Design studios as research: an emerging paradigm for landscape architecture

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THIS PAPER EXPLORES the scholarship in creative works and design studios. It examines the particular research methods associated with scholarship in creative works, including reflective practice and hermeneutics. The methodological considerations include comparisons between triangulation and crystallisation as tests for rigour, and the essential role of peer review and publication. The paper concludes with a suite of new landscape design studios with research potential. They include studios as part of larger research projects, and studios which are creative works in their own right where metaphor, trope and a form of avant-gardism are deployed to bring about a form of new knowledge.

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DESIGN STUDIOS are at the core of learning and scholarship in applied design disciplines. They facilitate particular forms of knowledge which are valuable contributions to the understanding of society and environment. Because of this, the integrity of the design studio, which is currently under threat, must be maintained and strengthened. It is time to embrace with conviction the richness of knowledge generated through creative works and the design studio as a different realm of scholarship and research.

This paper discusses the current debates about design as research, with a particular focus on forms of scholarship associated with the design studio. It explores the specific forms of rigour associated with reflective creative works and concludes with a range of examples of studios suitable for design research.

Background
JOUSTING FOR THE RIGHT TO BE IN ACADEMIC SPACE

Design and creative arts disciplines with their particular focus of scholarship through the 'doing of creative works', have always occupied an unusual niche within universities. Conventional research activity within these disciplines has traditionally conformed to either positivist research paradigms or the formal scholarship characteristic of the humanities, however, the process of design itself has generally not been located within a research context. As a result, applied design and the creative arts, despite their significant contributions to scholarship, have had difficulty in being accepted as an academic pursuit. Debates about which disciplines are acceptable within the 'space of academia' have been around for a long time, beginning with Oxford and Cambridge's reticence to accept the sciences as legitimate scholarship. Despite these games of academic jousting, the humanities, the sciences, the creative arts and design disciplines have successfully co-existed; each contributing their particular forms of knowledge, until the last two decades when the divisive agendas of economic rationalism pervaded the tertiary sector.

REFLECTIONS

The crisis for design disciplines in academia

Funding policies rather than scholarship have increasingly controlled the function of universities in an economic rationalist climate. This has placed the integrity of design and creative arts disciplines at risk. Rigid criteria for research have forced such disciplines to redefine themselves in ways that are not necessarily in the best interests of their particular scholarly pursuits. One of the central tenets of economic rationalism is the primacy of measurement; whether it is measuring staff to student ratios for perceived teaching efficiency, or measuring 'research' output according to criteria which limit legitimate research to books and articles in internationally refereed journals. This has undermined much of the fine work done in design schools, forcing skilled designers to distort their creativity in order to conform to what is perceived as valid research. Added to this, the new policies also require that teaching be distinguished from 'research'. This attitude erodes the core of design disciplines where teaching and a more broadly based sense of scholarship are inextricably woven through the design studio and its creative outputs. Such demarcations between teaching and a narrowly defined form of 'research' have severely impacted the time and dedication needed to generate innovative and creatively rich design studios. These studios have traditionally been significant generators of new knowledge and scholarship in landscape architecture, and architecture, exemplified by end of semester exhibitions and publications of studio work (Kerb 1997, Vulker and Johnston, 1997).

Concern about the impact of current university policies on the integrity of design and creative arts disciplines has been brought to a number of forums over the last few years. These include the Australian Educators in Landscape Architecture (AELA) conference held at the Royal Melbourne Institute of Technology (RMIT) in 1996, and the international conference on Emergent Paradigms in Design Education held at the University of New South Wales in 1997. Creative arts, such as visual arts, film, dance and music, have responded to this growing crisis by strengthening their scholarly culture through theorising creative works and the traditional scholarship associated with the critic. Landscape architecture and architecture have been less successful in this area. In part, this is due to the breadth of theoretical inputs informing applied design disciplines in contrast to the specialist focus of arts such as drama, visual arts and dance. But it is also due to the reticence of design educators to argue that the design of high standard design studios and their creative output are worthy forms of academic discourse. This has been exacerbated by the lack of appropriate vehicles through which to disseminate their particular form of scholarly production. A further problem relates to the entrenched positioning about approaches to landscape design. Often those who maintain an applied approach to the discipline see theoretically rich discussions about design as arcane and obscure. Equally, highly developed modelling for landscape preference studies or landscape planning are seen as rigid and limited by those who are concerned about the interpretative aspects of design. In such a climate, design research is fragmented rather than augmented by the discourse, because neither position fully understands the rigour of the other.

One response to the concerns about the erosion of the design studio as a site for scholarship has been to strengthen the concept of the refereed studio. The Committee of the Heads of Australasian Schools of Architecture (CHASA) pioneered this concept fifteen years ago, encouraging academics who teach

architecture to submit theorised creative works, including innovative design studios, to a panel for peer review. In landscape architecture, the concept of the refereed studio was put forward at the 1996 AELA Conference held at RMIT, a concept which was taken up in 1997 by Jacky Bowring in the editorial of *Landscape Review* 1997:3(2) (Bowring 1997a).

This paper proposes that advanced design studios can make a substantial contribution to knowledge through activities ranging from positivist problem-based research to hermeneutic re-interpretations of knowledge employing the medium of creative works. It also proposes that if design studios are reported, through the refereed studio, in a way that is appropriate to their specific scholarship, they can constitute valid peer reviewed research which contributes to the scholarly growth of the discipline, and adds to the general body of knowledge.

The potential of the refereed studio to maintain landscape architecture schools as engaged in a design discipline of scholastic integrity, and to advance this particular form of knowledge generation, suggests that the landscape design studio should be included in current debates about design as research.

Current debates about design as research

The extensive report, *Research in the Creative Arts*, undertaken in 1998 by Dennis Strand for the Australian Government's Department of Education Training and Youth Affairs, provides a comprehensive summary of the design research process. He stated:

> [Design research] involves an investigation of strategies, procedures, methods, routes, tactics, schemes and modes through which people work creatively. Design involves the testing of ideas, materials and technologies. It involves innovative conceptual development, product evolution and market modification. It also involves research into cultural, social, economic, aesthetic, and ethical issues. (1997 p 131).

