Finding my way through drawing: The evolution of a thesis

Janet Saunders
Western Sydney University

Introduction: Tracking my creative process

... each mark you make on paper is a stepping-stone from which you proceed to the next until you have crossed your subject as though it were a river, have out behind you (Berger, 2005, p. 3).

Berger's poetic metaphor, above, describes the experience of drawing in the creative process. He remarks on the functionality of different types of drawing to create and clarify ideas at various stages of the artistic process while leaving an autobiographical record of ‘discovery’ (p. 3) or, what I call a ‘thinking trail’.

In this paper, I look back across my ‘river’ of research and reflect on the role and value of ‘process drawing’ in the evolution of my doctoral study, Back to the drawing board? I recall the many stepping-stones, or critical turning points along the way and reflect on the unique benefits that drawing provided me at different stages of the process. Via these steps, I discovered the benefits of ‘thinking about drawing and thinking through drawing’ (Garner, 2012, p. 16).

The original purpose of my research was to build a case for the inclusion of some form of drawing in the creative thinking toolbox of novice graphic designers. I explored the role and value of drawing through my design and image-making practices and compared these with the creative processes of my
students. The findings of this ‘insider’ study have informed the development of a series of quick (‘speed’) drawing activities designed to encourage drawing participation in the classroom.

The impetus for my doctorate grew from observations made in my early years teaching undergraduate Visual Communication Design students at Western Sydney University (WSU). In this paper, I refer to this group as ‘design students’. Before I started teaching, I had been working as a graphic and instructional designer, producing interactive online resources for several multimedia companies based in Sydney. When I entered the classroom for the first time in 2010, I experienced a disconnect between my design thinking practices and those of my students. Why don’t students use a rough sketch to think through and communicate their ideas? Perhaps my ‘habit’ of drawing to ‘think’ was a result of my pre-computer training? An investigation of the past and current literature was found to support the use of drawing in the ideation process, particularly for novice designers.

I did not embark on this research to argue for the inclusion or reintroduction of formal drawing tuition in design schools. I am a pragmatist and understand the need for new recruits to have a balance of creative thinking skills and relevant software training. My aim was to encourage the use of a pencil or stylus in the classroom in order to facilitate creative thinking, collaboration and provide opportunities for meaningful feedback on assessment tasks. To do this effectively, I needed to understand my students’ current creative practices and determine any possible barriers to drawing participation.

In my thesis, *Back to the drawing board?*, I employ a mix of methodologies and methods to investigate the role and value of drawing in the creative process. I take on an ‘insider’ role (Costley, Elliott, & Gibbs, 2010, p. 2) and employ a ‘reflection-in-action’ and ‘reflection-on-action’ approach (Schön, 2017). I explore my changing relationship with drawing as both a practitioner and educator. A *Why Draw?* Questionnaire, containing both qualitative and quantitative questions, is conducted over four years to investigate the design behaviours and attitudes to ‘drawing’ of design students at WSU. I follow this with interviews of high achieving final year graduates to complete the picture. The results of this enquiry inform the development of a series of speed drawing activities designed to align with ‘designedly’ thinking skills and foster drawing participation in the classroom.

I began this doctoral study making rough notes and drawings in a sketchbook. Rough scribbles and ‘first thought’ drawings helped visualise the issues, and hand-drawn mind maps and pictorial flowcharts were used to scope out the thesis argument. Visual notes helped me remember and make sense of the literature. Quickly drawn thumbnails organised the scope and content of the thesis and played a significant role in the design, planning and structure of the thesis document itself. I ‘tried out’ drawing activities in my sketchbook which were later trialed with students in the classroom as part of *Back to the drawing board?*. Over the many years of study, I generated a pile of process drawings. This ‘drawing trail’ was used to reflect ‘in’ and ‘on’ my process. It was also used to rethink, organise and communicate certain aspects of the thesis with my supervisors.
This paper looks back on my use of drawing, identifying the role and value of specific drawing types used in my process. I reflect on the functions of drawing and compare my use of drawing in the creative process to that of my students who participated in Back to the drawing board? I also refer to the findings of Pam Schenk’s (2016) long term study Drawing in the Design Process of novice and professional graphic designers in the UK (1984-2015). Back in 2007, Schenk observed; ‘that it is by cross-referencing and conducting comparative analysis facilitated by the characterisation of all these different forms of drawing, that we enhance our understanding of the process of design’ (p. 6).

The terminology used in this paper reflect the current vocabulary used by design students at WSU. It includes terms used in the assessment criteria and resources which align with those I am familiar with from my experience working in the graphic design industry up until 2010. I cross-reference these terms and ‘designerly’ thinking activities (2010, Baynes & Baynes, p.12) with the definitions and meanings found in the following drawing research literature and taxonomies of drawing.

**Process drawing: Navigating the definition**

This paper focuses on a very narrow range of drawing types and functions that were used in the development of my thesis. The blanket term I have used to describe these unstructured representations is ‘process drawing’. ‘Process drawing’ is interchangeable with ‘ideation drawing’, ‘first thought and second thought drawing’, ‘speed drawing’, and ‘rough sketching’. John Berger (2005) defines ‘process drawing’ as those drawings ‘which study and question the visible, those which put down and communicate ideas, and those done from memory’ (p. 46). Berger’s definition of drawing is one of ‘discovery’ and is derived mainly from traditional observational art practices.

The earliest examples of purposeful mark-making were made on 73,000-year-old silcrete (stone) flakes found in the Blombos Cave in South Africa. (Henshilwood, d’Errico, & Watts, 2009, p. 27). Henshilwood et al. note that ‘superimposed sets of parallel lines suggest these incisions are the remnants of a complex design’ (p. 35). The original intension of these first known ‘patterns’ is debatable, however it is clear that someone visualised and planned to make those marks with intension. Perhaps to express, remember, communicate, or ‘design’ something.

