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Connecting the Space between Design and Research: Explorations in participatory research Supervision

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ABSTRACT

In this article we offer a single case study using an action research method for gathering and analysing data offering insights valuable to both design and research supervision practice. We do not attempt to generalise from this single case, but offer it as an instance that can improve our understanding of research supervision practice. We question the conventional 'dyadic' models of research supervision and outline a more collaborative model, based on the signature pedagogy of architecture: the design studio. A novel approach to the supervision of creatively oriented postgraduate students is proposed, including new approaches to design methods and participatory supervision that draw on established design studio practices. This model collapses the distance between design and research activities. Our case study involving Master's Research Students supervision in the discipline of Architecture, shows how 'connected learning' emerges from this approach. This type of learning builds strong elements of creativity and fun, which promote and enhance student engagement. The results of our action research suggest that students learn to research more easily in such an environment and supervisory practices are enhanced when we apply the techniques and characteristics of design studio pedagogy to the more conventional research pedagogies imported from the humanities. We believe that other creative disciplines can apply similar tactics to enrich both the creative practice of research and the supervision of HDR students.

KEYWORDS

creative research supervision, design studio pedagogy, learning environments, Shut Up and Write!, signature pedagogy, participatory supervision

ARTICLE HISTORY

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Introduction

In this article we discuss the approach to supervision, as well as the perceptions and experiences of Master of Architecture students, who undertook both an architectural design studio and a research subject simultaneously, in 2012. We examine and critique their perceptions in reflection of our own practice, using a case study method- ology (Schön, 1983). Due to the small number of participants in this trial, it was not possible to replicate these findings, however they do represent a rich source of understanding of everyday 'banal' studio practices and how they might intersect—or not—with our inherited notions of research supervision.

The tension between research and the arts in Academic environments has been examined extensively (Cole & Knowles, 2001; Dallow, 2003; Eisner, 1993; Gablik, 1991; Knowles & Cole, 2002; Margolin, 1998; Varnelis, 2007). Despite this lively discussion about the epistemology of design practice and the uneasy fit with conventional understandings of research, the creative research

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community has not yet fully articulated their emergent, but distinctive models of research supervision. In this article we aim to contribute to this enterprise by offering a single case study of five Master of Architecture students at the Queensland University of Technology (QUT) in 2012. Students were required to enrol in a compulsory research subject within their AQF Level 9 Master's coursework, with the final assessment item being the requirement to produce an academic paper reporting on the student's unique investigative research project. We explore how supervision practice might embrace the collaborative traditions of the design studio and emerging ideas of codesign to propose a new approach to creative research supervision that incorporates 'hacking' of methods and participatory supervision.

The master/apprentice model has always been at the heart of design studio pedagogy (Webster, 2005), particularly evidenced in the review—a public presentation of research outcomes staged for peer and expert feedback (Downton, 2003) and the so called 'desk crit'—where experienced practitioners review work in progress. Practitioner accounts and reports on supervision practice such as Allpress, Barnacle, Duxbury, and Grierson (2012) show that while creative practitioners use group or collaborative pedagogies in research supervision it seems the role the supervisor generally plays is still the 'design studio critic' or experienced practitioner. What we might call 'codesign'—where the student and the supervisor produce designs together— happens spontaneously in these settings, no doubt, but 'codesign' as a research super- vision practice has not yet been scrutinised.

This article seeks to add to the discourse on creative research supervision and critically reflect on its practices. We suggest that research supervision can be thought of as another form of creative practice, with similarities and differences to both conventional supervision and design studio teaching. As Hockey and Allen-Collinson (2005) establish, there is not a long history of research in design disciplines, and this means that we have the potential to re-conceptualise research education practice. However, the 'institutional unease' that these authors propose exists around creative research practice, and the challenges they pose to conventional research practices, is perhaps one reason why some creative disciplines, such as Architecture, do not seem to (yet) be looking to their own practices for supervision models.

There is a need to re-conceptualise research supervision along with research practice. Scholars of research education have questioned the uncritical replication of our current forms of research supervision and started to closely scrutinise both conventional arrangements of power relations (see e.g. Green & Lee, 1995) and the day-to-day practices of supervision (see e.g. Petersen, 2007) and the broader landscapes at work in the production of doctoral knowledge (see e.g. Barnacle & Mewburn, 2010; Hopwood, 2010). Boud and Lee (2005) call for more 'systematic attention' to be paid to the kinds of activities that take place within research education and that the enterprise of developing the next generation of researchers be re-conceptualised as 'distributed' and 'horizontalised' with an 'associated dispersal of responsibilities and agency'. It is to the design studio signature pedagogy that we can look for an answer to this call.

