journals. The important part of journals in this work supports Newbury's (2001, p.2) observation that journals are a means to effectively capture something of "*the real inner drama*" of

research "*with its intuitive base, its halting time-line, and its extensive recycling of concepts and perspectives*". An initial capture-journal always close at hand serves to capture and house ideas, thoughts, reflections and images. Material is manipulated within further journals. The working journals are where ideas are aligned with remembered images, the *porch and hearth*, these images have become my truths[19]. Patterns are identified through annotated sketching and created and found images. These patterns serve to continue the design dialogue within the journals. Sketched images of possible solutions with considerations relating to the form, structure, colour and material of an idea are distilled towards the realisation of created outcomes. Processes and emerging outcomes are constantly considered in the context of remembered truths. This is a subjective method of ascertaining their validity.

The second arena is that of the interview where designers reflect on their processes. The interviews were preceded with an initial contact, to establish intentions and protocol. Interviews were structured in such a way, that designers could reflect on the process that they have taken, with minimal intrusion of traditional, theorised indicators of progress. The emphasis of the interviews was therefore on stimulating recollection and analysis. This was achieved initially by a carefully worded statement and question. These were supported throughout the interview by sparing use of focusing questions. At the conclusion of the interviews participants verified transcripts and visual records, so that all parties felt that data synthesised into this research was a true and accurate recording of their design process.

creative stories: designers' reflection on their practice

The nature of the interviews with designers has dictated that the individual stories should have their own voice. Each way of designing is held as it was shared, not dislocated from its place in the story, by an attempt to compare and contrast with other designers' practice.
This section of the exegesis therefore, presents each interview consecutively as the designers' voice. This voice is interspersed with that of my own focusing comments or questions.

The designers interviewed are:

David Trubridge
Carin Wilson
Dean Poole

To distinguish between the two voices recounted in the creative stories the interviewee responses are italicised.

David Trubridge
Interview held at the home of the designer in Havelock North
6 November 2004

David Trubridge with body raft taken from his marketing flyer

David Trubridge has established a successful internationally acclaimed design practice based in Havelock North. He has been instrumental in establishing a design incubator at Whakatu to support young designers in their early practice.

Initial guiding question:

Think back to one of your most memorable design projects.

Can you tell me what caused this project to come about or what triggered this project?

In preparation for speaking of his own practice Trubridge cautioned that to look for a generic process is limiting, as there is never one way to approach the practice of design. He spoke of his approach to his creative work as a continually evolving process:

> *There is always a thread, an idea, that has come from something else that has been developed and different influences making it go in different directions so there's that side. Then there are times when I have to just really grasp something quite new, quite different and to do that I need to go into completely empty space because if I'm in here [in the house] or I'm in the studio, then what's already there is kind of hanging on to me (of past works and life in general) and I need to get away from that, to let it go and not be held back. There are times just occasionally when I need to completely disappear for a few days in the mountains or whatever, and use that time to just think and I find now I increasingly do it when I travel and again that sense of separation frees you up to allow that thought process to happen. Ideas are born there, out of purely thinking, and then you have to go and start to apply and develop them.*
>
> *Ideas also are generated through the material… through playing, like that lamp. That was not designed, I was not looking to make a lamp,or looking to make anything, I was just playing with the material for the fun of it…*

the workshop… the space… the time just to experiment, it's really important that you do that, not to be tied down to thinking I've got to do this, I've got to design that, I've got to make a seat or something like that. Just forget all of that and experiment, out of the play will come a whole fresh thing that you never would have thought of otherwise. There is a need to play as well. So for me my practice is a mixture of all those things, and I think its important that you keep that mixture, you keep the what if I do that? with what I've already got.

You need to keep developing your themes, design specific things for needs and then just the play that allows a material response. This is where I think one of the drawbacks in some design situations occur… where people find that they don't have the material connection or understanding. They can do incredible conceptual ideas on computers, (I've seen them winning competitions knowing that these designs can't be made). There's no way you could realise that idea. The rendered drawing looks fantastic on a computer, people who don't know any better think wow, fantastic, give them a prize, but you couldn't make it. Computers are of course great tools, you need computers, and I use them all the time, but every time I'm doing something on a computer I'm thinking how does that bit of metal join to that bit of wood, and if I it can't be done, you adapt and change. Design is based on the knowledge of materials and the understanding of the interplay between materials, I think that's really important.

Speaking of the variety of ways design tasks are initiated, Trubridge noted that his recent work has a focus on creating new things for himself to produce. He said,

> *I was approached by an Italian company to design a product for them to manufacture, that work originated from a brief of sorts, but it was quite loose and it allowed me to work around a previous design of mine. They wanted something related to a theme that I was known for which in effect narrowed my options.*

When asked if this design was an adaptation of one of his existing designs he replied,

> *Not an adaptation, they wanted something new, but in the style of my previous work, because that was where the value was, so in a way it was new but it was also working through known themes. The company is a high quality Italian manufacturing company, very skilled at what they do. They've got very good machinery, so I went to the factory to look around and find out what they're capable of making, then to design for that capability and for the resulting production. The end product in this case will not be a beautifully hand crafted one-off. It has to be capable of being mass produced so the design can't be too complex.*

Conceptual thinking and practise

Trubridge is clear that the design process is not something simply concerned with ideation. He often refers to the continuum of development that is questioned by the requirements of manufacture. He recalls,

> *I used to have this complete misconception, an arrogance that what the artist/craftsman can do as a one-off in their studio was always going to be vastly superior to all that manufactured stuff because "oh that's easy, you just make it with machines". However, what we're doing, for and by machine, is really complex. I have learned actually that it's the other way round, as it is much easier to produce a one-off because you just make it. If it doesn't quite resolve itself it doesn't matter because you can make adjustments yourself by hand, you can metaphorically pull those ends together so it all meets because you're there on the spot.*

> *I used to think that to create by hand was an advantage but in terms of actually making something efficiently where you need to resolve a design to the point where it can be effectively manufactured is a far more demanding role. It takes a long, long time to plan going backwards and forwards. It also demands a far greater understanding of machines, processes and materials. Constraints are much greater when working within a factory situation - this is challenging.*

Trubridge constantly emphasised that designing for mass production needs to consider the plant and equipment impacting on the design.

He explained that a designer must take cognisance of the machine capabilities and the people using the machine. He specified two different types of client, who by their position as commissioning agents, affect the approach taken by the designer.

A client request may be generated by a one-off commission for a house for somebody who wants something special but they don't have the vision that the designer or the artist is supposed to have. So they will base their brief on something they have seen of that designer's existing work. A design brief will usually be derivative of what you've done before, with the earlier work setting parameters for the new. This type of commision will always be there, unless you've got a visionary client who allows the deisgner the freedom to start afresh, this is a rare ocurrence.

The pieces that represent a big step forward in a designer's development are those that you do independently for yourself or for an exhibition. These pieces are necessary to keep developing your creative self. I'll do my own work every so often, to keep moving forward, that's a different process again. This process for me, is where I go away into a space, to empty everything out, to just go right back to basics and start again right from the beginning.

When reflecting on this process of withdrawal and reflection Trubridge noted that new ideas come to work with. It is during this time that new ideas generally surface, however, he explained that the 'solutions' cannot remain simply as ideas. They need exercising and testing through more tangible processing.

> *The mind is an amazing thing, it idealises, it thinks it sees the whole solution. I've known people who say that I don't need to continue to make things, as I have these fantastic ideas in my head, they're brilliant and I know what they'll be like, and that's enough. These ideas are in fact not enough, they are a very simplified idealised picture that your mind is seeing. Every time that you actually get down to putting into concrete form, doing drawings or making models, you find that this initial idea created in the mind, is actually not that good after all, and that you've got to go back to their origins and work forward.*

Glide model Trubridge workshop (2004)

Scale models Trubridge workshop (2004)

Therefore the idea is the first part, and it is just a flash. This idea is just a concept, then the hard work starts. This work takes a long time to round everything off and put it all together, working to the point where you can start making it, and often you can't make it. You have this brilliant idea but when you actually come to it, it's not capable of resolution and you just have to leave it for a later time, when something else will come along and help you to resolve it. All of these aspects are mulling around waiting for resolution.

Coral light 2004 (Plywood)

Trubridge spoke of serendipitous moments when one is not consciously working on a project and something comes along and presents itself. This he suggests pushes thinking onto another plane. However he also suggests that such thinking requires a relatively unstructured approach to time. The designer must 'live with' the problem around him and be prepared to wait for a solution to present itself.