Despite this, and possibly because of this inclusive description of the design research process, the concept of design as research is an area of highly contested positions, as indicated by the intense debates over the last three years (DRS) Design Research Society chat site, drs-request@mailbase.ac.uk. The most frequently expressed concern relates to the appropriate research paradigms for design research, with arguments raging around whether design is a science or a creative art. Where landscape design is seen in scientific terms, positivist research paradigms can be employed to evaluate the design process and products. Similarly, where landscape design is considered in experiential terms, a range of accepted qualitative research paradigms can be used. These are well accepted research paradigms. It is where landscape design is seen as a creative art that less well known research paradigms come into play. Creative arts theorists, particularly in visual arts, drama, and dance, have been exploring appropriate research paradigms for creative practice for some time. Carroll (1996), a drama theorist, suggests that creative arts research paradigms fall into two areas; interpretivism (hermeneutics) which enables meanings and intentions to be studied, and the critical theory paradigm. Hermeneutics is an established form of scholarship, although it has recently been deployed by a range of unlikely disciplines because of the inclusive concepts of knowledge generated by postmodem thought (Madison 1988); whereas critical theory has emerged from

cultural studies and human geography as a relatively recent theoretical area. The particular role that critical theory can play as a design research paradigm lies in its transformative processes where the researcher and the researched are mutually informing. Carroll states that the 'transformative elements of this process [critical theory] require the researcher to be engaged in the process of attitudinal change, emancipation and collaboration [where] the research process deliberately refutes the dichotomy of researcher and researched'. (1996 p 73). He argues that the specific contribution of critical theory lies in the empowerment of the researched, pointing out that positivist and interpretive paradigms maintain ultimate interpretative control, thus taking it out of the hands of the participants in the research (1996 p 76). The transformative role of critical theory has significant potential for design studios as sites of research where research partnerships, through the studio explorations, design productions and their critical review, can be achieved between students and tutors.

Another aspect of the debate about design as research focuses on the need to avoid dichotomous distinctions between paradigms. Design as research is seen as inclusive and exploratory; drawing from a number of research paradigms including historical, positivist, case study methods, action research, phenomenology and hermeneutics. It is also argued that it is possible to develop a new design research paradigm drawing from the increasing maturation of post-structuralism within the design realm, through scholarly partnerships between cultural theorists and significant designers (Lucan 1991, Meyer 1994, Koolhaas and Mau 1995). How can landscape design studios engage with this range of research and scholarship opportunities? A review of landscape design studios can assist in determining appropriate research paradigms.

Scholarship within an evolving concept of the landscape design studio
Early landscape design studios were places for imparting skills through the study of historic precedents and mentoring by significant designers. By the 1970s, there was a marked move towards positivist approaches in design education and design research. Rigorous cause and effect analyses for set design briefs, often associated with environmental concerns, were employed to determine the most 'suitable' design outcome. Design educators using strict cause and effect logic tested the rigour in the design studios through a process of critical evaluation. As a result, design education and research at this time was characterised by highly reductive processes which led to verifiable but predicable outcomes (Lawson 1997, Lang 1991, Rowe 1987). In the late 1980s, some design schools began to embrace post-structuralist views. Design schools such as the Architectural Association (AA) in London and RMIT in Australia, in conjunction with comprehensive lecture series or seminar readings on contemporary cultural theory, produced design studios which were highly abstract and theoretical. In association with the studios, publications theorising and critically reviewing the work, such as the *AA Files* in London and the student journal *Kerb,* at RMIT, Melbourne were produced. This was an important shift for landscape architectural studios as it enabled cultural studies to interrogate the hegemony of environment (McHarg 1971) and amenity (Routledge 1971). The debates which followed required landscape design to become theoretically exploratory where the rigour lay in the hermeneutic richness of multiple interpretations of propositions. Senior design studios became scholarly as well as sites for rigorous problem solving through creative works.

Given this shift from training to critical inquiry and scholarship, can the research possibilities within senior design studios be developed and disseminated to a wider audience?

Design studios in leading design schools are characterised by a highly rigorous process of research, speculation, creative exploration and resolution, and critical evaluation. The studio processes involve site data-recovery techniques, abstract representations of social and environmental issues and innovative ways to address design problems. The structure of a good design studio involves a high degree of intellectual rigour and research, both in its development and in its implementation. In design based schools a significant amount of staff time and energy goes into the design and implementation of the studio, which is reflected in the high quality of the student work. The student work, however, is often seen as the end point of the studio. As a result, the staff intellectual and creative input moves on with the students, but tends to fade away for the staff. By exploring the concept of the refereed studio, design schools can develop and consolidate their research culture, building on the collective creative works of the tutors and students in the form of scholarly publications and exhibitions.

At the Queensland University of Technology (QUT) preliminary explorations have looked at three forms of research potential for the design studio; as education research, the studio: one, education research; two, the studio as part of a larger research programme; and three, considering the studio design and its outcomes as a theorised creative work.

The design studio as a site for education research

Design studios as case studies for educational research are an accepted form of scholarly inquiry (Yin 1993, Clarke 1992, Erickson 1996, and Franz 1997). Sancar's work (1996) on behavioural knowledge integration in the design studio provides an example of how studios can be a focus of educational research without compromising the pedagogical intentions. There are also exciting new explorations of the design studio as case studies for information technology research. Pioneering work in Finland's art and design schools has resulted in a strong culture of design research (Antilla 1997, Freidman 1999b), including virtual studio research (Sirvio 1998). Innovations in the application of information technology in design studios and virtual studios are readily accepted as design research appropriate for publication. The 1999 virtual studio on the omnium site, www.omnium.unsw.edu.au, has provided some fruitful discussions about the special aspects of reflective design practice within the 'social space' of the virtual (Matthews 1999).