We offer a single case study of research supervision in the Master of Architecture course, using an action research method for gathering and analysing data. While some scholars might baulk at the idea that a single case study can offer anything significant, we follow Flyvbjerg (2004) in understanding the value of a single case study, not for the purposes of generalisation, but for the insight that can allow us to start theorising about design research supervision practice and suggest a new model. The model of research supervision proposed here breaks away from the dyadic, one-to-one model and explores the possibility of a many-to-many model where the research student and the supervisor are all protagonists in a broader learning landscape, which includes cafes and online spaces. We do not attempt to generalise from this single case, but offer it as an instance, which can improve our understanding of research supervision practice. Opening out this supervision arrangement into a more public practice has unexpected benefits, in particular the emergence of new forms of research practice.

The Potentials (and Shortcomings) of Design Studio Pedagogy

Design is arguably the core activity of architecture, which is why the design studio is a major component of most architecture courses around the world. The aim of the design studio is to provide students with an opportunity to develop architectural designs and learn to design through a process of problem solving. Design studio pedagogy has been described as 'pedagogy of uncertainty' (Vaughan et al., 2008) in that teachers cannot always know 'the answers' to what Buchanan (1995) calls 'wicked' design problems. Perhaps as a result it has been difficult for the design profession to assert the rigour of its methods as design skill and design thinking can be hard to articulate and represent—and to teach (Vaughan et al., 2008).

For some time the design studio has been considered the primary site for the trans- mission of design learning. Design learning of any sort is complicated by the nature of the design process and its largely tacit dimensions. The nature of design teaching and learning is most strongly embodied in Schön's *reflective practitioner* (1983). Schön claimed that the purpose of the design studio was to 'coach artistry', by operating as a place where students are inducted into the 'master mysteries' through collaborative dialogue with their studio leader, who attempts to shift them into 'disciplinary norms'.

Feminist and Marxist critique of the design studio as a pedagogical practice has forced us to reconsider the value of this 'transmission' model of pedagogy. Webster (2005) points out that the purpose of review in the design studio is a 'ritualised performance' that results in the reproduction of 'dominant notions of architectural habitus' (p. 280). Webster criticises architectural educators and theorists for largely ignoring student-centred understandings of learning in favour of the 'master–pupil' relationship (2004). There is a critical mass of research which systematically points to the success of, and student's preference to engage in, active learning (Barr & Tagg, 1995; Bonwell & Eison, 1991; Jamieson, Fisher, Gilding, Taylor, & Trevitt, 2000). Active learning simply requires students to be actively involved in their learning while engaging in higher order thinking tasks such as analysis, synthesis and evaluation (Osborne, Franz, Savage, & Crowther, 2012). In order for students to engage in successful active learning, instructional activities must be aligned to support them to learn through doing [or observing], followed by thinking about what they are doing [or observing] through dialogue with self or others (Bonwell & Eison, 1991). The learning environment plays a significant role in supporting the pedagogical activities contained within it, particularly if active learning is being facilitated (Osborne et al., 2012).

Extending the concepts of active learning, new pedagogical literature explores the notion of connected learning and teaching (Nussbaum-Beach & Hall, 2012). Connected learning promotes learning that is humanitarian or socially focused and learner interest or passion driven, where learning and interest can be linked to academic achievement, career success or civic engagement (Ito et al., 2013). This new learning approach takes advantage of the opportunities afforded to students in a constantly connected and changing digital age. One of the main principles of connected learning is that three critical spheres of learning are connected: academics, a learner's interests and inspiring mentors/peers. In addition to this, the emerging digital innovations of new media and the connected age are exploited. Finally, the concept that making and creating lead to deeper learning and understanding, is mobilised in classroom practice.

Connected learning encourages students to 'experiment, to be hands-on, and to be active and entrepreneurial in their learning, recognising that this is what is now needed to be successful in work and in life,' [1]. The design studio is a flexible model of teaching which can encompass a range of teaching and learning methods as suggested by Mewburn (2012), who shows how actual studio practice can differ from the model of 'coaching artistry' and embrace a range of configurations. She suggests a 'post human', performative model of design studio teaching in which the teacher is but one of the actors in the design studio performance.

What is it that makes the design studio special and how might it disrupt conventional models of research supervision? Shulman's idea of 'signature pedagogies' (2005) is a useful way of understanding the social nature of the design learning, and how design studio practices may come into conflict with supervisory practices imported from the humanities. Signature pedagogies are ways of learning and teaching found in the professions, such as law and medicine, which specifically teach students to be practicing members of the profession. In signature pedagogies there is a direct connection between professional practice and the activities undertaken in the classroom (Shreeve, 2012).

The form and composition of design studio practice seem to be largely the same across time and space (Webster, 2005), which reinforces Shreeve's proposition about the nature of design studio teaching as a form of signature pedagogy. The design studio is usually conducted in an open space, design teachers often co-teach in groups of one or more, and all students get to see and comment upon each other's work as it is being made. This kind of practicum set-up resembles the professional architectural studio (Schön, 1983), and it is one in which practice is valourised rather than writing about practice. By contrast, research supervision could be argued to be a different kind of signature pedagogy—or rather a range of them. Supervision in the lab sciences, for instance, tends to be very different from the humanities. Research labs often have weekly meetings and promote collaboration between postdocs and PhD students, where postdocs assist doctoral students in the practical tools and techniques of scientific practice. In contrast, supervision in the humanities tends to be conducted in private, between individual teacher and student, without input from peers, and focuses on academic writing rather than the tools and techniques (Cumming, 2007).