He says,

> *these moments may not even come from somewhere else but were right there in front of you, but you never saw it. When I've got an idea and I make a model, I'll bring that model in here and I'll leave it around and live with it. In living around the model there'll come a moment when you come into the room and you're thinking about something completely different, and its just there and it captures you in that unguarded moment when you see it in its entirety for the first time. At this time you really know that this is good or back to the basics again. This process takes time and you need to get over that rush of oh aren't I clever, I've designed this, isn't this good. It may not be as good as we think it is, but you can never be objective about your own work. The nearest you can come to objectivity is to just allow the time for that moment to happen, and for you to really begin to see where to go with this.*

When asked to recount a moment in his creative journeys that he was most proud of Trubridge said that he didn't think that there was any one moment. He considers that the design process is something linked together and that inspirations for one solution may surface from the continuous flow or surrounding concerns.

> *It's all just a big picture where nothing boils down to moments more a continuum. Anything that I've made has never been a moment. It's been many things put together that build on each other. I don't think you can*

separate out individual things like that. However in talking about that moment of inspiration, I'll focus on the body raft, the curved banana one.

Body Raft 2002 (steam-bent ash) from David Trubridge Brochure

I made an earlier version of the raft which was firmly set on the ground and it was a more complex form than the one I'd shown in Europe. An Italian company were interested in this design. I was invited back to their factory in Milan to discuss my work. The company loved the design they wanted to make the raft but in its present state it would be too complex for them to manufacture. I was asked to simplify the design. I had it back and tried and tried, coming up with some not very good ideas, eventually they said "Well thanks, but no thanks, we love it but we'll have to leave it there as we can't make this." It wasn't until much later that I noticed a chair that I has been living with in a room of my house that I had made 10 years before. This earlier chair had a seat in the form of a sort of segment of orange skin shape. I was just going to bed one night and I saw it there and instantly just saw and thought, that's the solution to this chair. You don't have it sitting on legs, you just make a curved form, that's all you need and that was one of those moments, those little flashes that lead on to a resolution and a lot more that followed, so those moments do happen.

In seeking clarification on this process, specifically whether these moments of inspiration come unbidden or as a result of constant searching for the resolution to a problem, Trubridge suggested that a solution often occurs when you consciously turn away from a perceived problem. He likens this to what he calls, "a sheep and fence syndrome."

> *If you've got a problem you can become like a sheep and keep pushing that fence, you're going to get more and more stuck. Its only when you forget about it and walk away, that you notice a hole over there and you're through and away. If you persist at the one direction, in the one place, you won't be let through. You have to back off. I think that often we're very prone to just stubbornly keep pushing and we just get tied deeper and deeper in that fence and stuck.*

non-linearity

When speaking of how influences often come from a myriad of different directions, [including, designing in your head and modelling] Trubridge emphasised the importance of reflection and refinement of emerging ideas. In the design of his Coral light globe he discussed a method of designing where he made many models that broke and fell apart, before he reached a solution. He said,

> *Everything is a spiral, you're going round and round in circles with your ideas, fine tuning them. It feels as if each time the circle is a little bit smaller, you're getting closer to the centre, you make a model that falls*

apart… okay you go back and come round, and you think a bit more about it… get it a bit better… go round the process again. It's getting a bit better so there's this constant going round, and round, and round. This is partly thinking, partly making, partly going to the computer to design and draw, then going back to the model to work on its refinement. You need the whole lot. With the globe, I needed to make it with the plywood to see what it was capable of, realising that no machine could reproduce my idea. I absolutely needed the computer at this stage to draw actual working shape of the globe.

Trubridge further suggests that designing may be a reflection on the potential of machinery. In discussing his design process he suggested that,

designers need to play on these things. Sure you can go and design something and get it made for you by some company that's got the machines, but what really needs to happen is to actually push the boundaries of what that machine is capable of, and you only do that by learning how to use it and play with it and [see] what you can do with it. At the moment CNC machines are made for doing die cut lettering for signs or panels on kitchen doors and drawers, and things like that. They're capable of so much more. Give a design student a machine to go and play with [they'll] come up with some great stuff. We need designers who can understand and test the limits of machines.

conceiving a design question

When speaking of how he as a designer approaches a problem, whether it is helpful to begin with the idea of an artefact being designed (like a table) or to begin thinking about something beyond that, he reflects on the following story as a concluding consideration,

> *During my time spent teaching design in France, the aim was to instil this idea of the process, starting right from the beginning. My motto or approach was when initiating a design say for a table, don't think tables, think eating, you don't think should it have round legs or square legs because all you're going to do is reproduce what's been done before and design is not styling. Style is just about fashion and change for the sake of change which is wasting materials. The real design process goes right back to the beginning and looks at the actual process of what's happening. Its not the object, it's the function - eating. How do we eat? How do we gather? What sort of things do we go through in eating? Do we sit on the ground? Maybe we need to rethink the whole thing for example; is a table the appropriate thing? If you ask these questions at the beginning of the process, you'll come up with a whole new object. The form the object takes will grow out of that new process and new ritual of thinking. I feel that the same applies to companies. Big companies needing to design a new product, would to well to take the initial pertinent questioning approach would bring about an innovative response to provide real competition to the cheaper imports coming in from China.*

The place of design may never have been used in the past, they don't understand design, its not just objects, it's the whole process of thinking how best to go about everything, even how to structure the company. Its just being able to think outside the norm at the start that's really important. I used an analogy of coffin design recently when I was talking to a group of manufacturers in Wellington. I deliberately chose coffins as a topic because there's a wonderful project I'd seen in Italy where two italian designers are working on a project called projetto mundi where they've rethought the whole process of burial. They've created a beautiful, egg-shape casket that's made out of jute or material that breaks down easily. The body is buried inside the egg shape in an upright foetal position and a tree is planted on top. The grave yard eventually becomes a forest.

This was my example to the manufacturers, to imagine that they are a company making coffins, its hard to compete, your current design is not selling what do you do, you get a designer to redesign it and maybe use brass instead of something else and have round corners instead of square but its not necessarily more coffins and that's currently the attitude towards design in this country or you could sort of go jazzy like some of those African ones and carve sort of Mercedes or fish or something out of a big block of wood and that's the coffin which is a bit better and is maybe going to sell you a few more but you're still stuck with the material, the wood, with the things that are maybe causing you problems because the price has gone up or whatever. Whereas this projetto mundi thing,

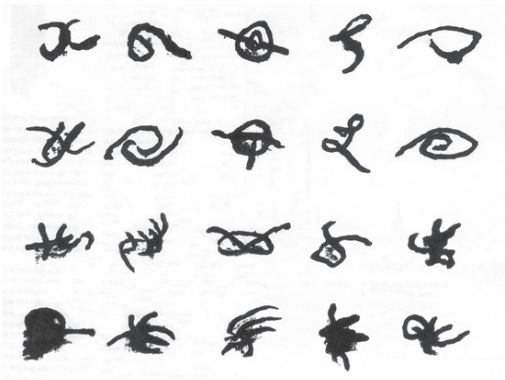
this is going right back to the beginning and rethinking and its taken the company away from making pine wood coffins into a whole different thing.

Carin Wilson

Interview held at the Escape café Mt Eden Road Auckland

7 December 2004

Stargazer chair (photoshop repair)



Nga Tohu Kiwaha
exhibition Artis Gallery (2003)

Carin Wilson is a celebrated New Zealand furniture maker and designer who has practised his craft for 30 years. A lecturer in design at Unitech in the Maori Architecture and Appropriate Technologies programme he walks alongside many creative journeys of others. Wilson has in his latest work, set out to find a material expression for a body of Maori lore, this search lead him to investigate the specific instance of material representation of the marks inscribed on the Treaty of Waitangi by some of its Maori signatories. This work also continues the work of Wilson's Aunty Miria Simpson: Nga Tohu o Te Tiriti: Making a Mark – The Signatories of the Treaty of Waitangi (National Library of New Zealand).

Initial guiding question:

Think back to one of your most memorable design projects.
Can you tell me what caused this project to come about or what triggered this project?

When making his response to the opening interview question relating to the origins of his design projects Wilson chose not to home in on a particular project, but to explain that,

> *one of the primary drivers for me is knowledge and understanding, so I'm instinctively drawn to learning. I think that it's a huge privilege of this life and if we don't allow learning to inform, or in some ways guide us through our lives then we're not really going anywhere because as far as I can tell its about the only thing that we're able to take away, none of the physical accumulation of our life goes with us anywhere and we don't know if there's anything else that goes with us either. But I think there is a chance that we'll take the learning with us and for me that's the primary driver and what that then means to me is immersion so I'm aligning my learning with an immersion process. Immersion to me means willingness to make mistakes so that's another very confronting thing so learning is discovery. The path of discovery sometimes takes us into dangerous territory. In that territory there's the possibility that mistakes are made but there's also the possibility that something wonderful will be discovered so that's really the matrix for me, learning, discovery and risk and I think that Katherine*

Mansfield said it all for me when I read those lines of hers which are risky, you know the phrase, I just think its just the most beautiful invocation of a life around art and engagement in an art or creative process. I've yet to find from anyone in the world a better way to put it in the way that she said it. But I think the other thing that has great meaning to me is the way Jaspar Johns described, I'm pretty sure it was Jaspar Johns described process which was "first of all I take something, then I add something, pretty soon I have something." I think that's very close to describing my quite unstructured approach. So take immersion first which I think is a very important part, take structure away from the process and engage in play so you know. Those to me seem to be very, very important elements of creative discovery process.

immersion

When elaborating on a time of immersion, so necessary at the onset of a design project Wilson describes how he prepares for this. He is aware of the way life presents indicators that support and inform his work.

