Designerly ways of learning theory: Combining creative and scholarly methods of inquiry

Abstract

This study presents and discusses the outcomes of an action research inquiry that set out to enhance novice first year visual communication student learning of design theory and history through the incorporation of creative practice methods commonly used in practical design studio environments. The methods involving creative thinking, visualization, collaboration and presenting to an audience are described as *interventions*, introduced to support the critical and analytical thinking necessary to engage with theoretical discourse. They can also be thought of as *learning strategies* incorporated to enhance student learning. As educators of both design theory and practice, our previous observations of how novice design students engaged with theory, in comparison to how they engaged with practice, led us to the decision that change was required; change which would facilitate deeper understanding of theoretical discourse through the incorporation of creative practice methods. That was our 'call to action'. Academic discourse in design education is no longer the exclusive domain of the written word. Our findings suggest that student learning of design theory and history can be enhanced when creative practice methods are employed within a critical studies context.

Keywords: Action research, learning strategies, creative methods of inquiry, design theory and history

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Introduction

In his seminal text *'Designerly ways of Knowing: Design Discipline versus Design Science'* (2001) Nigel Cross talks of the discipline of design's need:

> "to develop domain-independent approaches to theory and research in design. The underlying axiom of this discipline is that there are forms of knowledge special to the awareness and ability of a designer, independent of the different professional domains of design practice. "(p. 4).

Further to this he adds "so we must concentrate on the 'designerly' ways of knowing, thinking and acting" (2001, p. 5). With this in mind we set out at the university of Newcastle, NSW to introduce into our first year design theory and history class *'DESN 1002 Design Contexts 2: When—Histories of Visual Communication Design'*, methods of practice common to our design practice studio classes. In the previous semester we had introduced into the theory class *'DESN 1001_Design Contexts: What—Definitions, Theories and Practices of Design'* a collaborative component to the learning structure whereby students worked in groups. We also introduced research presentations in this course and noted that students were very comfortable with discussing their research findings through digital visual media support via large screens set up in the theory classes. As student feedback on the value of collaboration and visual presentations was very positive we decided to develop this further in our second semester design theory and history course DESN 1002. Within the methodological structure of action research, characterised as being based around an iterative, incremental and cyclical research design, we describe semester one's inquiry as cycle one and the semester two inquiry as cycle two. We will concentrate on describing cycle two in this paper and will, when relevant refer to cycle one. This relates to one of the important guiding principles of action research, that knowledge development is cumulative through cyclical, incremental development.

Methodology

Action research in its broadest sense is concerned with bringing change to an identified situation requiring improvement and, through the incorporation of rigorous methods of inquiry, it can also result in new understanding (Hopkins, 1985). It is this second component, requiring rigour of inquiry which differentiates it from common classroom practice, as teachers often seek to improve their teaching by the incorporation of interventions (McNiff and Whitehead (2006). A fundamental principle of action research is that the researcher is at the centre of the enquiry, not a detached observer (Dick, 1993, McNiff & Whitehead, 2006). It has the combined goals of improving student learning while also attempting to improve teaching practice, initially that of the practitioner engaged in the research. The research component makes visible what enhanced learning took place in such a way that its findings can be shared by others. As such, action research sits within the domain of social science. Having said that, it is not a traditional form of social science which McNiff and Whitehead describe as being "outside a situation" (2006, p.8). They say "Action researchers, however are insider researchers. They see themselves as part of the situation they are investigating" (ibid).