Signature pedagogies need not be static, stale replications of conventional practice. Olson and Clark (2009) claim to have developed a signature pedagogy for the Education doctorate based on close examinations of other practices. The signature pedagogy is a fruitful way to start rethinking supervision practice. It is the very openness of sig- nature pedagogies—with all the attendant emotions that come from the student exposing their work to criticism—which Shulman argues contributes to learning. This kind of openness is not very evident in the closed office meetings of research supervisor and student.

The idea of signature pedagogies acknowledges that peers play as much a role in learning as the teacher. Indeed, the role of the teacher certainly needs to be reconsidered if we are to see the design studio as a site of active learning and draw lessons for research supervision. In the next section we demonstrate how this might operate in practice, drawing on the experiences of two of us working with Master's students in the QUT Architecture course.

Bridging the Gap Between Design and Research

Early in their course, QUT Architecture students are explicitly taught three unique ways of thinking about Architectural design: *logical thinking* [developed from *Vitruvius'* firmness/solidity], *spatial thinking* [developed from Vitruvius' commodity/useful- ness] and *formal thinking* [developed from *Vitruvius'* delight/beauty]. Students who study Architecture are generally creative thinkers who love to draw, create, and are passionate about the design process. For the majority of their academic experience they foster their design skills by being asked to create new spaces and places through the visual languages of drawing and model making. A core part of the design process includes the ability for students to research exemplars and investigate unique ways to solve problems. However, when these students reach the later years of their course they are confronted with research as an independent subject and the requirement to write a journal article, which is a different form of communicating their ideas than what they are generally required to do. When transitioning into studying research methods, many students become overwhelmed finding it difficult to change their thinking from one that is explicitly design focused, to one that is explicitly research focused.

In 2012 the QUT Master of Architecture course required students to undertake a year-long research subject which was independent to the architectural design studio. The research projects were investigative with a written outcome of approximately 10,000 words based on an extensive literature review and the use of qualitative research methods to acquire and analyse data. The main obstacle that the Master of Architecture students in our group faced was the tension that they felt between conducting traditional research and the practice of Architectural design, both of a high priority, but pulling them in two different directions.

We realised early on with this group of students that the formality of the traditional dyadic research supervision model was an unfamiliar learning environment for them. In the typical Architecture studio, learning occurs in a collaborative and open space where tutors and peers facilitate the design process. It was important to maintain some continuity in approach as students had difficulty understanding how to design the research project, which relies on the structure and analysis of ideas and information. This is very different to the Architectural design process that is based on producing and working with tangible and visual materials. Academic writing is not prioritised in the Architecture course and is rarely practiced in the four-year undergraduate degree. Architecture students rely on visual skills for communicating their designs, as such the students did not feel confident expressing their thoughts through the written form.

Engaging students with the research was challenging, as they were typically distracted or disheartened by the complexity of conducting academic research in both formats and languages that were foreign to them. Obtaining data and engaging research participants to support the students' research was particularly challenging, and at times demoralising. Although students had provocative research questions it was difficult for them to solicit serious interest from participants. Finally, it was clear that our students often viewed research as a boring process, distracting them from their core interests in design. We found that students had competing priorities between the demands of the design studio and the research subject.

To help students to bridge the gap between these seemingly disparate subjects of design and research, our tactic was to encourage students to approach solving their research problems using an adaptation of the method that they use to solve their design problems: hence using *logical thinking, spatial thinking* and *formal thinking.* We employed a range of solutions including the use of pervasive and ubiquitous technologies, informal learning environments, social media and collaborative learning strategies to actively engage the students in the learning process. By relating to the students in terms and methods that were familiar and interesting to them we were able to inspire meaningful research outcomes. Fostering and promoting a collaborative learning environment meant that the students learned from each other as much as we learned from them. In the following section, we unpack three key learnings from this process: *tactics for role modelling*, *participatory supervision* and *hacking of methods*.

Role Modelling

The first supervision challenge that we encountered was that the students were unfamiliar with, and indeed felt a little intimidated by, the formality of the traditional dyadic research supervision model. While recognising the differences between research supervision for writing and design teaching, we attempted to draw in elements of the latter to support the former. Here, we were trying to infuse our supervisory practices with the characteristics of the signature pedagogy of the design studio with which the students were familiar. The approach taken to working with students in this context is closer to the 'desk crit' than the 'consult' of traditional supervision. The desk crit consists of teachers working 'side-by-side' with students (Waks, 2001), often to solve design problems together. The desk crit is common to many design disciplines, including graphic design (Field & Logan, 2006). Austerlitz, Aravot and Ben-Ze'ev (2002) describe the desk crit as a 'combination of intimacy and criticism' (p. 107), which neatly encompasses the potential for such moments to be intensely

collaborative—resembling the way designers work together in practice. While 'pinup and critique' has been taken up as a supervision pedagogy (Allpress et al., 2012) this article shows the potential for other design teaching practices like the desk crit to expand supervision pedagogies, moving them closer to a peer-to-peer model.