I'm very conscious of the fact that there are other creative processes that are contributors to my own and music is unquestionably one of those. Music for me I think creates a kind of imagery because I listen to music as if I'm hearing the construction of the music, so I listen as if I'm hearing tracks being laid down. I'm hearing the thinking in the mind of the composer. I'm hearing the path to writing lyrics, I'm hearing all of those things so in

some ways music to me is not background noise. I can't stand lift music and stuff like that because its really an insult to the music process as far as I can tell. That's a very subjective view but that's just how it is for me so I believe so much in the quality of the creative process that I don't like to see it compromised in the way that commercialisation often does. So I listen to music and I also fill myself with imagery and maybe I can say inspiration from other sources as well.

Now it might just be nature. It might just be going out into the reserve behind my studio and looking at the puriri or noticing something that I hadn't noticed before. I don't know, it could be the form of a flower. My camera lens is talking a lot about this. Seeing through the camera which forces us to put something in a frame and then think about what we're seeing in a frame has, I've also found, to be an extremely important part of my development path.

observation

Wilson further suggests that the ability to observe, to really see our world is an attribute that we all have. He goes beyond this to observe,

we have acute powers of observation. My experience is that you and I and anyone can walk into a room or walk into a place and this thing that's going on in the subconscious which is our sort of little video recorder is extraordinarily accurate and its also amazingly perceptive in what it

picks up. But there is a process of understanding that that's going on and if we're talking process I think that's one of the most important [things] to become aware of. Of all that this is happening and that our eye and through the eye, the mind then, is extremely accurate. I'm astonished at how much information is picked up in a split second. It has nothing to do with linear time as we understand it. Its something else altogether, so I recognise that, and I kind of try to live by it as if I'm honouring this invisible capacity that we have to log and store experience and information... and then go back to it. This experience is unlocked by playing.

When speaking of the gaining and honing of knowledge and skills that are inherent within a process of designing, Wilson explains that it is when he allows himself the time to be, and to see, true creativity is able to evolve. He suggests that,

The ability to allow ourselves to observe is very important. I do think that it was always there [in my case] but it took me years and years of once again, applying myself to learning. So one of the most important stages in my learning path if I can call it that, was when I did a short course. It's like the first certificate but it's really quite an intense immersion in NLP[20] *and I just found that hugely supportive in letting me know how we operate, how we function as living intelligent human beings.*

collaborative processes

Significant insights into Wilson's design process have been his engagement with and alongside the designing process of others. Influential in this revelation has been a neuro-linguistic programme.

> *The programme run up at the Whangarei Heads every second year, is called collaborations. Collaborations is just absolutely mind blowing, and for me illuminating. You know I've been around artists and art discovery processes for years. I've organised workshops, I've sat in on countless learning opportunities and in many cases they have had to do with other artists working in media other than wood or media that interests me. However the Collaborations is the one that really put a rocket under my development path. In saying that I have to say that I've only been to two of the Collaborations and there's another one in March 2005, I wouldn't not be there for anything. What happens [at these meetings] is that a group of artists is brought together around a huge collection of equipment so every artist essentially brings his or her process including small casting furnaces and glass fusing kilns to work with. The tools and you're just thrown into this informal mix of people with the aim of making something together. In the process I get to discover the way that they work and they discover the way that I work and in the building of something we embark on this discovery path together. It's creative in the extreme because everybody's needs are taken care of on the site. It's always held in summer, the water is close by. We are absolutely pampered, kept apart from the cares of the world.*

It means is that its possible to work 24, 30, 36 hours at a stretch and then just take a brief respite from it and then just go right back into it. What I've seen happen in the Collaborations programme over four to five days is just absolutely extraordinary, so I learn something from that to as all of us have. There's no other explanation for the fact that it's always completely booked out, way in advance of when it happens than that people come because it's so valuable to their own development for their learning experience. This thing of throwing people together in informal adventures, it's the only way that I can put it, informal and collaborative.

intimacy and risk-taking

Wilson suggests that this notion of teaching and learning as a collaborative process, is one that conventional pedagogies in design education rarely engage with. He says,

This is what I find at fault with the [design] teaching process because what we find in teaching is that the teacher somehow for reasons that I don't fully understand, disengages from the students' development path or from the students' development process and the conventional pedagogy is that this is the way that you ought to do it but I don't believe that. It's absolutely not my experience even in working with my students. I think that the closer I get to them, the more willing they are to participate and go into an area where they're taking on the risk because see there's always the risk of making of fool of yourself or doing something wrong. They're

somehow inlaid into our patterns, our response patterns and sometimes life experience has been unhelpful to us in that regard but to get really close to a student and to allow them the opportunity to just ride over all of that so this is back to play isn't it, this is back to permitting people to goof off a little bit, make mistakes and so on but along the way something happens. I think a huge amount of the building of confidence and the willingness to embrace this thing that I'm calling risk, which I think is an integral part of the process.

When asked to expand on the place of 'risk' in a creative process and whether the conditions that best allow this practice are dependant on a safe working environment that encourages risk taking, Wilson reflects on the Whangarei Heads venue and his own studio as being,

very safe places, my studio is a place that I've made safe, it is a temple. I can think in my studio. There are just so many little moves that I make out there that might seem kind of silly to other people but they are once again, the processes [of] play and drawing of course [are] important but for me its engaging with materials. That's why I'm a 3-D person. Actually manipulating a piece of wire is as much fun to me as taking a plane to a piece of wood or putting plastic film over a piece of glass and then taking the sand blaster and blasting into it to see what it does. They're still what I see as constructive because they're like the stepping stones to the solution.

the thinking space

When asked to reflect on his thinking place, his studio under the Puriri tree, Wilson described the created environment that supports his work and at times serves to trigger his creative works,

> *I do like to have things in front of me and to tell you the truth, all of the wall space in my studio is now filled with the accumulated stuff that I work with and music, music is important. Access is very important, access to a wider range of what we might use than we're capable of thinking of at the beginning of the process, so in some ways that's a part of how I work too. I just kind of do a little circuit. Here's an idea, now what can I take and apply to that idea in a way that might forward me down this path that I want to go down so it's a loosely formed objective or concept but I prefer not to try and push down a linear path. I don't think linear pathways work. I don't know if that's against conventional pedagogy but I just don't think that [a linear approach] is helpful.*

When speaking of how he as a designer approaches a problem, that began with an idea or from play rather than a commission, Wilson reflects on his last exhibition, IOEAU at Auckland's Artis Gallery

> *the exhibitions are always a response to a theme that has gradually evolved , its like getting to a point [similar to] the beginning of the writing of a thesis [where you question} how do I begin to unfold this idea [in a*

body of work] so if I can just describe a process I used in the last exhibition. I've become fascinated by a lot of things that happen in our culture, by the culture I mean the culture of New Zealand, Aotearoa and in particular this interface between the Maori and the pakeha culture and I think I want to say the process of working on ngatiawa – which is my whakapapa - Treaty of Waitangi claim, taught me about the cost of dispossession so for me part of what had to be addressed is what's the recovery path here and what I hope to do through my own discovery along that pathway, maybe at least arrive at a few places or positions which might then allow others to share in that reconstructive process. So one exhibition was about loss and about the pain that my ancestors felt and I know about that because I've felt it in my direct relationship as a child with my grandmother and I also saw letters that she and her father had written to Government. Very, very profound in painfully explaining what those costs were. I went on from there to think about language and how difficult it is for a culture that is in some ways already trying to overcome the disadvantages of being dispossessed, the difficulty of expressing itself in an environment where its own language is not given free reign.

When asked to offer an overall observation of his own process Wilson concluded that,

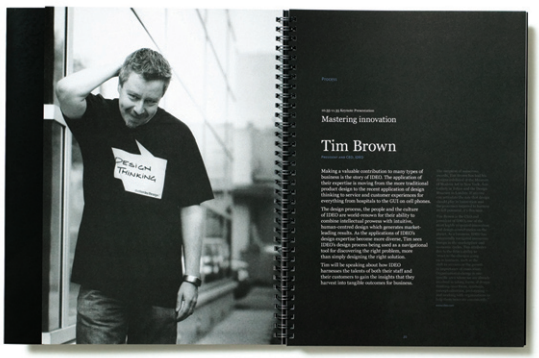
I believe that the work comes through me not from me. Often I think that it is spiritual. There is a time of total immersion where I take on board all

influences I allow myself the freedom to take time, a slow unfolding of thoughts and observations. We can all observe and listen acutely.
I allow my conscious and subconscious to interplay. I also believe that I can go there, I can fly. How do I get to fly? We need to allow ourselves the freedom to really experience our creative journeys. I have read and relate to Mansefield and Jasper John's words on creative process.
We have been trained through life to operate in a linear way. Locked in by time, time to wake, work etc. We need to allow ourselves to step outside that time lock and we need to know that we do have that choice.