Design studios as part of a larger research programme

The second proposal, using the design studio as part of the exploration of a wider research problem, has interesting research potential. It is nevertheless contentious in terms of positivist research because the form of rigour required for positivist research data is unlikely to be produced within the studio without compromising pedagogical requirements for design development. Design educators justifiably resist appropriation of the studio for purposes which inhibit the free space for design investigations. Instead, the proposal put forward here is one where the students and tutors engage in a research partnership of mutual problem investigation, in which the studio provides a forum for speculative ideas taken

through to a degree of resolution. In this way, the design studio provides a particular space where, through a range of design processes, propositions about place, culture, and the environment can be explored using a range of media to render the propositions into abstract form. As a result, the design studio is a unique space. It goes further than a 'think tank', in that a range of ideas are not only proposed and critiqued, but many are also taken through to resolution. For example, if the larger research project as investigating questions about the public realm, then landscape and urban design studios could be the space in which speculative ideas about contemporary urban issues could be explored as designs; creating an unusual but valuable contribution to the wider body of knowledge. In formal research terms, the process can also build on the research techniques in the new critical geographies using textual and discourse analyses (Burgess et al 1988a, 1988b); the two forms of text being the discourse in the studio and the creative works themselves as 'text'.

There is another model for the studio within a larger research project, similar to the process of a design 'master class' where ideas are developed as resolved creative works focused on informing propositions within the larger project. In this model, the studio as master class can act as a critique of the larger project, but can also exist in its own right as a theorised creative work. The process draws from the concept of the 'master class' as scholarship in design, pioneered in Australia by Leon van Schaik at RMIT. His design master classes were exemplary forms of design scholarship where he used public exhibitions associated with scholarly publications to disseminate new knowledge such as *Fin de Siecle* (1992) and *Transfiguring the Ordinary* (1995) in which the designers theorised their creative works. This is a sophisticated model for advanced postgraduate studios, however it does require expensive forms of publication.

Both the educational case study research, and the iterative studio research within larger research projects are long term projects. It is the third proposal, the design studio as a theorised creative work in its own right, where the innovations are happening which pose challenges as scholarly work.

Theorised creative works as design studios
Over the last five years, advanced design studios in some of the leading landscape architecture programmes in Australia have been creative works in their own right. However, it is only RMIT which has maintained a scholarly commitment by publishing the studio work in the form of critical reviews. The RMIT studios presented at the 1996 AELA conference were innovative and creative in their structure, theoretically sound and showed a high degree of rigour in the interpretations of the students work; much of which provided new insights into the cultural landscape in which we live. At QUT new landscape architectural studios have been designed, drawing from contemporary art issues, using metaphor in unusual roles in the exploration of landscape design issues, and deploying the critical inquiry in post structuralism to re-invigorate avant-garde approaches to design. These studios, the outcomes of which are posted on the Internet, are building on the scholarly advances made in the creative arts through their theorised creative practice.

The opportunity to disseminate the outcomes of these studios as refereed studios and to test the rigour of the knowledge through peer review, would be a strong contribution to scholarship in landscape design as well as the wider

scholarly community. In order to establish the credibility of this process, issues of legitimacy and validity of knowledge generated need to be addressed.

Legitimacy and validity of the outcomes of design studios as new knowledge

The first proposal, design studios as education research, uses methodologies that are able to conform to accepted research and scholarship practice and result in orthodox research journal articles. Similarly, the design studio as a site of exploratory ideas for a larger project, if used as 'text' in a way that conforms to accepted research practice, can be considered acceptable research. Legitimacy and validity of outcomes in these studios would be determined through the conventional peer review process. In both cases, they have the potential to make significant contributions to the value of the studio as a place in which to generate knowledge.

It is where the design studio is presented as a creative work, whether in the form of a 'master class' in association with a larger research project or as a creative work in the form of one-off studios, that the legitimacy of the knowledge produced may be challenged. Given the richness of the production that is generated from these forms of studios, how can the claims that they produce new knowledge be supported?

The positivist research paradigm argues that legitimacy lies in the validity of the research methodology and its ability to answer the particular research question. The criteria for evaluation call for evidence that the research is building on existing knowledge, that the form of investigation is replicable and free from observer bias, and that the analyses of data are mathematically correct and statistically valid. Clearly such criteria do not support the mode of the investigation and the nature of knowledge generated in a design studio as a creative work.

There is a range of qualitative research paradigms which could be applicable to the creative work design studios, particularly as they do require such formal methodological conventions. In qualitative research there is less emphasis on the replicability of the method. Instead the focus is on the interpretation of the outcomes, the theoretical context and the clarity and coherence with which the interpretations are argued (Patton 1990). Given this, do the criteria for the refereed studio for CHASA and those proposed for the refereed studio for *Landscape Review* conform to the requirements for legitimate research? CHASA requires that:

> The design studio is one which is the work of a member of staff, full-time or part-time, of an Australasian school of architecture …

> That it is a contribution to knowledge, i.e., if it adds to the body of knowledge that is the basis of architecture which is cumulative. (CHASA 1996 p 2)

CHASA established their peer review and refereeing procedures as empowered vehicles for academics in architecture. They do not encourage submissions of material which could be published in existing specialist journals. Instead submissions are required to locate their contribution within the teaching context, detailing the number of staff involved, the duration of the programme, the nature of assessment and a description of the outcomes of the project. Submissions are also required to articulate the intentions of the studio and, using intellectual and academic rigour, to demonstrate the design studio's achievements.

Landscape Review's criteria for the refereed studio in landscape architecture called for 'clarity of objectives, relevance and insight, creative and innovative processes and presentation', and that the outcomes be 'coherent, original and fruitful' (Bowring 1997a p 54). Both sets of criteria are valuable guidelines to support the nature of knowledge generated in the studios but they do not recognise the important theoretical and methodological development in creative arts practice and the blossoming creative research paradigm. There are particular methodological constructions in creative arts research that provide rigorous indications of scholarship. These include the role of reflexive practice, alternatives to triangulation as a form of qualitative research rigour, the particular form of interpretative practice associated with creative works and the specific ways they deploy 'metaphor'. There is also the issue of assessing the legitimacy of the new knowledge through peer review and the associated debates about anonymity when peer reviewing creative works. Research and scholarship in the creative arts can provide valuable guidelines for legitimacy and validity of new knowledge developed in applied design studios.