Central to this tactic was respecting the fact that students are used to collaborative group-based learning in a design studio context and that many students are not confident working independently and directing their own learning. We sought to address this problem by changing the research learning environment to align more closely with that which they were familiar—the design studio in both a physical and virtual environment. Our role was to guide the students through a transition from the 'solid' and known role (design studio participant) to a new, unknown role (research colleague). A key plank in this strategy was to change the *physical environment* within which the learning occurred, to a more informal, collaborative, open and relaxed context. This strategy is in line with the idea that physical spaces are aligned with pedagogies (Shreeve, 2012; Taylor, 2009) and can help to form, as well as facilitate the practice of signature pedagogies. Therefore, instead of meeting with students in the allocated tutorial rooms, we met with them at the Cafe´ on campus. By altering the physical location of our meetings, the nature of our relationship also shifted. The cafe´ provided the opportunity to sit around a table with a cup of coffee and 'chat'. Our 'chat- ting' focused on the research and task at hand but also included the opportunity for other topics of interest to arise and for everyone to get to know each other better. This structure of our meetings allowed the students to actively engage in their learning process by doing, observing and discussing (Osborne et al., 2012). They did not feel pressured therefore they were able to discuss their research with each other promoting peer-to-peer feedback. By gathering and discussing we moved supervision closer to the practice of the design studio, resulting in a 'modicum of passion' (p. 20) for the work, which Shulman (2005) observes is a characteristic of students participating in signature pedagogies such as the design studio.

When the students were asked what they enjoyed about their experience in the research subject, many addressed the importance of the way we mobilised informal learning environments, and how this supported their engagement and learning. As one of the students remarked: *We could come together informally and discuss our topics as a group of friends. The cafe meetings made the entire exercise less formal and in doing so I found myself staying longer and participating more.*

Rather than focus on our practice as supervisors, we actively curated quality learn- ing experiences for students: a student-constructed and -driven connected learning community. Students both recognised this and responded to this positively. We were part of the community, as colleagues, not necessarily always seen as the 'supervisor' figures. Our focus was on developing and supporting a reflective community rather than a singular focus on modelling the reflective practitioner. The physical shift to an informal setting set the stage for the other strategies that we developed in the virtual learning environment to fall into place. One of the students noted that there was: *less pressure to treat it like a supervisors vs. students class* and that it was a *learning experience for everyone.*

In addition to changing the physical context, we introduced a new *virtual environment*, to allow students to digitally interact with each other outside of the formal timetabled class times. We extended the concept of informality into this virtual environment, enriching it by the use of social media (mainly Facebook and Twitter). Information was readily shared and discussed on the Facebook group page, a media that was available and familiar to all the students. Similar to the conversation that occurred at the cafe´, the group page was open, connected and transparent to the entire group. Students appreciated the extended support through the virtual learning environment. As reiterated by one of the students:

> Contact hours with supervisors extended beyond the timetabled sessions. Use of Facebook made it quick and easy to inform the whole group of developments and share tips etc. and get quick

> short informal responses from supervisors—less pressure on quick questions compared to sending an email.

Participatory Supervision

The concept of academic writing was foreign and somewhat scary to most of the stu- dents. This fear is understandable if we consider that the signature pedagogy of the design studio is one where learning arises in the midst of making and talking about design artefacts, rather than writing or reading. This fear goes some way to explaining why Hockey and Allen-Collinson (2000) report that students in the creative disciplines typically have problems with the academic writing required in higher degrees experiencing a disconnection between their practice and the written analysis of their research. This disconnect is profound and perhaps a little unfair, as Melles and Lockheart (2012) point out scientists are never required to draw their design results, yet art and design students are required to write about their practice.

We needed to change the research teaching and learning pedagogy so that students did not feel alone and isolated, but rather, that they felt supported and empowered by sharing and working collaboratively with each other, and us. The decision to jointly supervise five Master of Architecture students was a critical step we took towards establishing a successful collaborative learning environment. Conventionally supervisors are joint advisors, both sharing their opinion of the work in progress. By contrast we sought to work *with the students and with each other* throughout the supervision process. It was here where our supervision practice most closely resembled design studio pedagogy and departed from the humanities models described by our colleagues at RMIT (Allpress et al., 2012).