Dean Poole

Interview held at the Altgroup design office, Ponsonby Auckland

26 February December 2005



Better by design discussion bubbles and designer profile document

Dean is a director of Altgroup at the cutting edge of graphic design whohave secured work for Trade New Zealand to provide the marketing package at the Paris fashion awards. Altgroup at the time of the interview were generating material for a gathering of internationally acclaimed designers taking part in the Better by Design government initiative to place emphasis on the place of design to the New Zealand business world.

Poole offered a quote to assist with a definition of design, to begin the discussion.

Design is the first signal of human intention

Paul Thackerey Dutch Design Council

Initial guiding question:

Think back to one of your most memorable design projects.
Can you tell me what caused this project to come about or what triggered this project?

Poole chose to speak of the recent Better by Design 2005 initiative. Altgroup were to create a web-based community and organise an international design conference. He took the question back to where a designer needs to ascertain the parameters of the brief.

> *In some cases you have a brief and you respond to the brief but sometimes the brief isn't even [resolved in the client's mind, they may not even have formulated the right questions to ask of the designer.] Sometimes people see design as problem solving, its actually not. It is actually [more] about defining problems. You need to define the problem before you even start thinking about it.*

collaborative processes

An observation made as the interviewer entered the Altgroup design studio, was that rich discussion was underway within the group, sketching, coffee

cups. Ideas were being tossed around, thoughts generated and pushed the extra step. It was apparent that the culture of creative thinking has been developed over many projects and knowing the way of the team. In answer to the observation that there would be little need to look outside the office walls for inspiration, Poole responded that

> *We have it all here, this makes it interesting when you recruit new people as you need to purposefully take care that you're not building a bigger you. You are building something bigger than yourself so you actually need to recruit people that are not like you. Its an interesting thing, in that to create a creative company you need different types of thinking within the same environment, not the same type of thinking because everyone thinks the same way and nothing happens.*
> *You just keep repeating yourself which is interesting, and you realise how different people are when they're in a group.*

When asked to elaborate on the approach used to capture the real intent of a new project Poole observed that, the team approach is a planned for strategy where members of altgroup work together to

> *set the case down. Its really interesting to compare the thinking that occurs by yourself and the thinking in groups. When you're thinking in groups someone actually has to not select the parameters, but to frame the context for others to think within so they're not necessarily parameters,*

more a platform that needs stretching in every direction otherwise the conversation won't go anywhere. Successful design teams I think need design leaders that actually can provide the context for others to think within.

Poole continued to explain that when framing an idea or generating new ideas in design thinking that it is the

ongoing conversation that transfers ideas when working on your own when working in teams, it's the same thing, that most design ideas come out of people having tacit conversations with each other. Tacit knowledge is inherent. It's about people's personal experiences, with new ideas coming from people's personal experiences. New ideas don't come from the facts or knowledge of the discipline of design as does explicit knowledge. When you need to find a new idea, you need to find better ways of having tacit conversations with other people. It can be a cultural thing, if you look a some cultures, people will, in organisations have ways of asking leading questions that are ambiguous. They don't share facts. I think in a lot of other cultures when two minds meet, they share facts and opinions but these can be limiting, one says one thing, the other responds, this type of conversation goes nowhere. Its just people talking on a knowledge platform rather than actually going deeper to the 'what if' questions.

Poole broadens the term conversation to include the internal dialogue, the discussion with others or with the design object in question,

> *all ideas come from conversations, all design ideas are conversations that we talk about the whole time. Design is a conversation whether it be an artefact, a business or an experience. An object can have a conversation with the user and a designer helps articulate that conversation on behalf of that object. So all design, its like a silent conversation, it speaks to you constantly often internally.*

When asked to explain how to instigate helpful discussion that extends and deepens the dialogue Poole suggested that to,

> *take the non-expert approach always in the conversation helps the to free up the dialogue. If you pretend that you don't know the answers, people will start opening up and sharing their own tacit knowledge, things build really quickly. I believe that all design companies need to be knowledge creating companies. So it begins with the conversations, you've got to have conversations that don't go anywhere.*

Questioning whether a time to move on, from setting the case, might be a time to hand over to someone else in the team. Poole discussed the concept of ownership in the collaborative processing. He said that he doesn't

believe in ownership of ideas. Ideas are actually free. They should be protected. That's the other thing, individuals have ideas, groups have concepts, so I can have an idea because it exists in my head, and I express it to you, if you start to agree with it then it doesn't belong to me anymore. It's a concept that we're forming together and concepts make things happen. Everyone can have personal ideas. I can own my idea but I don't own the concept or the outcome, so if people are protective about ideas they won't come up with something new. We think about that quite a lot here, individual's have ideas, groups have concepts. You'll see that in any part of history. Edison, he didn't design the light bulb, a lot of other people were alongside him, he's just the figure head for it.

When asked what happens once the idea that you've worked on collaboratively has become a concept, does that then move towards an outcome of any kind. Poole noted that

it quickly moves to a modelling stage even quickly through to a prototype. Sketching will have already occurred as part of the thinking.
You use sketching and rough modelling earlier, but to make something physical really quickly is intriguing because as soon as it has a physical representation or a rendition of the real item, people start to interrogate it. You want people to interrogate early, not half way down the journey.

conceiving the question

Poole furthered this by saying that If you don't begin afresh in this way he will run the risk of repeating previous patterns of approach. He supported this by recollecting a discussion he had with a sculptor,

> *Greer Twiss [who]once said to me [during] a conversation that there are two types of thinkers, we then discovered that there was probably three types. There's someone that would design a chair and they already know what chairs are like, so they're quite comfortable just to design a chair, that approach is not necessarily creative, they just know that that chair stands for design and they can mimic it, therefore create another designed object. There are those people that would design a chair and then stretch as far as they could go to design the next chair from that point meaning that there would be a bit of progress. Then there's the third person that would hold on to the chair and stretch it as far as they could go, then just let go and arrive somewhere else, taking a creative leap creates something that is totally unique. The last approach takes ambition and trust. Going where you don't know, you just leap. So you can look at design as a series of little incremental differences in making something better over a period of time, that results in making a better piece of design or you can you actually create design pieces that come out of the blue.*

comfort and anxiety

When asked if there is a time in a creative process when he feels

incompetent, that he questions his own directions Poole responded that

> *you actually feel like that all the time.*
> *It's about being perpetually dissatisfied.*

In an earlier discussion (April, 2004) Poole had offered that

> *True creativity is not a comfortable state. You need to find the balance between skills and motivation. An emphasis on the skills aspect causes boredom whereas anxiety surrounds a climate of motivation in excess.*

When asked about the state of dissatisfaction and whether this was a barrier to his progress Poole observed that, the greatest barrier to his creative process was complacency bred through past successes.

> *This complacency is brought about through the praise of earlier work that can cause you to reuse that which has proven itself, the tried and true. When you know a way it is like a law, you work within that law. However, if you want to create new design you actually have to cover new territory and that's going to be anxious. You are going to have anxiety and you'll probably be perpetually dissatisfied on that journey and it's only in reflection when you've found the idea, you can look back and say it's a good piece of design because there's no broad bench-marking when you've created something new. You're out in the open with your new idea, not being sure whether it is an appropriate direction.*

Within this negotiation of new territories, sometines without fixed parameters, Poole commented on the importance of not reverting to traditional responses of failure and success. He suggested that

> *it is important to make mistakes to succeed earlier, is quite a nice way of putting it so that we don't look for results too early. We look for opportunities. You notice this with young people, young thinkers and good designers still have kept this style of thinking. To give an example; a child takes a bucket of water from A to B and spills it half way, the child jumps in the puddle and forgets about point B, an adult goes from A to B, drops the water half way, it spills causing the adult upset, who is still obsessed with getting to B with half of the water. The adult didn't look at the mistake or the event as another point to go from, an opportunity. A lot of the education system teaches you to think sequentially and logically rather than being ambiguous and illogical. We have to be more tolerant with ourselves, but at the same time keeping the momentum up within our processes so that we don't get caught in the thinking to doing gap, that can happen.*

Poole suggested that for a designer the horizon in not neccessarily what appears. He points out that he often learns from what others might perceive as "the wrongs".