Reflective creative works as research

There is growing acknowledgment of 'reflective creative works' as legitimate and valuable research (Carroll 1996, Richardson 1994, Taylor 1996). An important precedent exists for introducing the creative research paradigm, drawing from the work of Schon (1983) and his notion of the reflective practitioner. Donald Schon's early work argued that artistic processes, in particular, improvisational works of inquiry, are vital to the development of a professional designer (Taylor 1996). He proposed the concept of 'reflection-in-action', where the designer is a researcher in a practice context. The designer/researcher is not dependent on structures such as established research theory requiring verifiable/proven techniques like representative case studies, but is able to construct a new research theory about a unique case through the design work. Instead of separating thinking from doing, the designer/researcher integrates implementation into the nature of inquiry. It is the way this process occurs in the design studio that can provide research potential. Unlike most research paradigms, Schon's 'reflection-in-action' can operate in situations of uncertainty or uniqueness because it is not constrained by the dichotomies of technical rationality (Schon 1983) or the analytical techniques involved in qualitative research.

Other design researchers have explored the reflective process through phenomenology, and the richness of the interpretative realm using the hermeneutic circle (Kvale 1983, Corner 1991). In the creative practitioner context, the hermeneutic cycle is seen as action, reflection, interpretation, action, reflection, interpretation, and so on. More recently, Meyer has taken post-structuralist positions into highly elegant arguments for a 'quaternary conceptual field' in her discussion on the 'space-in-between' the limitations of positivist dichotomies or binary opposites (1994).

Reflexive practice in the design studio

Creative arts educators, particularly in the area of visual arts, drama and dance, use both 'reflection-in-action' and 'reflection-on-action' to theorise and interpret their work (Taylor 1996 p 30). Taylor, an arts educator in dance, comments that reflection-on-action allows one to enter the creative moment because the makers

and the observers engage immediately in the situation and allow the situation to work on them. Those of us who are landscape design educators are familiar with this phenomenon. It is the talent of all the parties in the studio, makers/students and observers/tutors as reviewers, which informs the design research act. So how can we understand the ways in which we 'reflect-in-action' in the design studio? Can we unravel the intricate and messy happenings that characterise the pedagogical moment in the studio? Perhaps we can draw from ethnography where there is a focus on context, meaning, culture, history, biography and the key role of the reflective notebook. In the creative arts there are numerous examples of works which demonstrate the power of ethnography to provide comprehensive insights into the artistic process (Taylor 1996). The contribution of ethnographic research techniques to reflective design research also includes the recognition that reality is multiple and shifting, and that awareness evolves and becomes transformed through an iterative process. It is the very fact that the reflective design practitioner's research is allowed to transform once the process begins that makes it an unusual but valuable research paradigm.

Where does the design studio sit in reflective practice? Can the participants in the studio engage in the same reflective practitioner processes? One could argue that this is already happening and that by legitimating this, we can articulate our reflection-in/on-action and open it to peer review. In reflective design studios all the participants, students and tutors, are a form of collective human instrument for action, introspection and reflexivity.

Deriving the data: reflections in and on action
THE NOTEBOOK
The log book or note book is important in all research endeavours and ethnography and reflective design research the notebook plays a key role. Although most designers and design students keep reflective notebooks, this is not common practice amongst design educators. The Halprin *Notebooks* (1972) convey how one landscape designer reflects upon his subjective responses to place and process and how abstract representation becomes manifest as design. Martha Graham, the choreographer, always scribbled down words, essays and poems from which her dances somehow emerged. Similarly, Taylor eloquently explains the role of the notebook in creating the dramatic moment:

> I see how haunting images of spidery webs and bottleneck toads drawn by Anthony Sher [in his notebook] enabled him to understand the workings of Richard III's mind and provide gateways into characterisation. (1996 p 41)

A reflective tutor's notebook, kept from the earliest stages of conceptualising the design studio to final reflections about the outcomes, could be an invaluable contribution to the new creative research paradigm involving the design studio. The act of recording reflections immediately after the design studio may begin to provide insights into the 'intricate and messy happenings' which are so vital to conceptual leaps in the design studio process.

THE PROCESSES
Perhaps Halprin's work on the *RSVP Cycles* (1969), discredited in the 1980s as 'hippy indulgence', should be revisited in reflexive design studios because such studios involve activities that are normally considered mutually exclusive: design

activity and reflexive activity. Design activity requires one to be fully engaged, suspending normal reality in order to create a design; a kind of unselfconscious immersion or 'black box' state. In contrast, reflexive activity is a highly self-conscious process. Halprin's concept explores the notion of a cyclic process of 'landscape design as performance' where one can enter the cycle at any point (1969). Other reflexive practitioners find that the processes are sequential and iterative, closely resembling the hermeneutic circle where one can move from interpretation to action to re-interpretation (Kvale 1983). In contrast, Meyer calls for three participants in a reflexive process, the designer, the critic and a public (1991). With such a range of incipient positions, the process of reflection on reflexive activities in the design studio is an area ripe for exploration.

Interpreting the data: hermeneutics, creativity/originality, metaphor and tropes

HERMENEUTICS

The interpretation of material emerging from the studio, together with its critical review within contemporary theory, provides the core of scholarship in the design studio. Hermeneutics, the study of interpretations, has traditionally been applied to completed texts; however the new critical geographers have used the principles applied to hermeneutics to interpret the discourse about 'place' as text (Burgess 1992). Madison, in his book *The Hermeneutics of Postmodernity*, sets out ten criteria which are appropriate to phenomenological hermeneutics of literary texts (1988 p 29–37). It is important to distinguish between literary texts which are complete as well as being well articulated, highly condensed expressions of meaning, that is 'eminent texts' (Kvale 1983 p 186), and texts derived from discourse such as in-depth interviews or studio discourse (Burgess et al 1988a, 1988b). Completed creative works, as outcomes of design studios, have parity with 'eminent texts' because of their level of resolution and their highly condensed expressions of meaning through their graphic presentation and should be interpreted with similar rigour. Madison's criteria allow for subjective interpretations but ensure that judgements arrived at are not gratuitous nor the result of subjective whim. Instead the criteria facilitate rational judgements based on persuasive arguments. The criteria include, coherence, comprehensiveness, penetration, thoroughness, appropriateness, contextuality, suggestiveness, agreement and potential (Madison 1988 p 29–37).