While supervisors in this collection talked about developing close, even intimate, creative relationships with their supervisees, the role that most adopted seemed to be that of the critic, albiet a friendly one or 'fellow traveller' as Duxbury (2012) calls it. In the RMIT accounts the supervisor is not positioned explicitly as a collaborator. We found that the sharing—and exposing—of our own working practices meant that we could provide a wider knowledge base to the students as well as start to induct them into academic approaches. Students remarked on this altered relationship, explicitly 'placing' us in their 'group' in some of the written feedback: *Two of those in the group were Supervisors so (I) always felt directed, heard, understood and motivated. Two supervisors provided a wider knowledge base and felt like 'special' attention was given.*

Due to the nature of our joint supervision we regularly discussed and reflected on what was occurring within the group, another aspect the students noticed and remarked on,

> … having the supervisors and fellow students genuinely interested, excited and vested in your research made for a really rewarding process and unit of design. It made me actually look forward to doing the work so I could come to a meeting and share new findings and knowledge. You didn't want to let the team down, so it was easy to get motivated!

The relationship between the supervisor and student was improved by exposing the students to the current research work of the supervisors. We shared the challenges and struggles that we were facing with our own research work and together we learned from each other. One of the students appreciated this insight: *Supervisors were working on research themselves so were able to give 'industry' tips and show examples of their own similar work, creating a very relatable experience.* The group structure and format was consistent and iterative, which was another positive reported by the students *Consistent schedule with group—created a great routine to do work, present work and repeat.*

Focusing on creating a quality and comfortable, supportive, *collaborative learning experience* was a shared priority. Central to this supervision approach was introducing the students to *Shut Up and Write!* [SU&W] (Mewburn, Osborne, & Caldwell, 2014) a productivity and writing technique that we had previously developed (and published on), and indeed a practice that we as supervisors frequently use ourselves. The structure of SU&W sessions is simple: participants meet at a specific

time and place, chat for a few minutes, then they quite simply stop talking, and start writing, for a predetermined amount of time. Critical to the success of the sessions is that there is no critiquing of the writing, and there is no competition or formal exercises (Mewburn et al., 2014). The purpose of SU&W is to transform writing practice from a solitary experience to a social one. SU&W typically takes place outside of formal learning environments in public spaces such as a cafe´. The primary difference of SU&W between other writing practices is that individuals do not engage in any structured activity and they do not share the outcomes of the writing.

In the group meetings, we employed this writing practice together with the students. The meetings were not only about teaching and learning but provided time and space for the students to produce the work. Students were encouraged by the fact that we were sitting next to them also writing about our own research. This method reinforced the group dynamics by confirming that we were all in it together. This part of the process drew most of the praise from students themselves as can be seen in the following reflections:

> The () move from the informal meeting to the SU&W session was also great—I never found myself stuck in a SU&W session that was not productive … (it) not only provided a good productive method of getting the work done, but () it (also) kept the group together we bonded and got to know each other.

> The group of students and supervisors, and the general structure and management of the tutorials/consultation time was a big factor in enjoying the research unit. It was obvious that both of our supervisors were passionate about research as a topic, and that passion became infectious across the group … we could all benefit from the feedback given to a student on how to approach a particular research problem … and learn a great deal about the research process just from observing the feedback to the other students.

> SU&W was great. I personally can let my stress get to me so much that I struggle to know where to ’start’. So impromptu writing sessions like that just forced me into concentrating on one thing at a time which I found incredibly helpful.

Hacking the Methods

The final supervision challenge that we encountered were that the students found it difficult to obtain sufficient interest from potential research participants, making the acquisition of data difficult at times. To complicate this problem, students were attempting to manage the competing priorities of a research project while also developing a complex building design, placing them under enormous levels of stress. As supervisors we encouraged students to bring their creative faculties to bear on these problems. By applying *design thinking and methodology* to a research project, students saw ways to design new and creative methods to overcome these obstacles, and turn ‘boring’ and ‘mundane’ research into something that was fun and exciting.

Following the advice of Hockey and Allen-Collinson (2000), we encouraged the students to use the skills that were familiar to them to understand and develop their research problem. Aligning our approach with Dallow (2003) who indicates that action research methodology is typically extended into creative practice research we suggested that the students follow an ‘active’ process of enquiry. The action element of the creative practice is calculated to validate new knowledge (Frayling, 1993). Accordingly, students used drawings, mind maps, and diagrams of their projects, which helped students see how research could align with and strengthen their design projects, rather than being a competing and additional pressure. As a result of each of these interventions, research became exciting and relevant, and the students thinking and experience of research was positively enhanced.