You get rewards because the country rewards the rights but new things come from building the wrongs, if you're making mistakes you're learning more. Someone said good creative thinking stem from inhibition and insecurity, the two factors that unbolt the blockages to creativity. [Although there is a delicate balance in this], you can't be insecure in yourself because you're always worried about what other people are going to think of your idea. In this climate are not going to come up with an idea. You can't be too self-reflective. You can't build in too many imaginary decision makers [such as what others will think] in that early idea phase, you balance this with faith in your own ideas.

When commenting further on blockages to the flow of his creative process Poole recognised that

time is probably a restriction because we have to think on tap, it's a business so working to deadlines is hard. Einstein said that time is the best innovator. You need time to think otherwise you can be innovative, sometimes you get in such a reactive scenario where the client's given the brief and you are expected to react to it.

You may not come up with the strategic answer because you didn't have the time to think about the possibilities. You've got to have an outcome pretty quickly.

In response to an enquiry about how he prepares for design, Poole states that it is many things such as

> *by just creating different ways of thinking, the right people, environment, the culture, and having an ideas bank because sometimes you'll come up with an idea, notate it and keep it aside, it may be not quite right now but will apply later on depending on the client's brief.*

the dialogic journal

When asked about the journal beside him Poole mentioned that the journal never left his side. He explained that

> *you fill your head up with lots of new things, you constantly do. You need to have somewhere to hold these thoughts. I've been reading about two French philosophers who speak about rising up in thinking being Rhizonematic. As like a root, that travels, it's a really good metaphor for different types of thinking. You could look at [the generating of thought] [as if it were] a tree that has a very hierarchical system, a canopy at the top and roots at the base, you can chop the tree off at the trunk and kill it. If you look at a weed, a rhizome it has no central point, its nodal and it just keeps spreading, you can kill it anywhere and it will just keep going, all the parts are inter-related. If you imagine the desert with a rhizome growing underneath it, every now and then it would flower. A flower would come to the surface and another couple of miles away another one would come up to the surface and on and on. You could look at all those*

points on the surface and connect those ideas and build something out it but underneath there'd be no way of tracking the logical connections between those points as there's thousands of nodal points that make them up. It was quite a radical way of thinking. What is proposed here is a good example of creative thinking. Underlying creative thinking there probably is a logic but on the surface it looks like big leaps.

immersion to realisation

Looking back to where in his processing the recording and realisation of thoughts occur. Poole gave an overview in April (2004) of his own way of working where he initially

Frames the idea, the journal is there to catch these as they occur. When discussing ideas with others, I record point of interest or the next thoughts. There is then a period of incubation where I allow the ideas to sit. During this time there are often moments of illumination and discovery. These all happen, not necessarily in the order I am giving them, but they all go back to even reframe the initial question, re-look at it. Conceptualisation, sharing ideas and getting feedback are there always, then pretty quickly to prototyping to ascertain validity.

Speaking of the part played in developing ideas, especially relating to the place of models in this process Poole made reference to a design firm IDEO who

never turn up to a meeting without a prototype, it's one of their rules. It's intriguing to [observe the different reactions of people] because when you show people a strategy document [with just text] everyone nods their heads and sort of agrees. You then pull out the prototype and everyone has got an opinion which is great, that's what you want.
A strength of the first prototype or [conceptual models] is that an unresolved idea can be offered for discussion, for example, you could be designing a vacuum cleaner. You may present the concept as pieces of cardboard and toilet tube, it doesn't matter, it just represents the idea, people can then get their heads around it and start to interrogate it, make it better and buy in to the project. If you left that for four, or five, six, eight meetings down the track, the project is just going to creep and it will take a year to get something off the ground.
So the IDEO prototype up front, quick and dirty, gets the process moving.

When asked to explain the steps that altgroup have taken to set up a working environment that supports creativity and innovation, Poole explained that the aim was to

create a safe environment almost like a family. Families have their ups and downs but all these are important to a family mechanism. This is the same with an organisation where people will have specific roles. Some people nurture others its just like a family, and you manage this as you grow. We find this intriguing because we've got 10 people in our team and it works

because its feels organic, family like with this number, however when you get up to 15, 20, 30 people its quite different. I don't know if you could actually create that organic sense of freedom with a large group. I think people would yearn for the structure you get when you're close together and working in a small environment, where things are bubbling, you get used to that, its the way it is.
There have been studies about building companies, if present company dynamics are working, you build another company that does the same thing, you don't grow your company. You just repeat that model.

To conclude Poole reflected on his own schooling where he always enjoyed thinking but

I've never been a really good part of the [schooling] system. This could be seen as an asset, however when I got to the 6th and 7th form I just thought that schooling wasn't for me when I was told that I'd fail. I went to Auckland University, it was quite different, I found something that I wanted to do which the school system didn't offer. I excelled because of the environment and the lecturers.

Ann McGlashan - my own process

> The only creative journey, that one can really examine and follow faithfully, is one's own.

To ask myself questions of my own creative process, seemed uncomfortable to me. I had made many attempts to prepare for and carry out an interview of self. The difficulty I found, stemmed from my attempting to stand outside my process. A recent shift in perception changed the focus away from an external questioner, to one where I could allow a voice to speak from within my journey.

A reflection on my process, comes near to providing an insider account of events within a creative process of one designer. Ongoing dialogic journals kept throughout the process, provide a substantial amount of the material, contributing to this discussion. Immediate capture of thoughts and events, were necessary to faithfully record the potency of insights, inspirations and emerging connections.

In this reflection I have used headings sourced from key ideas in the interviews of the three preceding designers. The headings are not intended, to be read, as a sequentially ordered list. They are events that may occur, at any stage within a design process.

I begin as the other participant discussions began, with a prompt to reflect on a starting point in my work.

conceiving a design question

Trubridge indicates a time before the question arises, where a designer deliberately empties out to allow new ideas to surface. He and Wilson speak of times where pure undirected play can act as a catalyst to new and innovative design directions.

Two creative reflections of my past have remained constant throughout this project. It is against these reflections that which my emerging designs are considered.

Strong recollections of a front porch and hearth, from my childhood served to enliven the senses. The look, smell, feel and warmth, generated by these early places, required me to become fully absorbed, as a sensory being. In doing so I've experienced the ambience, of those early moments in time. These memories were explored in photography, discussion, sketching, collection and creative writing. An initial capture journal, houses the first flow of these recollections. Narratives, distinctly unique in their nature and pattern, came to articulate and explore the memory.

Although I speak of these two recollections together, for clarity I write of each separately. This helps to keep the intrinsic, distinctive nature of each intact.

The distinct differences in the two recollections required a deliberate blocking off of one, to avoid the dilution of thoughts of the other. External triggers presented themselves during my waking and sleeping moments. These helped to bring either the porch or hearth into focus. These triggers were essentially multi-sensory and dissolved time so that the memory became immediate and present.

Front porch recollections, included the look of the back side of the cream painted weather boards, the sun bleached, peeled paint, the edge curled boards of a porch floor and the smell of the sea. There surfaced a sense of freshness, of blues and golds and the strong sense, of warmth under foot on the concrete path. These images were reflected upon. I immersed myself in them. Through this, the ethos and form of memory of Auntie Alice on the steps of her island home 'Naumai' became tangible.

This establishment of a design, not from a problem, but from an environment of thought has parallels with both Wilson and Poole's beginning stages of process. Both of these designers recounted stories originate with an idea. This can be seen with Wilson as an idea surfacing from a social commentary, and the designer's need, to celebrate the tohu or marks. Conversely my own need, was to draw attention to the place that the porch and hearth gave to our lives.

Poole suggested that the stage of framing an idea involves the need to question oneself. This instigates a dialogue that builds the intensity of the design focus.

In terms of the design of the swing and pick me up, the artefacts are therefore not driven by a need to solve a specific problem, or to meet a defined need. The works come out of a visit back to memory. The actual artefact however, in its processing finally refines one idea, and that is one of movement. [The ethereal swing towards the porch experienced on the front gate, and the dynamic nature of the porch with its comings and going].

The anticipation and warmth of greeting, the ritual of the gate in the hedge, a run up the path, the garden and the smile.
The human component, I came to realise, was the central source, of my recollections. These influences exist behind the final design, in the narratives and where, without contemplation on these aspects of memory, the outcome would not have been reached.

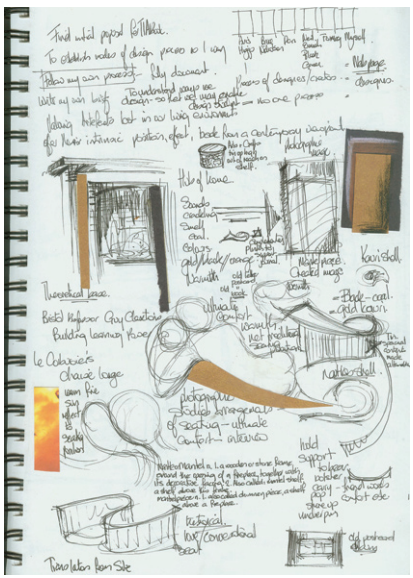
Ideation occurred via a return to the comfort of memory. In this contemplation the images and thoughts surfaced suggesting connections.

dialogic journals

The value constant ongoing dialogue, evident in Pooles process, validates Newbury's (2001, p.2) claim that the keeping of journals allows capture of

"*the real inner drama*" of research "*with its intuitive base, its halting time-line, and its extensive recycling of concepts and perspectives*".