Trigwell (2004, p. 13) talks of “pedagogic resonance” to describe the value of a teacher’s knowledge but suggests that for personal knowledge of teaching to become scholarship it must be made verifiable through a structured and methodologically rigorous approach. Through a looping process initially developed by Lewin (1946) the cyclical nature of action research is described by Kemmis and McTaggart, (1992, p. 10) as *plan-act-observe-reflect*. Morrison (1995) says it has similar properties to Schön’s (1987) ‘reflection in action’. Schön (1983) introduced the term *reflective practice* as he sought to develop a way of looking at an epistemology of practice based on examining what practitioners do. He argues that reflection-in action is “susceptible to a kind of rigor that is both like and unlike the rigor of scholarly work and controlled experimentation” (1983, p. xi). Swann (2002) draws our attention to the similarities of action research to the design process which he describes as *problem-analysis-synthesis-execute-production-evaluation*. Swann suggests that the cyclical, iterative similarities between design process and action research are, “very striking” (p. 56). Another notable aspect of action research is its symbiotic relationship between researcher and participant. Giddens, (1987, p.20) talks of a “double hermeneutic” to describe this two-way relationship between the researcher and the participant, referring to how meaning and understanding is a negotiation between two parties. This is unlike a “single hermeneutic” approach, where understanding is essentially one-way (ibid), as in, for example, a scientist studying properties of a mineral. This also relates to what Weber (1947, cited in Clark, 1997, p. 34) describes as *verstehen*. Verstehen can be broadly translated as meaning empathetic understanding as a consequence of familiarity with the subject of study. This relates to in*sider knowledge* as opposed to *outsider knowledge* which is more common in traditional social science research. Both researcher involved in this study are designers. This supports Cross’s (2001) domain independent position.

Research design

While there are structural variations to Lewin (1946) and Kemmis and McTaggart’s (1992) plan, act, observe, reflect, model, such as McNiff and Whitehead’s (2006) *observe, reflect, act, evaluate, modify, move in new direction*, the research design of this study followed the original model established by Lewin. Our ‘plan’ for cycle two was based on our observations and reflection that the collaboration intervention in the first semester course DESN 1001 had been successful and that students appeared to be very keen to further explore collaboration as well as incorporate visual strategies to support the development of theoretical positions relevant to their study of design theory. Cycle one’s plan was based on observations that visual communication design students were less engaged and performed less well in theory classes which required an almost exclusively written text approach to critical discourse through the writing of essays. So, in cycle two the planned action was to help student develop learning strategies based on creative practice methods they were familiar with in their studio classes and bring them into their theory class.

The study can also be described as a *naturalistic inquiry.* Naturalistic inquiries focus on real world situations which unfold naturally, they are non manipulative or controlling and open to what emerges (Patton, 2002). The unifying feature of naturalistic inquiry is that it must take place within a real world setting, a setting with which participants are familiar. We also position this study as a *situated learning* inquiry. According to Clancey, "Situated learning is the study of how human knowledge develops in the course of activity, and especially how people create and interpret descriptions (representations) of what they are doing" (Clancey, 1995, p. 49).

Learning strategies and interventions

Essentially our interventions were based around learning strategies. Learning strategies can be described as behaviours and thoughts a learner engages in during learning that are aimed at creating and constructing meaning and knowledge. Learners are, to use Mayer's (1996, p. 364) constructivist definition, "sense makers". We can therefore position this to mean that, if learners are sense makers, then learning strategies are processes used when the learner "actively tries to build a coherent and meaningful representation of the presented material" (ibid). To facilitate student understanding of the historical dimensions of design history within a broader social context, our interventions included the following:

1. Students had to work in groups of three or four (as is common in studio practice)
2. Students had to co-create and present a visual and oral presentation on a topic relevant to design history (in contrast to writing an essay)

To ensure academic rigor, the visual presentations had to include throughout, cited references to the literature pertinent to their topic. The assignment brief asked students to choose a key moment in visual communication design history and discuss its significance within a social and historical context. The students were also asked to provide evidence to support their position.

Data

The main sources of data for both cycles were questionnaires filled out in class and also digital copies of student presentations which were handed in as part of each course. A content analysis of cycle two student presentations was carried out. To avoid ethical issues no fieldwork or formal research took place during teaching time and we kept our roles as teachers and researchers separate. The questionnaires were voluntary and anonymous. In cycle one, 49 students handed in the questionnaire and in cycle two we received 43 responses. Both cycles, based on the semester one and two courses involved the same student cohort. Knowledge gained from both cycles is therefore cumulative. The data is also homogenous in that all students involved had similar expertise with design and theory.

Cycle one

Before we discuss our findings from cycle two we would like to briefly highlight a key finding of the first cycle questionnaire which focused on the role of collaboration in assisting learning.

Q.1. Please describe what role working collaboratively with your peers played in assisting your own personal understanding and ability to articulate what design is.