Madison stresses that these criteria are merely an articulation of what generally occurs in practice. He insists that there can be no 'ruthlessly critical process of validation' (1988 p 33). This, however, does not mean that interpretations cannot be rigorously derived. As Madison says, rigorously derived interpretations are an 'art in the proper sense of the term'. Similarly, the interpretations do not need to be 'universally and eternally valid' (1988 p 33). They need only be generally accepted. It is generally accepted that the interpretations of the products of the design studio focus on the creativity and originality of the ideas, the ways metaphor has been used to make conceptual leaps, and the rigour of the design resolution.

CREATIVITY/ORIGINALITY VS REPLICABILITY

Creativity and originality is essential in design and creative works, however this form of originality clearly challenges positivist research requirements that the

proof of validity and rigour is replicability. Freidmann (1999a) takes up this challenge by distinguishing between originality in the sense of a contribution to knowledge or originality in the sense of creativity. In qualitative research, particularly hermeneutics, the strength of the research lies in the originality of the interpretation rather than its replicability. It is the same in creative arts and design. As Harrison (1993), in his discussion on modernity and originality, points out, replicability in design is more often associated with values that are taken for granted or derived from supposedly innocent or un-theorised views. They lead to the very replicability or stereotyping that designers seek to avoid. The design studio consistently exposes this stereotyping through critical review. Harrison (1993 p 146) argues that originality is a way of perceiving, facing and unmasking 'truths' hidden from or disregarded by contemporary society.

METAPHOR AND TROPES

Deploying metaphor as a creative act is equally important in the rigour of creative arts and reflective design, and it has increasingly assumed a role in applied hermeneutics. The essence of metaphor in a social sense is the understanding or experience of one kind of thing in terms of another. Metaphors extrapolate new meanings from old figures, thus revealing hidden or latent relationships. The pervasiveness of metaphors in everyday discourse suggests that they are critical mechanisms by which meaning is imbued. Building on the structuralists' belief that culture is the act of encoding and that this encoding can be analysed like language, the cultural theorist, Barthes (1986) suggests that such signs or codes are not innocent in the meanings they generate. The power of metaphor lies in its ambiguity and its ability to give new insights about the familiar or taken for granted aspects of our environment. The designer, Olin (1988), points out that in landscape design the particular power of metaphor exists through its incompleteness and the fact that one has to participate to make the metaphor work. Although this has been traditionally addressed through the picturesque, post-structuralist thought has opened up new possibilities for participation with metaphor which can be deployed to disturb and challenge.

Metaphors can also be described as 'tropes' or figures of speech. The rhetoric of language allows the researcher to uncover tropes which encode meanings in texts. Unlike White's proposition in his *Tropics of Discourse* (1978), which argues that the study of tropes can help us see the way people make sense of the world, the use of tropes and metaphors in new design studios and creative works is to reverse the familiarisation process. White states that '[using tropes] is a process of rendering the unfamiliar … familiar, of removing it from the domain of things felt to be 'exotic' and unclassified into another domain of experience encoded to be … non-threatening, or simply known by association'(1978 p 5). It is this unquestioning acceptance of codes that the designer challenges. Often designers seek to make the familiar confusing and unfamiliar in order to reveal issues in a new light. As research, interpreting metaphors and tropes not only requires a strong theoretical framework, it also involves the researcher's creativity. The creativity used in deploying and interpreting metaphor has particular relevance for new concepts related to transformed culture – a concept of hybridity or creolisation (Bowring 1995), which draws from Derrida (1972) and others which build on Derridean concepts to interpret the 'space-in-between' or 'Thirdspace' (Meyer 1994, Soja 1996).

TRIANGULATION

Triangulation, where three forms of expertise interrogate the research, is an accepted form of rigour in qualitative research (Patton 1990). Interestingly, the design studio is already a site of triangulation where there are three forms of expertise, the students, the tutors, and problem data (including the needs of the client or general public). The students, who are both producers and peer reviewers, have all been engaged in the same process and therefore have a certain kind of expertise derived from immersion in the problem. In contrast, the tutors, who have not been as immersed in the design problem, bring their expertise as experienced practitioners or as theoretically informed critics. The third source of expertise is the site data, usually derived from the rigour of others, and includes the requirements of the client or end users. Thus a form of triangulation occurs; namely, the tension between rigorous problem research, the reflective-in-action designer and the reflective-on-action critic. Despite this, some creative works practitioners argue that triangulation is a limited way of evaluating creative work or the design studio. Triangulation is seen as tightening or restricting the ways of interpreting the design outcomes. Instead they argue for reflecting on design as multiple readings of the creative work through a process of multifaceted 'crystallisation' (Richardson 1994 p 522).

In proposing crystallisation as an additional form of rigour, Richardson (1994) rejects positivist ideas of a well resolved position as the sole determination of knowledge and argues for the importance of struggle, ambiguity and contradiction. In this state, 'crystallisation without losing its structure, deconstructs the traditional idea of validity … crystallisation provides us with a deepened, complex, thoroughly partial, understanding of the topic' (Richardson, 1994 p 522). In contrast to 'rigour as tension' embedded in the concept of triangulation, it is proposed that crystallisation, as an open process, allows for different facets to be explored or exposed without the disintegration of the concept. Taylor (1996) suggests that crystallisation is also like 'defamiliarisation', which is often used by designers and artists as a new way to see familiar events. Clearly creative research calls for a range of rigorous processes over and above those in accepted research practice.