One of the most significant outcomes of this process came from a brainstorming session around methods. In collaboration with our Master’s research students we developed alternative methods for acquiring data, which relied on a combination of analogue design interventions and online

platforms commonly distributed through social networks. The process was based on critical issues identified by the students that required action by the community. The design method focused on engaging with communities, to propose solutions. We called these new research methods *Guerilla Research Tactics* (GRT). GRT are influenced by and developed from a combination of participatory action research (Kindon, Pain, & Kesby, 2008) and unobtrusive research methods (Kellehear, 1993), to enhance social research. GRT takes unobtrusive research in a new direction, beyond the typical social research methods. Key characteristics shared between both GRT and Guerrilla Activism, are notions of political issues, the unexpected, the unconventional, and being interactive, unique and thought provoking (Caldwell, Osborne, Mewburn, & Crowther, in press). Over the course of the year we developed the GRT toolkit comprised of the use of social media, online surveys and polls, Tumblr photoblogs, place-based paper conversations and posters with QR codes (Caldwell et al., in press). Employing GRT was not only useful in acquiring responses from participants but allowed the students to engage with the research methods in a creative way.

We found that GRT is specifically beneficial in the early stages of the research project to assist in the collection of preliminary data informing the design of the research project. There were a series of benefits found by the use of GRT in the research process relying on its ease of use for both the researcher and the partici- pant. GRT tended to provide high quality and unique responses from participants. Students found that they were able to obtain higher response rates from participants than those used by traditional social research methods (interviews, surveys, focus groups). *Guerrilla research helped make not only the results of research exciting but also the method. It was different, unexpected and the supervisors were just as excited so made for an encouraging, explorative process.* The researchers and participants commonly found GRT to be fun and enjoyable, prompting reactions and interest from participants (Caldwell et al., in press): *They (GRT) allow the researcher to tailor their approach to the gathering of data to suit their personality—and I think allowed for greater creativity.*

The introduction of GRT to research students is important for two reasons. Firstly, from a pedagogical perspective, the use of GRT created an exciting active learning environment for the research students. They were required to be creative and to propose new ways of data acquisition that would appeal to and engage their potential respondents, most of whom were their peers. One student remarked:

> Guerrilla tactics were great too because I guess it helped open your mind to find out more experimental ways of gathering information … More traditional methods probably wouldn't have worked for my study because I needed to really immerse myself in the environment to be able to connect and understand what people were saying.

The students learned about the process of experimental research through making, doing and/or enacting, and then through observing their peers in making, doing and/ or enacting (Osborne et al., 2012). This seemed important for developing a nascent researcher identity, as one student confirmed:

> The process of using the Guerilla Tactics in a method that suited the way I wanted to approach the research made me more comfortable with the more traditional research gathering methods in the end. Whether they are Guerrilla Tactics or just some sort of informal and unorthodox approach to data gathering I think they allow someone new to research to get involved quickly with data gathering—while avoiding the formal processes and proce- dures surrounding other methods.

Following their experiments with GRT, the research students would meet with us as their supervisors on a regular basis, where their successes and failures were shared, discussed and reflected on, in an informal learning environment.

Secondly, the very principles that were used to engage the research students in their learning, were in turn used by them, to engage their potential participants. Partici- pants were required to actively engage with the artefact through either doing or observing an activity, and they were then required to reflect on the question posed to them via the artefact, through dialogue with self or

others. The research students consciousness of this approach strengthened their learning and understanding of the important processes involved in data collection: this notion became more and more evident as the semester, and their research projects, progressed.

We acknowledge that different tools or methods work better than others relative to the user or the situations they are in, but our students appreciated the range of sup- port they were given as stated by one:

> I honestly believe it was a combination of all … Guerrilla tactics, shut up and write, dynamics of the group and meeting in informal matters. On different days I found that some things worked better for me than they would on other days. I personally found having that variety really helpful.

Conventional Models of Supervision, Reconsidered

Transplanting supervision practice to the Architecture discipline, where there are not strong traditions of research and writing in a coursework Masters, is a complex and difficult task. The case of QUT Master of Architecture students undertaking research for the first time invites Design staff to ponder the connections—and disconnections—between our conventional ways of teaching and learning in design and the new demands of research supervision. Shulman (2005) has argued that we can gain insights into how better to teach in the humanities from studying signature pedagogies of the professions. Our results suggest that we can not only learn, but also enhance supervisory practices by applying some of the techniques and characteristics of design studio pedagogy to the more conventional research pedagogies imported from the humanities.

Many authors have pointed out the consequences of an uncritical replication of our current forms of research supervision. Johnson, Lee, and Green (2000) point out that the supervisor student relationship can be marked by 'neglect, abandonment and indifference as it is by careful instruction or the positive and proactive exercise of pastoral power' (p. 136). Postgraduate research pedagogy is, according to these authors responsible for the valourisation of the solo, autonomous researcher which Yeatman (1998 cited in Johnson et al., 2000, p. 137) claims have been 'invited to imagine themselves as subjects of genius'.

Creating a reflective community, in line with the signature pedagogy of the design studio, promoted the sharing of knowledge, information and experiences, which proved of benefit to the students and supervisors. By bringing in the collaborative traditions of the design studio and promoting a sense of creativity and enjoyment through the research process we were able to foster an appreciation towards the importance and value of research for our students. More can be learned from the transition of design practice towards research thinking, and the re-thinking of research practice through the practices of the design studio, through a larger study encompassing a greater cohort of students. We believe that other creative disciplines can apply similar tactics enriching both the creative practice of research and the supervision of HDR students.