The most commonly recurring adjective which repeatedly appeared in the questionnaire responses was *helped* (15) with linked variations such as *helpful* (5), *helping* (2), *help* (1.) Other associated words used included *useful, broadened, good, allowed, allows, assisted, enabled, liked, engaged*. The overall pattern that emerged from question 1, as regards why collaboration assisted student learning was that the experience allowed students to hear different perspectives about the texts they all had to read:

They brought personal introspects and thought paths into my perspective which I may not have thought of myself

It provided different insight/perspectives on design

The feedback on cycle one prepared us for cycle two which in addition to exploring collaboration also looked at the role of using visual, co-creative methods to support group presentations on key figures, movements and moments in design history. These are the interventions incorporated into the design history course which we argue enhanced student engagement and facilitated deeper understanding and knowledge generation.

Analysis, Cycle two

Forty three students handed in cycle two's questionnaire. The first two questions related to working visually and orally in the production of a group presentation.

Q 1. You have been asked to do a visual and oral presentation of your chosen topic. From your own experience please describe how this approach has assisted you develop critical and analytical understanding of design within a historical context, i.e. an academic understanding.

The overall pattern to emerge from student comments was that the visual and oral approach helped consolidate personal understanding of their topics and that this approach was easier than conventional writing. A number of students said that by having to explain things verbally and visually to a real audience they were able to develop a better understanding of their topic. The data holistically presented a pattern which suggests that the physical act of presenting to a live audience of peers and supervisor had a kinaesthetic element which the students valued. The following are representative comments from students:

By 'teaching' we are forced to understand better ourselves.

As I am having to talk and inform people, I find I learn more and develop a better understanding. I find myself going to much further lengths to explain what I have learned.

Editing the visuals really makes the whole thing stick in your head

The following full unabridged excerpt encapsulates the types of responses students made to this question:

As the presentation approach is more visual and less focused on academic/critical writing, I think this approach has enhanced the learning in understanding historical context. I was more engaged in wanting to learn and research the chosen topic. You are able to view things differently and interpret the information in your own creative and visual way.

Question 1 related to the presentation students gave. Question 2 relates to the first question but is more interested in finding out how the visual and creative process facilitated each student's personal learning.

Q. 2. What role has working visually and creatively played in assisting your own personal learning and approach?

The overall pattern to emerge was that a visual and creative approach was helpful. Students used a diverse array of terms to describe this. The most common were *helped (11) helpful (3) helps (2).* Other terms included: *easier to understand, more enjoyable, played a major part, greatly assisted, more understandable, allows me to connect, engages my mind more.*

Thinking in terms of images and visuals makes us simplify and process information differently

I get a better idea of things when I can visualise them so I find working with resources like we have to be very helpful

Working visually and creatively has played a huge part in my personal learning.

I am a visual and hands on learner so this has helped me in grasping many difficult concepts.

The visuals and being creative with them really hammered the academic into my head. I learn much more if visuals are heavily involved.

Discussion of questionnaire responses

There is a growing body of literature that explores the problematic relationship between traditional academic approaches to learning theory, through reading and writing and the

privileging of analytic thinking, and the more kinaesthetic approaches to learning privileged by art and design students. This literature demonstrates that creative art and design students privilege intuitive thinking and struggle with the skills required for analytical reading and writing (Apps and Mamchur 2009). We note here that the literature indicates that this intuitive approach is a result of their preference towards visual learning styles. These styles are variously described as: intuitive and emotional (Collinson 2005, pp.716-717); visual-spatial (Lockheart et al. 2004, p.97); Yee 2012, p.471); tacit learning and knowing (McCannon 2011, p.133); aesthetic learning and knowing (Irwin 2003, p.63); and visual thinking (Blackler 2014); (Edwards & Woolf 2007, p.55); (Grow 1994). What these characterisations share is the idea that learning is less effective when done through reading and listening and more effective when done through looking and doing because visual spatial learners "tend to think in pictures rather than words" (Yee 2012, p. 471). In the field of constructivist learning theory this is known as kinaesthetic or experiential learning, where learning is more profound when connected to the concrete and embodied experiences of the learner (Kolb 1984). Ramsden (2003, p.39-61) argues that to facilitate deep learning experiences the learning styles and predispositions of students must be accommodated. This theoretical backdrop as well as our prior experience of teaching theory and history led to the learning interventions we incorporated into our teaching. The questionnaire replies supported the views expressed in the literature that visual, kinaesthetic and collaborative methods of engaging with critical discourse suit visual communication design students.