Research rigour

For artistic practice to be research, whether it is a creative work or the design studio, a high degree of rigour is required. The research rigour, required by CHASA for creative works and the design studio is assessed in terms of the ability of designers of creative works or studio designers to demonstrate how their work has 'contributed to the art of architecture' (CHASA 1996, Stafford 1997). Stafford, an active participant in the CHASA programme, indicates that the peer reviewers must examine how the creative work or design studio transcends normal professional practice, and that the discourse about the work must provide new insights about architecture (1997 p 118).

The research rigour required by *Landscape Review* for refereed studios submitted for publication, asks that the papers show 'clarity, relevance, innovation, and coherent, original outcomes' (Bowring 1997a p 54). These forms of rigour can have parity with positivist and qualitative research paradigms while at the same time requiring specific rigour which is relevant to the creative realm. The accepted test for research rigour lies in the peer review process.

PEER REVIEW

Peer review, and its associated anonymity, is the normative validation process for positivist and qualitative researchers. Peer review for creative works can take a number of forms such as the accepted process of exhibitions and published reviews by professional critics. Similarly, submitting projects for awards reviewed by professional bodies is a form of peer review. The design studio has a number of layers of peer review. A form of peer review is part of senior design studios where inquiring and provocative studios actively use peer feedback as part of the creative environment (Erickson 1996). The studio outcomes are also subject to the rigour of the design jury assessment. This process is interactive and cannot function if the reviewers are required to be anonymous.

For the refereed studio to have parity with other forms of research, many argue that anonymity in the peer review process is essential. This is the case with the CHASA process, and *Landscape Review* has a similar requirement. In some creative arts research peer reviews, anonymity of the designer and the reviewers is seen as an inhibiting factor in achieving a full review. The Australian Drama Studies Association (ADSA) requires a highly structured peer review process. The researcher's thesis and theoretical report is given to the referees prior to the presentation and the researcher is positively encouraged to contact the referees prior to the performance to discuss any points of clarification. The referees prepare individual reports after the performance, without consultation with each other, and if their responses indicate that this is a scholarly creative work, it is listed as a refereed performance as research on the ADSA Research Register.

Thus, while anonymity is essential for a bias free assessment of research, it may be necessary to review this for the refereed studio presented as a creative work in its own right. If the refereed studio is to become a significant vehicle for scholarship in applied design disciplines, the most suitable form of peer review will need to be developed. Parity does not necessarily require conformity. In landscape architecture there are widely diverging ideas about what constitutes design within the discipline. For example, if the refereed studio is presented as a creative work in itself, will it be discounted because it does not use orthodox forms of research presentation? Will all the peer reviewers have the skills to undertake reviews which are responsive to the particularities of the creative works as well as the logic of argumentation? Perhaps it will be necessary to have two categories of reviewers, those who exhibit scholarship in critical design theory and those who exhibit scholarship in orthodox research and applied practice. It is not difficult to conform to current criteria for peer review, but is this process as it currently exists adequate for the rich scholarly development that is possible through creative works? These are the challenges facing this process and, like design, it is only by doing it that the process can grow as a scholarly pursuit.

PUBLICATION

Ken Freidmann, a keen supporter of design as research, argues that publication is as central to the issue as are the various research paradigms. He states that ' An original contribution to knowledge in the field can only take place when the knowledge enters the field. Publication is the difference between study and research' (1999 p 2). He maintains that by diffusing the knowledge into the field, analysis, debate and reflection by the wider group of researchers can occur. This has been a central problem for the scholarly products derived from the design studio, namely

their lack of publication. In this regard, RMIT, through their various publications, is to be highly commended for their contribution to the field. This commendation can also be extended to *Landscape Review* for providing this opportunity to landscape educators. The limitation of the CHASA process has been finding an international peer reviewed journal that is committed to publishing such work annually. The inconsistent opportunities for publication has prevented much of this work from being seen as legitimate research and scholarship by the wider academic community. It has also prevented discourse and debate about the outcomes of studios and creative works. Another issue relates to the ownership of intellectual property generated in the studio. The interplay between the student and tutor complicates authorship issues. To date, refereed studios have acknowledged individual student inputs, but how does one acknowledge the significant role the tutor plays in the design outcomes?

Despite these concerns, landscape design studios have the potential to conform to a range of research paradigms where the refereed studio can be a rigorous form of review of the legitimacy and validity of the outcomes. Accordingly, a number of studio types are presented here for consideration.

The new landscape studios at Queensland University of Technology

A suite of studios, using a range of devices to deepen an understanding of the discipline, have been developed at QUT for senior students in order to reveal the potential of the studio as a site of research. This form of research is inductive: namely, new theory is discovered during the reflexive process of continuous interaction between existing theory and the evolving creative works.

A set of templates for different ways of doing design research as reflection-in and on-action within the design studio have been developed to address the sophistication and plurality of processes in contemporary design. The new studios include the Conjectural-Theoretical Studio, the Creative Associations Studio, the Design Through Debate Studio, the Destabilising Studio, the Professional Interface Studio and the Poetic Studio. The following descriptions explain the intent of the studios and their potential as research sites. The studios are located on a web page with hyperlinks at http://www.olt.qut.edu.au/int/bee/pdp/curriculum/design studios/index.htm

THE CONJECTURAL-THEORETICAL STUDIO

This studio is a problem-based environment requiring intense theoretical inquiry intercepted by abstract procedures used to interpret the design problem. Scholarship/research in the studio includes a form of theory building developed from the discourse in structured seminar programs. The seminars draw from a wide range of intellectual areas including cultural studies, political economics, human geography and urban studies. Because the studio focuses on urban landscape design, it is also informed by a rigorous lecture series on local economic development. Thus by alternating seminar-focus groups, which generate discourse about contemporary urban theory, with a series of abstract design exercises to create innovative interpretations of the issues, the design/research problem is 'thickened'. The two forms of engagement exemplify the notion of 'crystallisation' where many facets of understanding are revealed without causing the disintegration of the programme. Currently the studio feeds into a larger research project which is looking at how urban design can form part of the survival strategies employed by communities in a time of global, social and

economic change. Landscape design has a strong political role and this design studio is the ideal vehicle in which to explore this role.