The most significant contribution of our case study has been to show the design studio as a rich source of inspiration for research supervision, insights which might, perhaps, travel beyond the architecture context. Shulman (2005) has argued, that while signature pedagogies suffer from inertia, they survive because they succeed 'more often than they fail', to achieve their goal of making students into novice professionals. We argue that research supervision may, as do all signature pedagogies 'need repair' (Shulman, 2005, p. 22), at least in the case of architectural research education. Perhaps one means of repair is by countering the uncritical replication of research supervision through rigorous reflection on the value of practice.

Disclosure statement

No potential conflict of interest was reported by the authors.

Note

1. Accessed from http://connectedlearning.tv/what-is-connected-learning on 20 January 2014.

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Glenda Amayo Caldwell explores the effect of technology on the design of urban environments through her teaching and research. Of particular interest are the use of digital fabrication, architectural pedagogy, alternative research methods and the creation of place to promote sensitive architecture that responds to the needs of the community.

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Inger Mewburn designs, develops and implements strategies to support research training across all disciplines at the ANU. Part of this role involves working with a range of organisations and government bodies and representing the University at internal and external forums. To complement this work, Inger does research on a range of research candidate issues to inform and con- tribute to broader policy, curriculum and pedagogy debates in the field of research education. She maintains an interest in her former discipline of architecture and occasionally writes on creative research practices and design workplaces.

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References

Allpress, B., Barnacle, R., Duxbury, L., & Grierson, E. (2012). *Supervising practices for postgraduate research in art, architecture and design* (Vol. 57). Rotterdam: Sense.

Austerlitz, N., Aravot, I., & Ben-Ze'ev, A. (2002). Emotional phenomena and the student– instructor relationships. *Landscape and Urban Planning, 60*, 105–115.

Barnacle, R., & Mewburn, I. (2010). Learning networks and the journey of 'becoming doctor'. *Studies in Higher Education, 35*, 433–444. doi:10.1080/03075070903131214

Barr, R. B., & Tagg, J. (1995). From teaching to learning—A new paradigm for undergraduate education. *Change: The Magazine of Higher Learning, 27*, 13–25.

Bonwell, C. C., & Eison, J. A. (1991). *Active learning: Creating excitement in the classroom. ERIC digest: ASHE-ERIC higher education report no. 1*. Washington, DC: The George Washington University.

Boud, D., & Lee, A. (2005). 'Peer learning' as pedagogic discourse for research education 1. *Studies in Higher Education, 30*, 501–516.

Buchanan, R. (1995). Wicked problems in design thinking. In V. Margolin & R. Buchanan (Eds.), *Design issues reader* (pp. 3–13). Boston, MA: MIT Press.

Caldwell, G., Osborne, L., Mewburn, I., & Crowther, P. (2015) Guerrillas in the [urban] midst: Developing and using creative research methods—Guerrilla research tactics. *Journal of Urban Technology*, *22*, 21–36.

Cole, A. L., & Knowles, J. G. (2001). *Lives in context: The art of life history research*. Walnut Creek, CA: Alta Mira.

Cumming, J. (2007). *Representing the complexity, diversity and particularity of the doctoral enterprise in Australia* (PhD), Australian National University, Canberra.

Dallow, P. (2003). Representing creativeness: Practice-based approaches to research in creative arts. *Art, Design & Communication in Higher Education, 2*, 49–66.

Downton, P. (2003). *Design research*. Melbourne: RMIT University Press.

Duxbury, L. (2012). Opening the Door: portals to good supervision of creative practice-led research, In B. Allpress, R. Barnacle, L. Duxbury, & E. Grierson (Eds.), *Supervising practices for postgraduate research in art, architecture and design* (pp. 15–23). Rotterdam, Boston, Tapei: Sense publishers.