Visual presentations and the role of audience

In total there were twenty group presentations with 69 students involved. Topics ranged from discussions of The Bauhaus, Dada, Art Nouveau, Advertising, Avant garde art, animation and so forth. Each talk also focused on individuals who had played an important role in their movement. Students were encouraged to place their chosen movement within a historical timeline and conclude with a discussion of the movement’s legacy in contemporary times.

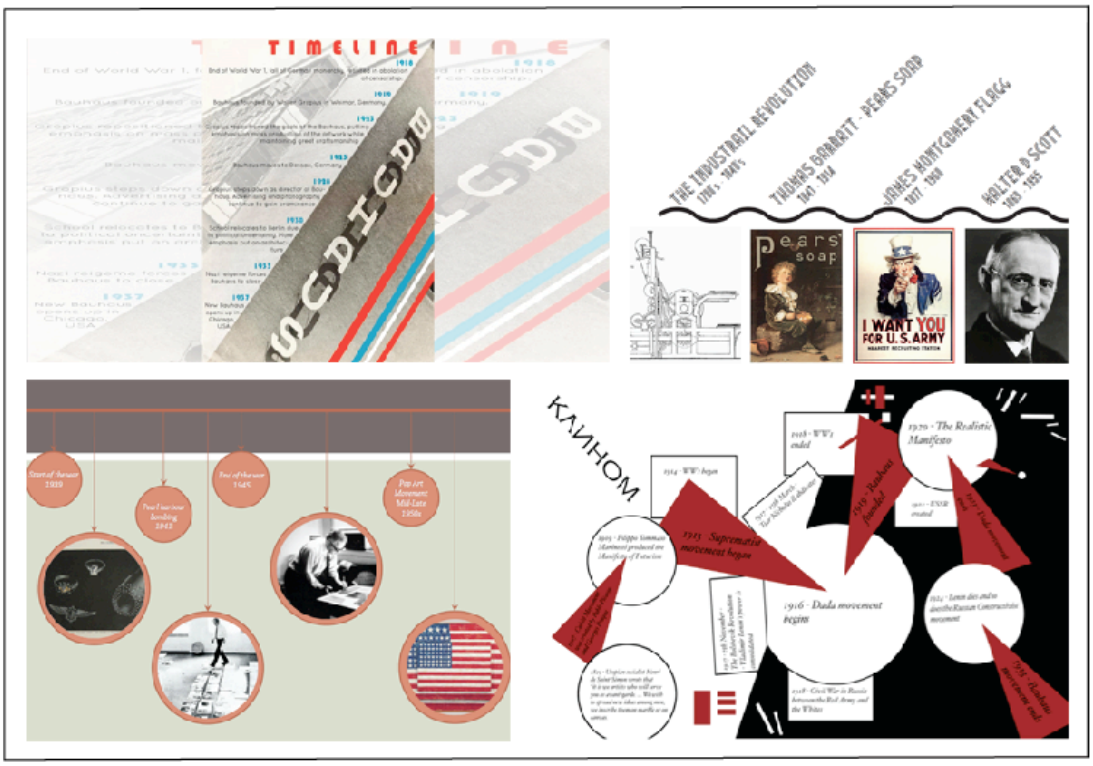

Figure 1. Composite example of student timelines.

The basic academic premis of 'claim' followed by 'evidence' was enforced and students were encouraged to incorporate quotes which helped contextualise their topic and refer to the academic literature where appropriate. Students were told to speak to the quotes and explain their significance. Students were also asked to consider their presentation title as providing a contextual overview of the presentation. Kintsch (1998) describe titles as *macropropositions*, a short selection of words which capture the 'gist' of an idea or text. Another important consideration was the chosen aesthetic for the presentation and how it could also be used to provide context, something which would not be expected in a written essay.