The process I use as a designer whose discursive relationship with data is conducted via journals that involved an initial phase of collection. Here images are recreated. These are compared to sketches of the remembered. Colours, sounds, scents and environments, that triggered the moment and aligned themselves, in small, seemingly unrelated ways to my thinking, were stored in this manner. These journals [as storage] were superseded by 'working journals' where initial ideas were processed to assess their potential.



page from initial capture journal

comfort and anxiety

All participants in the research spoke of times of discomfort where they were challenged. Poole spoke of times of insecurity being a necessary part of creative processing. At these times he suggested that one is on the edge of the abyss. Wilson speaks of the value of risk taking, and Trubridge commented often on strategies he had developed to embrace the challenges offered by adversity. Poole also made comment on the danger of the state of complacency inside a state of comfort. This phenomenon he observed sometimes shuts down his creative activity. Trubridge also suggested that the comfortable reminder of early works, can operate as an impediment to the generation of new ideas.

Barriers to my own creative process emerged, both from my own making and external pressures. Two main distractions in my own practice, caused my process to lock down, or stop.
The first I allude to on p.79. Here I kept falling between the structured and creative sides, of my persona. The creative underlying nature within me, is often disabled at times of insecurity, by a learned structured response. This observation, manifested itself in a tangible outcome, that is now painful to recall, I have held it in the journal, as a reminder of a poignant realisation.
The second issue concerning comfort and anxiety was my tendency, in the accumulation of data surfacing to 'drown' in the detail. This can be compared to Poole's comments on designers getting lost in the gap between ideation and realisation.

Non-linear approaches can pose distinctive challenges because the designer is often dealing with the nebulous and the seemingly extraneous. However, this type of data is very important in moving a design forward and challenging it in unique ways. The traditional model of a broad ideation, moving through the refinement of a selected design cannot draw on this richness. However, it is excused from the sheer volume of unstable and protean data.

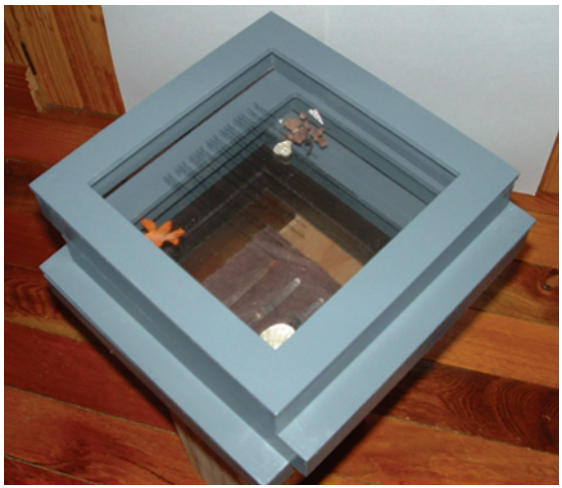
My anxiety existed in the volume of reflection and processing. However, by constantly coming back to the touchstones[21] of the project I was able to negotiate the complexity.

thinking space/environment

Each participant emphasised the importance of a space that supported their work. The work environment consciously considered and carefully prepared to allow for creative processing. Wilson spoke of his temple under the Puriri tree, Poole described the lengths his design firm altgroup went to in creating a space that had a family feel. Trubridge spoke of thinking spaces that he selected at significant parts of his process. In these spaces he thought, played or manufactured. Relating these observations to my own situation has helped to explain the nature of my own design process.

At a crucial stage of my design development, I was living in a flatting situation. It was a small concrete garage, turned into basement. It was square

and cold. I became aware that the immediate working environment did affect the nature of my ideas. Documentation of my progress through this time reflects a journey into an almost antithetical place compared to the one where the dream of swinging and water surfaced. I had gone as far as I could away from the ethereal sweep of the memory of swing as I could go. At this time, the designs I was considering were boxes, one a rectangular stainless steel box on the floor with water running into it.



square design outcomes created in a square environment and acrylic forms

Because it was influencing my work, I needed to leave my small, damp, living environment. I moved to the water's edge, under Mt. Aubry. Here I heard oyster-catchers and the sea. I walked and had distances to look out and up to. Mc Leod Bay and a new place of employment supported my design as they were in harmony with my work.

Time to allow thoughts to flow and evolve was here. I returned to my truths. I made models of the sweeping forms of a swing memory from the poignant captures in my journals. The model being a first three dimensional representation of my ideas, tells me that there needs to be two swing movement sweeps. These are two identical 'sweeps', to reflect 'there and back.' These transparent 'sweeps' float above the ground on imperceptibly thin strands. Alongside each other, almost touching at the highest point, the shapes are wider at their leading edge. They taper to their uplift to continue the dynamic of movement, irrespective of the viewer's position.

ideation and manufacture

Trubridge discusses the discourse in a design process between ideation and manufacture. He says "*Computers are of course great tools, you need computers, and I use them all the time, but every time I'm doing something on a computer I'm thinking how does that bit of metal join to that bit of wood, and if it can't be done, you adapt and change. Design is based on the knowledge of materials and the understanding of the interplay between materials, I think that's really important*".

While the design of both the swing and 'pick me up' in my own process draws on an environment of contemplation and synthesised memory, my work is also challenged and shaped by the technology and materials employed to shape it. I seek out manufacturers and suppliers, who offer advice. Thickness and scale are determined by the need to suspend the shapes effectively from a single point. After exposure to a new range of materials I selected green

edged acrylic, to give the impression of glass, yet could be formed and suspended. This decision (made away from the ideation process) heightens the feel of lightness, reflection and ethereal movement. Numerous trials heating strips of acrylic (scaled down in size from the final prototype) in the oven to form curves and find suspension points.
The necessary place of modelling that informed and shaped my design decisions relates to similar activities in both Poole and Trubridge's work. Poole regards the place of a model as a conceptual tool to help a explain an idea to a client. Trubridge spoke of when he made "*a model that falls apart… okay you go back and come round, and you think a bit more about it… get it a bit better… go round the process again. It's getting a bit better so there's this constant going round, and round, and round. This is partly thinking, partly making, partly going to the computer to design and draw, then going back to the model to work on its refinement. You need the whole lot. With the globe, I needed to make it with the plywood to see what it was capable of, realising that no machine could reproduce my idea. I absolutely needed the computer at this stage to draw actual working shape of the globe*".

my work environment

I walk in the mornings alongside the harbour, with thoughts sorting and shifting… uninterrupted. I drive many miles through beautiful Northland countryside. These travels become times of thought. Ideas rise up, are looked at, evaluated and recorded. I have created a working environment, that is not constrained by interiorality. I look outside, over water, or up at mountains.

The studio within my living environment is warm, light and has music to background and inspire my work. The interior is a constructed space, where influences are placed that inspire my thoughts, and has occurred late in my journey.

All three of the designers interviewed have distinctive work environments. One designer has developed a supportive working space within the urbane walls of a corporate agency. Others have achieved contemplative environments containing past works, inspirational paraphernalia and 'tools of the trade.'

My own environment has influences that relate to the artefact in focus. I change these as the areas of interest differ between the outdoor, fresh summer feel of sea, blues, white and gold colours. Images adorn my studio walls to support these feelings. The hearth images conversely evoke feelings of warmth, comfort colour – reds, and golds – that signify the hub of a home. The words of the narratives contribute to the selection process for the exhibition. These influences encourage my ideas and guide me back to the way of thinking after interruption.