Eisner, E. W. (1993). Forms of understanding and the future of educational research. *Educational Researcher, 22*, 5–11.
Field, J., & Logan, C. D. (2006). Circles of practice: Educational and professional graphic design. *Journal of Workplace Learning, 18*, 331–343.
Flyvbjerg, B. (2004). Five misunderstandings about case-study research. *Sosiologisk tidsskrift, 2*, 117–143.
Frayling, C. (1993). *Research in art and design*. London: Royal College of Art.
Gablik, S. (1991). Introduction: Changing paradigms, breaking the cultural trance. In S. Gablik (Ed.). *The reenchantment of art* (pp. 1–12). London: Thames and Hudson.
Green, B., & Lee, A. (1995). Theorising postgraduate pedagogy. *Australian Universities Review, 38*, 40–45.
Hockey, J., & Allen-Collinson, J. (2000). The supervision of practice-based research degrees in art and design. *Journal of art & design education, 19*, 345–355.
Hockey, J., & Allen-Collinson, J. (2005). Identity change: Doctoral students in art and design. *Arts and Humanities in Higher Education, 4*, 77–93.
Hopwood, N. (2010). Doctoral experience and learning from a sociocultural perspective. *Studies in Higher Education, 35*, 829–843.
Ito, M., Gutiérrez, K., Livingstone, S., Penuel, B., Rhodes, J., Salen, K., … Watkins, S. C. (2013). *Connected learning: An agenda for research and design*. Irvine, CA: Digital Media and Learning Research Hub.
Jamieson, P., Fisher, K., Gilding, T., Taylor, P. G., & Trevitt, A. C. F. (2000). Place and space in the design of new learning environments. *Higher Education Research & Development, 19*, 221–236.
Johnson, L., Lee, A., & Green, B. (2000). The PhD and the autonomous self: Gender, rationality and postgraduate pedagogy. *Studies in Higher Education, 25*, 135–147.
Kellehear, A. (1993) *The unobtrusive researcher: A guide to methods*. Sydney: Allen & Unwin.
Kindon, S., Pain, R., & Kesby, M. (2008). Participatory action research. *International Encyclopaedia of Human Geography,* 90–95.
Knowles, J. G., & Cole, A. L. (2002). Transforming research: Possibilities for arts-informed scholarship. In E. O'Sullivan, M. O'Connor, & A. Morrell (Eds.), *Vision and transformation: Emerging themes in transformative learning* (pp. 199–214). New York, NY: Palgrave.
Margolin, V. (1998). Design studies: Proposal for a new doctorate. In S. Heller (Ed.), *The education of a graphic designer* (pp. 163–170). New York, NY: Allworth Press.
Melles, G., & Lockheart, J. (2012). Writing purposefully in art and design Responding to con- verging and diverging new academic literacies. *Arts and Humanities in Higher Education, 11*, 346–362.
Mewburn, I. (2012). Lost in translation Reconsidering reflective practice and design studio pedagogy. *Arts and Humanities in Higher Education, 11*, 363–379.
Mewburn, I., Osborne, L., & Caldwell, G. A. (2014). Shut Up & Write! Facilitating informal learning in doctoral education (with 'no critiquing, exercises, lectures, ego, competition or feeling guilty'). In C. Aitchison & C. Guerin (Eds.), *Writing groups for doctoral education and beyond: Innovations in theory and practice* (pp. 218–232). London: Routledge.
Nussbaum-Beach, S., & Hall, L. R. (2012). *The connected educator: Learning and leading in a digital age*. Bloomington, IN: Solution Tree Press.
Olson, K., & Clark, C. M. (2009). A Signature pedagogy in doctoral education: The leader- scholar community. *Educational Researcher, 38*, 216–221.
Osborne, L., Franz, J. M., Savage, S. M., & Crowther, P. (2012) *Dichotomy in the design studio 2.0: Adapting to new blended learning environments*. The Asian Conference on Education Conference, Osaka, Japan, The International Academic Forum, 1–1601.
Petersen, E. B. (2007). Negotiating academicity: Postgraduate research supervision as category boundary work. *Studies in Higher Education, 32*, 475–487.
Schön, D. A. (1983) *The reflective practitioner: How professionals think in action*. New York, NY: Basic books.
Shreeve, A. (2012). *The way we were? Signature pedagogies under threat*. In Erik Bohemia, Brigitte Borja de Mozota and Luisa Collina (Eds.), *Researching Design Education: 1st International Symposium for Design Education Researchers; CUMULUS ASSOCIATION// DRS*. Paris, France: CUMULUS ASSOCIATION// DRS SIG on Design Pedagogy.
Shulman, L. S. (2005). Signature pedagogies in the professions. *Daedalus, 134*, 52–59.
Taylor, S. S. (2009). Effects of studio space on teaching and learning: Preliminary findings from two case studies. *Innovative Higher Education, 33*, 217–228.
Varnelis, K. (2007). Is There research in the studio? *Journal of Architectural Education, 61*, 11–14.
Vaughan, S., Austerlitz, N., Blythman, M., Grove-White, A., Jones, B. A., Jones, C. A., … Shreeve, A. (2008). *Mind the gap: Expectations, ambiguity and pedagogy within art and design higher education*. In Linda Drew (Ed.),

The Student Experience in Art and Design Higher Education: Drivers for Change (pp. 125–148). Cambridge: Jill Rogers Associates Limited.

Waks, L. J. (2001). Donald Schon's philosophy of design and design education. *International Journal of Technology and Design Education, 11*, 37–51.

Webster, H. (2004). Facilitating critically reflective learning: Excavating the role of the design tutor in architectural education. *Art, Design & Communication in Higher Education, 2*, 101–111.

Webster, H. (2005). The architectural review A study of ritual, acculturation and reproduction in architectural education. *Arts and Humanities in Higher Education, 4*, 265–282.