Three studios have been run as part of the larger research project, including two urban fringe projects, one dealing with disadvantaged minority groups, developed as a refereed studio (Allison et al 1997), the other, investigating alternatives to the loss of productive soils due to speculative housing. The third studio has investigated how ephemeral designs can contribute to local economic development by using the 'latent spaces' or derelict spaces resulting from a fickle development environment driven by global economics.

THE CREATIVE ASSOCIATIONS STUDIO

This studio explores a new relationship with the community by acting as a knowledge interface between the university and communities. The current interest in Bourdieu's forms of capital (Bourdieu 1983) is resulting in the exploration of different kinds of knowledge, including formal, theoretical, informal, practical, and tacit. This studio focuses on the ways communities can accommodate change through the use of different forms of knowledge and capital. It has been argued that the communities that are best able to accommodate change use knowledge, social capital and smart infrastructure, and are supported through unusual networks. Recently there has been a focus on the role of universities in these networks and their potential to enhance new knowledge creation in the community. The Creative Associations Studio builds on the notion that local knowledge is an essential part of contemporary wisdom. The development of the new knowledge-based activities is concerned mainly with upgrading human and organisational capacities by creating environments which are conducive to innovation, learning, creativity and change. The design studio can play a critical role in providing a forum for deliberation and debate about these issues, including the recent discussions about social capital. Social capital has existed in universities in many different forms. Collaborations between design schools and the community were heady idealistic enterprises in the 1970s when staff and students in design and planning schools provided social capital by working with inner city communities in an empowering role. This studio seeks to re-engage with communities using social capital as part of the Creative Association activities. The Creative Associations Studio builds on the growing interest in community design and the pioneering community based Creative Village Studio initiated at the University of New South Wales in 1992 (Armstrong 1997).

The research proposition addressed in this studio suggests that there is a range of innovative ways in which universities and communities can develop partnerships. The data for the research are the creative outcomes, while the research rigour lies in the triangulation between reflexive designers reflecting-in/on-action, reflective tutors recording and critiquing the action and the mutually interactive problem-solving of the 'general public' who reflect on and critique the creative outcomes. The studio lends itself to a larger research project.

DESIGN THROUGH DEBATE STUDIO

The Design Through Debate Studio provides a valuable space for future and working professionals to debate and explore ideas in a creative, open and inquiring manner without committing the participants to implementing the outcomes. Design Through Debate offers a theory-based approach to the design

studio which grapples with critical analyses of philosophical and site-related issues using creative processes in an episodic and iterative way. The Russian constructivist notion of 'dialogicality and representational tools' (King 1996 p 69), informs a choreographed sequence of debatable propositions, represented in abstract form. The design outcomes and the studio discourse are used as a process of reflection-in-action alternating with reflection-on-action (Schon 1983).

Reflection-in-action is explored through the traditional notion of debate where opposing propositions are put forward then defended through argumentation. The particular contribution in this studio is that propositions are translated into a non-literary 'design' form using the medium of abstraction and metaphor to represent the complex issues under consideration. By a process of iteration, the central design problem is seen from a range of perspectives through highly creative abstract representations. A lecture series on cultural theory is run in parallel with the studio. The studio involves three major phases; first, reflection-in-action through the interaction of a group of students/designers as they develop a masterplan drawing from the Design Through Debate abstract exercises; second, a reflective essay which draws upon the use of writing as another facet of the creative process (Erickson 1996). Students/designers are encouraged to reflect upon the theoretical sources and rework the concepts into creative semiotics linked with their masterplans, an interesting variation in Schon's reflection-in-practice. The final phase is the synthesis of these processes as an individual creative design and a studio exhibition of all the design outcomes. In keeping with the notion of debating ideas, the students/designers also prepare an electronic journal with a chat site. Editing and reporting for the journal assists in the reflective process.

The research proposition is that debated positions can be rendered into a design medium as abstract forms which, through a process of creativity and crystallisation, provide insights normally unavailable. The scholarship in the recording and evaluating of this process involves reflecting in action and on action.

THE DESTABILISING STUDIO

This studio draws from the principles of the avant-garde, re-invigorated by the advances in post-structuralism. It is designed to precipitate innovations through accident, namely by a series of 'destabilisers'. The new theoretical discourse derived from post-structuralist ideas has been introduced into design studios in innovative and often confronting ways, particularly in the design studios at RMIT. Strongly influenced by constructivist avant-gardism, the studios explore iconoclastic propositions in abstract ways, allowing for a range of innovative speculations. The anarchic quality to such design studios is commonly derived from the injection of randomness or 'collisions' (*Kerb* 1997, Van Schaik 1995). Although these studios can be iconoclastic, they are not without discipline. An essential underpinning of such a studio is the rigorous interrogation of current social and cultural theories through critical readings. The intent is not nihilistic chaos, but rather an open acceptance of possibilities which can be then be examined and negotiated. In a similar vein, new work at QUT is exploring alternative ways to destabilise the single trajectory design process by using a range of deconstructed modes of cultural production.

This studio is particularly relevant to the conceptualisation of ideas for design competitions. Increasingly design competitions, as the first stage in major projects, are assuming a central role in the landscape discipline.

The programme for the studio consists of a series of design fragments or catalysts, each of which has a provocative or destabilising role in order to stimulate

responses that are not simply cause and effect. The fragments are prompted by the deconstruction of other forms of cultural production, such as film, poetry, critical discourse, and art, all of which address the particular issues associated with landscape design. The destabilising process reveals a certain nostalgia for the alienation associated with early avant-gardism, however the intention is to move more closely to the concept of an evolutionary avant-garde. The studio uses the destabilisers to apply Bataille's notion of 'transgression which opens the door to limitless possibilities but without destroying the 'profane world', (Bataille 1957 as cited in Corner 1991). While avant-gardism deployed shock to open doors, the intention was always to return to the praxis of life (Burger 1984). The studio processes challenge Corner's fear that the deconstructivists' nihilistic intentions cannot be harnessed. The intentions of this studio are that the participants can learn to float in a deconstructed state and emerge aware and able to act.