As an overview to my own practice, I have found, that I consciously needed to allow my journey to roll as it willed. Time restrictions and some insecurity lead me to steer towards outcomes too early on. I became locked on, to an end focus that generally reconstitutes given approaches and outcomes. The end point is there to work towards, yet within its parameters, my view needed to shift away from time restraints. The timeless climate significantly supported the development of more creative work.

conclusion

To really know what goes on within any creative process, including design, I suggest one needs to be on the 'inside.'
My process therefore can be seen as influenced by a series of factors profiled in the three interviewed designers' work (but outside of the narrow concerns of much linear, problem-driven design process theorising).

conceiving the question

The initial framing of the question has been spoken of as a stage where the essential theme of a project is captured. The intrinsic message needs to be caught whether it be by a client or self directed. Poole explains that this is the time where peritinent questioning as an individual or a team, or of an artefact, effectively background future thinking on the task.

non-linear

Scrivener best explains the richness and variety of approach in design processing where emphasis is placed "not on the linearity of a thought process but on the exploration and opportune from past, personal experience".

comfort and anxiety

Anxiety as a catalyst and limitation is an active determiner of progress and reaction to data processing. Conversely caution has been given to the

state of comfort where it can bring a state of complacency. The designer reproduces known work, rather than step out, *into the abyss* of the new.

dialogic journals

Newbury's and these research findings concur that "*the employment of dialogic journals can facilitate a less prescriptive approach to thinking*" and that "*the real inner drama*" of research "*with its intuitive base, its halting time-line, and its extensive recycling of concepts and perspectives*".

immersion

The total engagement by the designer with the theme of a project. To become at one with the nature or detail of a task. This stage of a design process is consistently emphasised by this research as being an essential means to connect with the essence of the work. Findings concur that to allow a sense of play at this time encourages creativity.

environment

The work environment as something personal, subjective and rich is of deep importance. It operates as both a wellspring and an environment for thinking. However, what is significant is the embracing of 'environment' as more than an interior space. Some designers appear to use the wider spaces for contemplation, reflection and processing ideas. Certainly in my own case an ineffective environment has had a detrimental effect on my work.

finding patterns - concluding statement

This thesis posits the notion that design is an individually negotiated process of reflexive practice. It argues that designing cannot be described as a generically ordered process. However the evidence provided by this research establishes recognisable events across the practice of all participants. Features appear in the practice of each designer that often inform or elevate the process to another level.

Although all three designers language these features differently, they are easily identifiable in their creative processes. Areas of commonality are mentioned, however it was found that there are as many different ways to approach designing, as there are designers, and the nature of their design tasks. This challenges the contention by Gregory (1966, p. 30) that practice follows a similar set and sequence of activities, 'whether it deals with the design of a new oil refinery, the construction of a cathedral or the writing of Dante's Divine Comedy'.

Gaining insight into part of design practitioners' workings has left the researcher with an overriding impression that these designers know their own inherent way of working. The designers do not project their thoughts onto an unknown process, as all have stated that each new work dictates its own direction. They concur that they need to stand with each new task as if on the edge of the abyss, to allow for true creativity. This knowledge has come about through constantly challenging the familiar. They have all faced and

learned to embrace the effects of failure. They see failure as being an integral part of their creative processes. Parallels have been found between the varied approaches to design processing and the heuristic research methods employed in discovering the ways of design practice.

The findings of this research have implications for the education of design students. Emphasis needs be made on the building of observational and communication skills that underpin questioning and decision-making.

Two suggestions for further study arise from the participants' mention of moments of synchronicity and the philosophical make-up of the creative designer. While some theorists Schön (1985) have considered synchronicity, there is a need for more current research into this area, to recognise and validate these occurrences as part of a creative process.

My belief is that creative designers have a way of being, a philosophy that requires them to challenge, to embrace discomfort and to consider thinking as something far richer, subjective, reflective and interconnected than a linear process. Research into the personal philosophical make-up of designers' would provide valuable insight into ways of design thinking. This information as snapshots of designers and their thinking processes would inform and enrich the education of young designers.

I close with words by Moffit cited in Moustakas (1990, p.149) who alludes to the way of knowing through being, in his poem "To Look At Any Thing":

To look at any thing
If you would know that thing,
You must look at it long:
To look at this green and say
"I have seen spring in these
Woods," will not do – you must
Be the thing you see:
You must be the dark snakes of
Stems and ferny plumes of leaves,
You must enter in
To the small silences between
The leaves,
You must take your time
And touch the very place
They issue from.

the front porch

A large tecoma hedge hid the secrets of her home.

As a child I would rest my chin on the top rail of the white gate, to drink in the first view of the flower garden, a myriad of colours, sounds and scents, bordered by a box hedge.

Reach through to push up and let fall the gate latch, the satisfying clunk, a step up on the bottom rail, to crouch back and frame the view of greeting that the slow swing began.

Inside the gate, the concrete path, bright with particles of shell and shingle, was warm as I ran barefoot, hands back headlong into her waiting arms, her pinny soft against my face, smelt of baking.

Her home was a refuge from the mainland passage of missed tides, large waves and fickle boat engines.

Many women have prayed boats across this water.

The front porch was a place of welcome, a place to pause and realize your arrival. A place to sit and be, to catch your breath and tell the stories that bridged the time apart.

The air spiced with scent and sounds of the sea and welcome, surrounded her island home.

the hearth

after dinner
washed
ready for bed
a light fans under the door from the fire lit living room,
muted voices welcoming.

a dark hallway,
dark door
the farthest reach, breath held, on tiptoe I can just touch
the worn brass doorknob.
there is cold at my back
a sense of urgency
blocking thoughts of what is there in the dark behind me.

this is where the family gathers
at day's end,
the sitting room holds a place of privilege and value in my grandmother's home.
warmth,
flickering light
faces bright
a look of recognition and welcome to sit close to the hearth.
timeless
acceptance
smell of polish and coal, wood and tobacco burning.

day's stories evolving slowly with murmurs of response, an encouraging nod
a black leaded fender,
knotted rag hearthrug
and granddad by the mantelpiece,
the glow of firelight plays along the nearest edge of his serge trousers,
cotton shirt and under the elbow resting on the mantel.

only small I look up to the place of mystery
of promise of things held dear placed…
on the mantel
out of reach
up high
with time

and reflection

fading.

Appendix 2

An explanation of the presented body of work.

The realization of the practical component of this thesis is explained, using the dialogic journal entries, images and artefacts as displayed to the viewer.

My creative process began with an idea, as a reminder to of two specific artifacts that were familiar to early dwellings.
The process to bring the intrinsic nature of these artifacts from their place in the past to the present required me to present a faithful representation of each, as they were. They are there to remind the viewer of similar places in their lives. These images are presented in black and white to represent the dignity and distance of age.

I seek also to represent the essence of feelings engendered by these artifacts, offering them to the viewer using modern materials. The realization of these

feelings is presented in colour to represent that which we identify in our lives now. A personal memory begins this journey of the porch from my memory with the human face of greeting. The found image was a small, damaged, sepia photograph taken in the 1930s [redacted] on Pakihi Island in the Hauraki Gulf.

This image is presented as it was found to continue the theme of faithful representation throughout this work.
The image of my Auntie was scanned to a high resolution, converted to grey scale and burnt onto a glass slide, a 'gobo.' The pale shadow image from the past, was projected onto the wall to welcome the viewer with warmth of remembered greetings to this work.

Two narratives that speak of my memories serve to further define these moments

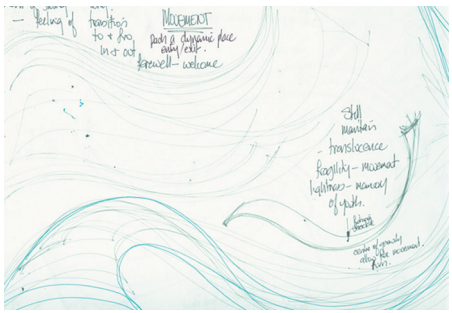
(see Appendix 1). The narrative entitled the front porch sits alongside Auntie's image and above the working journal that relates that explains the practical component of the journey that I have undertaken for the porch.

To continue the positioning of memory, images were collected and selected to best reflect the childhood view. I have discovered that childhood memories are rich in detail, very seldom taking in the whole landscape, more a focusing in on fine points of interest. Collected landscape images were culled in favour of the close detail of weathered boards, a corner, a glimpse of sky, the back of weather boards or a spider's web. Each image selected for display is rich with narrative e.g. the dribbles of paint and layers upon layers of successive coatings, never sanded back. The placing of each image was considered to lead the eye in up

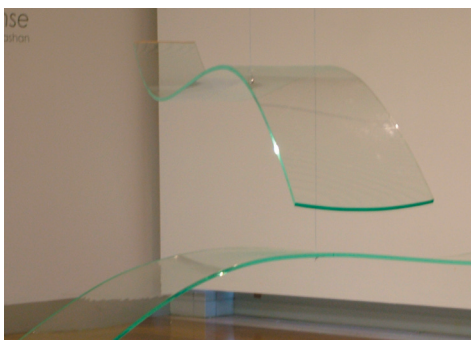
the sun-bleached arm of a chair to the door. Details of door and threshold lead to the line of the porch soffit with strong lines in perspective to depict looking back to times and places past.

The realization of childhood memories of the dynamic place of porch, the welcome and farewell, the inside to outside, the swing on the gate and the perpetual sound and movement of the sea and tides are placed before the black and white images.

Early sweeping shapes endure through my process refining to two flowing forms that are suspended at one central point to allow maximum movement and variation, this links again with the Heuristic rule whereby the paradigm of maximum structural variation of perspective is encouraged.