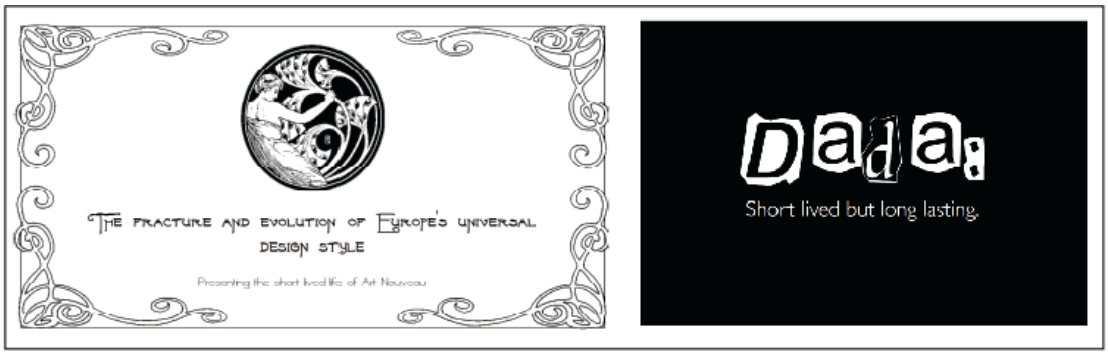

Figure 2. Example of opening titles providing context and appropriate aesthetic.

The presentations were 15-20 minutes long and each student had responsibility for a section. The presentation slides were, on the whole, uncluttered with a combination of images and text. Each presentation included quotes from the literature and students, on the whole discussed the relevance of the quotes as would be expected in an essay structure.

Figure 3. Four images from a presentation. Total number of slides in presentation was 24.

An important aspect of the presentations which students enjoyed was the opportunity to engage directly with their audience of peers and ask questions. This allowed for the communication to be a two way dialogue rather than simply a transference of viewpoint from presenter to audience. Some students mentioned the value of this in their feedback sheets. This is common in studio environments where the critique is of great value, but our prior experience of teaching theory is that the relationship between the student as author and the audience is a detached one. We had not previously considered a critique of theory and the value of the audience. The role of the audience became one of the most significant factors in enhanced student learning. It was also an important discovery for us as educators.

Clark (2004, p. 14) says that the basis for all communicative acts is meaning and that it is created through "a complex interplay of codes or conventions of which we are normally unaware". He also describes it as a participatory act between speaker and addressee. Building on the work of Austin (1962) and Searle (1969), Clark further describes this joint action as an illocutory act (the speaker's act of explanation) and an illocutionary effect (the addressee's understanding) (2004, pp. 133, 134). In an essay, it can be argued that the relationship between speaker and addressee is detached. Certainly for an undergraduate design student, the only audience they are aware of when they write an essay, is their lecturer. In a scholarly visual and oral presentation there is room for dialogue. Tyler (1995) says "audience considerations are integral components of the process of visual communication" (p. 104). As Mayer (1996) discussed earlier, students are sense makers and visual communication design students are familiar and comfortable working in the visual domain. On the whole, the literature supports the view that the learning preferences of visual communication design students are oriented towards the visual-spatial. We believe this

approach helped them make sense of the historical and theoretical material they were dealing with.