The studio design is a scholarly creative work. The design of the studio and the destabilisers requires a high degree of originality and creativity. It also requires the studio designer to work reflexively between the design brief, around which the studio is constructed, and the design of the studio. The studio designer as tutor needs to continue the reflexive process as the students/designers participate in the studio. Finally, the tutor/studio-designer needs to reflect-on-action as the studio design work emerges. The reflective synthesis of the studio, located and reviewed in its particular theoretical context, is a theorised creative work.

THE PROFESSIONAL INTERFACE STUDIO

Many creative ideas and innovative speculations cannot be explored in professional practice for a range of reasons including the lack of opportunities to take risks with ideas, the competitive economic scenario of client demands, and the cost of time. The senior design studio is the ideal place to take such risks and to push new ideas. This has particular value for the profession where the design studio can become a partnership between practitioners and senior students as they explore issues through innovative design. The first of these studios was pioneered in the second semester of 1999 at QUT, where four leading practitioners ran a suite of abstract design workshops developed for the particular design brief.

The workshops were designed collaboratively with the intention of revealing the professional designer's particular approach to design. The professionals and the students mutually engaged in the problem using a real site and real clients. In parallel, a lecture series and two-staged reflective essay, provided the theoretical medium for reflection-on-action. The intention of the synthesis of the creative work, cultural theory lectures and the reflective essay, is to facilitate a creative research process which will be inter-actively communicated with members of the profession. The design as research qualities of this studio explore Meyer's notion of reflective creative practice where a form of collective action occurs between the designers, the critics and the 'general public', which in this case is the landscape profession (Meyer 1991).

The research potential of this studio falls within the context of education research, using case study methodologies (Yin 1993). In-depth interviews with the professionals involved and selected students, a review of the student 'reflection-on-action' journals, as well as a critical interrogation of the design outcomes provides the data for this research, the analysis and interpretations conforming to standard qualitative research paradigms.

THE POETIC STUDIO

This studio, using Schon's (1983) notion of integrating implementation with the nature of inquiry, seeks to address the problem highlighted by Olin (1988 p 151) that avant-garde landscape design tends to lead away from landscape design's central source of power: nature. The longing for creative works of great beauty is as inherent to the discipline, as is the concept of stewardship of the land. In order to balance the strong theoretical focus in the suite of studios, this studio is designed to allow the designer to be immersed in the gestalt of an erotic relationship with place. By revisiting poetry and the seduction of organic art, the studio is less focused on theory and intellectual thought. Various existential techniques are used to assist the designers engage with the sensory qualities of landscape and nature. In contrast to the 'outsideness' of intellectualisation, this studio works with the 'insideness' of empathy and allows the 'black box' processes to gestate. This approach is not new and in many ways revisits Halprin's notion of performance as gestalt (1969). It also recognises Krog's desire that designed landscapes should offer heightened perceptual awareness (1983) and Corner's anxiety that technological ecology has replaced 'poetic dwelling' (1990 p 75). The design of a Poetic Studio and its design outcomes form a collective creative work which, as a form of scholarship, can be extended through the formal engagement with theory and its circulation within a community of scholars.

The politics of the design studio process

Apart from the theoretical and creative richness of the new studios, opening the studio to reflection-on/in-action has removed the hierarchical structure between tutors and students. This has occurred in a number of ways. First, by removing the strict logic of the single trajectory design process, there is no longer a sense of the expert (the tutor) and the novice (the student); both are involved in a form of training. Instead, by embedding the studio within contemporary theory, it is the ability to braid abstract representations with theoretical perspectives that is the expertise. Such expertise only lies within those who engage and actively participate in the interplay of abstract creativity and the logic of argument. As a result, a studio that is working well is a field of diverse expertise.

Second, there has been a shift in the ownership of the studio. This is particularly evident in the Design Through Debate Studio which includes the production of an electronic journal. The journal requires an editorial panel, sponsorship and journalists, all of which is run by the student group. As a result, the studio processes become reflective material for the journalist reporters and tutors who are equal members of the team. Egalitarianism is extended through the electronic journal by allowing dissemination of the students' ideas to a wider audience through the Internet.

Summary

This paper has sought to explore the particular form of scholarship associated with creative works and the design studio within the context of a range of research paradigms. It has voiced concern that the current hegemony about acceptable forms of research is acting against applied design disciplines. The affirmative action taken by the CHASA and the strengthening creative arts research paradigms are valuable points of reference in developing design research in landscape

architecture. This must inevitably include the design studio because it is a key arena for innovative design scholarship.

By exploring the changing forms of knowledge it is possible to show that creative works, either on their own or as part of the design studio, are intellectually rich and scholarly, and that they are derived from rigorous processes akin to some research paradigms. These processes, while diVerent to the orthodox notions of research, have been shown to have parity as research through their speciWc form of rigour and substance. A range of new landscape design studios has been presented here to show how the senior design studio can become a legitimate vehicle for research and scholarly inquiry.

The fundamental underpinning to the commitment to present the design studio and its knowledge outcomes in a legitimate research context, including publication in the Weld, is that this is a scholarly pursuit. As such, the process strengthens the discipline and contributes to the larger body of knowledge.

The discipline of landscape architecture has an important role in contemporary society, both in praxis and academia. In the 1970s, landscape architects and landscape educators led the way in rehabilitating damaged land thus locating themselves in the environmental frame. In the late 1990s, crises in social structures require the landscape profession to go beyond the environmental/picturesque frame and engage in new partnerships as diverse as contemporary art theory with economics, or cultural theory with environmental engineering. Creative works and design studios, as sites of research, can do much to broaden and re-invigorate the concept of scholarship and facilitate a re-engagement with community – professional, local and academic.

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