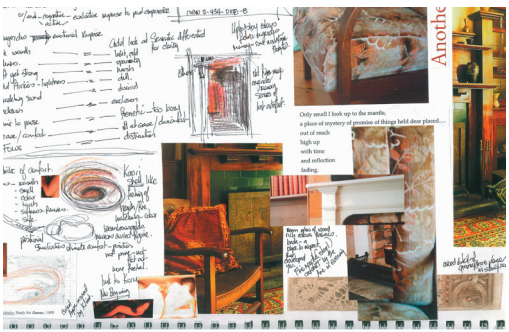
The forms replicate the freedom of gentle movement, they are light with an ethereal quality to signify a lightness of being as a child in the present moment not weighted by cares of adulthood.



The shape of the movement is created in green edged acrylic is broad at the leading edge moving over and upward, skyward and tapering to the end of the swing movement to mirror the movement of swing.

The large digital images depicting memory, are as sentinels to times past, placed on the long exhibition space wall with the porch images together behind the suspended swing forms.

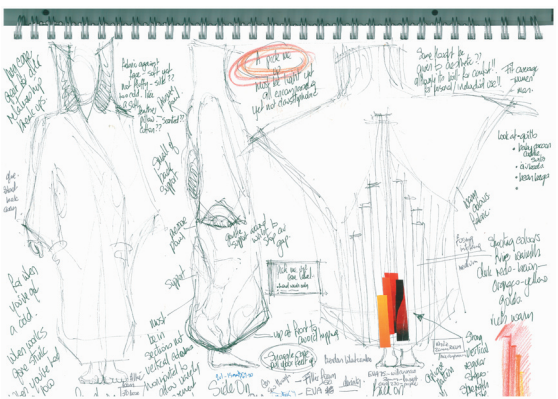
The hearth images engender a feeling of richness and depth. Times that warranted expected codes of behaviour and respect. Feelings of warmth, a sense of strength in the form of the mantel and hearth were the hub of the home. Images are presented as they were found with life's marks remaining to tell their story. The high-up, upper left corner of the mantel is the detail from memory with elements in perspective to lead the eye, depict looking back to the past and hold the viewer with the lines of the mat.



The rough texture and colours of the mat bring sensory memories along with fireside games. The remembered game of pick up sticks while kneeling on the mat, one side of face warm and one cold contributes to the realization of the hearth. A random placement of bright sticks, coloured for a hierarchy in score creates a feeling of bright, happy childhood times of heated debate, intense

focus as the black stick is used to select and extract. The placement by chance and the selection of pick up sticks aligns with the finding of patterns stages within the theoretical base of this thesis and my own process.

The realization of warmth, human comfort, acceptance and flexibility has evolved into a pick me up cloak. The volume and weight of the fabrics causes the cloak to settle around the human form, to cuddle up, tuck up feet. Wide sleeves accept surround all arm positions to provide a deep muff for the opposite arm. The collar of the cloak, a take with you pillow that cushions the resting head, has a warm soft to touch lining.



The symbol Vesta the goddess of the hearth reflects the image of warmth and place of the hearth in lives past. The cloak colours are a rich brown with sheen to signify quality, luxuriance/leather/smoking jacket. Colours that signify a time to lounge. The cloak interior is red and orange in colour and of natural materials to engender comfort. The appliqué symbol on the back of the cloak and inside

mirrors the colours of warmth and fire with the flame in shot silk that moves from gold through red to purple at its highest points to reflect the variety of colours in flame.

The display of the cloak will be randomly draped within the pick up stick structure to invite the pick up and put on.

The narrative and journal for hearth serve to anchor the images of memory and continue to explain the process through to the realization of the feelings that those memories engender as with the porch.
The dialogic journals show each captured idea, image and thought. They show the manipulation of thought as the inside workings of my own process. The journals explain the process of and are a part of the practical component of this thesis.

Music is selected to support and enhance the messages of memory. The Dead Texan piece Beatrice pt. two aligns with the feeling of lightness, childhood and timelessness with simple phrases to the roar organic soar of fire back to peace and simplicity. This was placed on a loop to repeat throughout the length of time of the exhibition. The transition stages of the loops are blended to remove any recognition of pattern, therefore enhancing the notion of random placement of sound.

Finally the lighting placed to gently highlight narratives, create a multitude of reflections and patterns through the acrylic forms to signify variety of unexpected options. Soft lighting to allow the images of memory a quietness in tone.
The cloak is bathed in a warm light, orange /red gel to create a womb like feeling of comfort in the viewer.

Table of images on display

Mc Callum, D. (circ. 1930)Auntie Alice on porch of Naumai. Pakihi Island, Auckland. Sepia
Mc Glashan, A. (2005). Front porch details. Waimate North mission house. Northland. Digital photograph.
Mc Glashan, A. (2004 & 2005). Mantel and hearth. Highwick historic home. Auckland. Digital photograph.

notes

1 Tacit knowledge is seen as the seen as the implicit work related knowledge acquired over time.

2 Heuristics is fully explained in the section of this exegesis relating to research methodology

3 Phase 1 assimilation

The accumulation and ordering of general information and information specifically related to the problem in hand.

Phase 2 general study

The investigation of the nature of the problem.

The investigation of possible solutions or means of solution.

Phase 3 development

The development and refinement of one or more of the tentative solutions isolated during phase 2.

Phase 4 communication

The communication of one or more solutions to people inside or outside the design team.

4 Johnsey's 14 listed design process skills.

(Implicit in his ordering of processes is a sense of linearity).

- Investigation and exploring the design context.
- Identifying need, opportunities and potential for design related tasks.

- Clarifying the implications of the design task.
- Specifying criteria for judging the outcome of the design task.
- Carrying out research into the problem and its solution.
- Generating ideas for a product which will provide a solution.
- Modelling ideas – in discussions, as drawings, as mock-ups etc.
- Planning the making of a product.
- Organizing the resources.
- Making the product.
- Testing the product.
- Improving the product
- Evaluating various aspects of the process and the product as work proceeds.
- Evaluating the final product and processes used against original criteria.

5 The notion of design as a non-linear system of processing by visualisation, has been discussed further by Chester (2001); Middleton (1999); Oxman (1999), and Schön & Wiggens (1992).

6 Heuristcs is a qualitative method of solving a problem for which no formula exists. It uses informal methods or experience, and employs forms of trial and error. Heuristics relates to the ability to find knowledge, patterns or a desired result by intelligent questioning and guess work rather than applying a pre-established formula. In Art & Design practice a heuristic methodology often involves using knowledge gained by experience. This methodology involves the development and testing of a body of work through rigorous and diverse methods of questioning.

7 Reflection in and on practice is seen as central to problem solving in Donald Schön's (1983) The reflective practitioner: How professionals think in action.

8 Gerthard Kleining and Harald Witt at the University of Hamburg, Germany have provided guidelines to an heuristic approach to research that encourage discovery and exploration. They identify four basic rules to 'optimize the chance for discovery.' Being:
Rule 1: The research person should be open to new concepts and change his/her preconceptions if the data are not in agreement with them.
Rule 2: The topic of research is preliminary and may change during the research process.
Rule 3: Data should be collected under the paradigm of maximum structural variation of perspectives.
Rule 4: The analysis is directed toward discovery of similarities.

9 This data is evident in the first journal.

10 Analysis within design involves the exploration of relationships, looking for patterns in the information available,' and further 'the ordering and structuring of the problem. Lawson (1980).

11 Synthesis is characterised as 'an attempt to move forward' –' the generation of solutions.' Lawson (1980).

12 By dialogic I refer to the discursive, transactional relationship between the designer and her recorded thoughts. This 'dialogue' continues to generate data as new connections and responses are recorded in the journal.

13 The interpretive paradigm refers to a range of approaches to research that are characterised by their concern for the individual. According to Cohen, Manion and Morrison (2000): "The central endeavour in the context of the interpretive paradigm is to understand the subjective world of human experience" (p.22).

14 The case study is effective for investigating and reporting on the complex, dynamic and unfolding interactions of events and relationships in a unique occurrence. It can observe effects in real contexts and recognise that context is a powerful factor of both causes and effects (Yin, 1994).

15 The interview is probably the most widely used method of data collection in educational research (Anderson, 1998). The common characteristic of all interviews is the transaction that takes place between seeking information on the part of the interviewer and supplying information on the part of the interviewee.

16 One interviewee placed conditions on the mode of capture preferring not to have any work in progress recorded. This was understood and prepared for by the interviewer. Photographic capture was selected and taken at the time of interview by the interviewee.

17 The scenario that caused the project to have been presented to the designer may at one end of possibility have been generated by a client and therefore come with external expectations. An opposing position would be a design project that begins with an own idea offering the designer free range of direction without the restriction of externally imposed parameters.

18 The employment of data gathering procedures that employ a change to justify 'the paradigm of maximum structural variation of perspectives.'

19 By truths I mean subjective truths of the designer, not absolute or transferable truths.

20 Wilson explained that NLP is an acronym for a neuro-linguistic programme. This he says has helped him analyse and understand his life's work in design.

21 The two narratives that formed the touchstones of this work appear on the facing walls of the gallery and as appendix one.

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