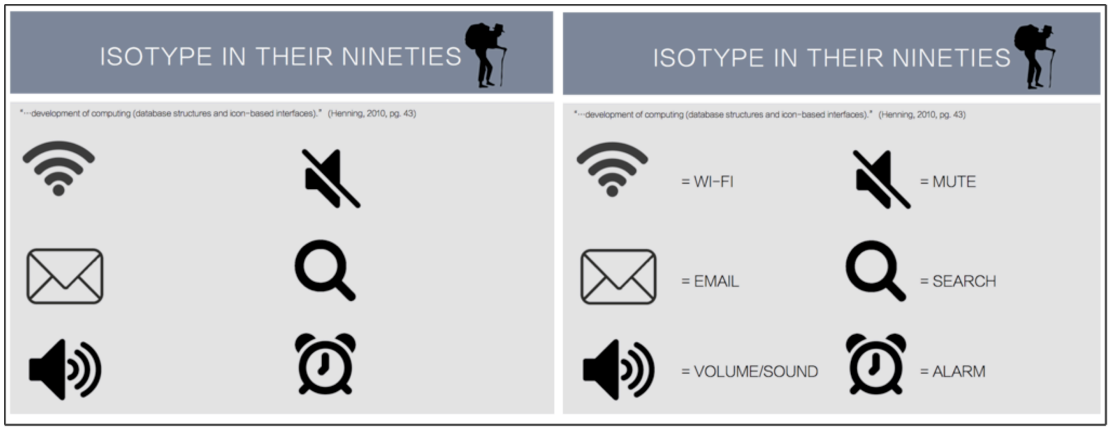

Figure 4. Image on left shown first and audience asked to identify the isotypes.

Figure 4. Demonstrates how students were able to demonstrate the power of isotypes by asking the audience to identify each image. This audience interaction enforced the idea that isotypes are powerful and memorable mechanisms of communication.

Presentations allowed students to demonstrate how theory works in practice. In figure 5. a student group whose research focus was Otto Neurath's Isotype language discussed Saussure's famous quote 'Everything is based on relations'. They used the contemporary app icon 'Snapchat' to discuss how icons work. They were able to do this by showing a shape minus some of its recognisable features. The audience was still able to recognize the app. The group then presented a semiotic analysis of the app using Saussurian terminology such as signified/signifier. So, as such they were explaining theory by using an example of their choosing and, by taking advantage of the sequential nature of slide presentation, they were able to visually demonstrate and explain ideas that may have been more difficult in an essay structure.

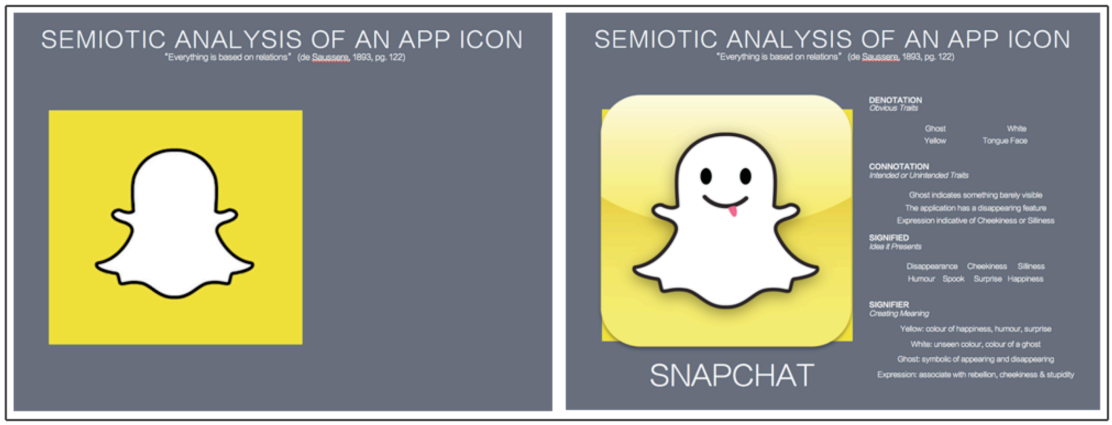

Figure 5. Example of how sequencing can be used to explain theoretical model.

All student presentations were based on demonstrating the significance of various design movements or individuals whose work has had a significant impact on the development of

design as a discipline. This was to be placed within a historical context. It allowed students to make links between past events in design history and understand their significance to current design practice.

Plan, act, observe, reflect: Conclusion

This study set out to overcome a problem. The problem, as observed from previous experience teaching theory and history to visual communication design students, was that many students were not engaging with theory at a deep intrinsic level. Many students appeared to write essays where there appeared to be little real engagement with the topic and that they were motivated more by the extrinsic demands of passing a course than actual fascination with the topic of study. In addition to this, observations also suggested that a high proportion of students were not necessarily seeing the value of theory, or the legacy of history, to their developing understanding of their own design practice. In contrast to this, visual communication design students thrive in studio environments where collaboration and immersion in visual methods of working are the norm. By bringing these methods into the design theory and history classes we believe we have enhanced learning by enabling students to make sense of things through the utilization of 'designerly ways of knowing'.

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