Nigel Cross (2011) suggests that ‘design thinking’ is something inherent within the human cognition; it is a key part of what makes us human. ‘Anything that isn’t a simple, untouched piece of nature has been designed by someone’ (p. 8). Transformation may come about through ‘making’, trial and error or externalising a plan through two dimensional representations; drawings. Deanne Petherbridge (2010) posits that in the West, our modern understanding of ‘sketching out’ for invention, inspiration and innovation is derived from European art practices of the Renaissance period, which is on a continuum of drawing practices that date back to classical antiquity (p.28). Petherbridge observes that the ‘descriptions of the sketch in different periods have remained amazingly consistent, with the
current and familiar terms of speedy, exploratory, spontaneous, abbreviated, unfinished, indeterminate, fiery, contingent and disordered well-grounded in historical art discourse' (p. 26).

Contemporary art and design domains have embraced broader definitions of drawing practices as design industries evolve in response to technological, political and social changes. Steve Garner (2012) calls for ‘a critical discourse’ in drawing research and expands on Berger’s definition stating that drawing today is characterised by ‘diversity’ – diversity of interpretation, application and interrogation (p. 13).


Xenia Danos, and Dr Eddie Norman’s (2009) Taxonomy for Graphicacy argues the importance of visual literacy skills ‘in a world where information is often technical and time is often short, visual images potentially offer a direct, fast, effective and efficient way of communicating’ (p. 69). Danos (2008) proposes a new taxonomy of graphicy for education. Drawing examples are included in all seven image categories under the headings of Graphic art; pictorial, Drawing; pictorial, diagrams; Pictorial, sequential; Linear, symbolic; quantitative/abstract, Symbolic; spatial, and CAD (Computer-aided design) (p. 80). Different types of ‘process drawing’ would sit comfortably in the sub-categories of ‘Drafts’, ‘Sketching’ and ‘Drawing’. I suggest that rough sketches can be produced as part of the process in the production of most of the other categories.

Schenk (2016) identifies four different sketch types: ‘observational, analytical, private and digital’ and links the drawing attributes, functions and tasks with specific terms in her comprehensive A Taxonomy of Drawing in Design (p. 176-177). Schenk aligns the ‘drawing task’ to the ‘succinct term’ under five heading areas: Preparation and inspiration, Briefing and ideation, Development and synthesis, Presentation and evaluation, and Commissioning and specification (p. 176-177). The process drawing examples I show fall under several of these headings. The terms and descriptions she has used are similar to those definitions I use in my teaching and resonate with my industry background. Some process drawing types and functions cross over and some definitions differ across disciplines. For example, the word ‘sketch’ can describe both the action and outcome of drawing from life or the imagination. Jonathon Fish (1996) in How Sketches Work, acknowledges the problem of defining the term ‘sketch’ (and ‘to sketch’). He states that ‘the very fact that a word is hard to define suggests that it refers to something poorly understood and stimulates
thought about the nature of the object or concept to which it refers’ (p. 23). Ben Jonson (2002) poetically positions the duality of a sketch ‘at the very heart of creation, bridging daydreaming and calculation’ (p. 250).

Fish (1996) identifies three distinct kinds of sketches, ‘those which represent two-dimensional views of real or imagined objects, those ‘used for imagining something else’ and those which possess specific ‘privileged attributes of untidy indeterminacy’ (p. 16). A sketch could be an unconscious ‘scribble” or ‘doodle’, a rendering of what one observes or imagines, a drawing’ rehearsal’ or an ‘under-drawing’ produced in the development of an outcome. In this sense, a ‘sketch’ could be generated by hand or on the computer. The term ‘sketch’ is complex and vague and the media and functionality employed may vary across design disciplines, however, different definitions of the ‘sketch’ or ‘sketching’ always includes aspects of speed and fidelity.

For some Back to the drawing board? interviewees, a ‘sketch’ can describe their final drawings that use a ‘sketchy” hand-drawn illustration style as well as a first-thought drawing. Some students describe all their working drawings created in the development of an assessment task as ‘sketches’. Many students express an inability to ‘sketch’ referring to their lack of observational drawing skills rather than their ability to roughly sketch what is in their minds eye. The rough sketches or ‘process drawings’ created in the development of my thesis are similar to those private sketches created by many of my students in the ideation phase of their final major project. Like many of my students some of my sketches were produced with the knowledge that they may be included in the final submission. ‘Private thinking’ sketches transformed to become ‘recording’ sketches and later were resolved into ‘illustration’ sketches. As a result, some of my sketches are more self-conscious than others.

**Why draw?: Traversing the literature**

I began my doctoral enquiry with a review of the relevant literature to establish the current role and value of drawing in the creative processes of both professional and novice designers. Figure 1 is an early visualisation used to scope out the relevant themes that guided the literature review for Back to the drawing board?

This pictorial diagram was drawn using a fine marker over a light pencil sketch which was later erased. While I was drawing this mind-map, I divided the reasons to draw into two categories that described the cognitive and communication benefits of drawing. Farthing (2013) also divides the functions of drawing into two distinct areas, pictorial and conceptual. He argues that ‘this separation is not created by what they depict, or how or with what they were drawn but how we read them’ (p. 425).
Fish (1996) hypothesises five key functions of sketching. In summary, a sketch can provide representations that are both depictive (picture-like) and descriptive (language-like). It can give inventive or unexpected perceptual retrievals and support for superimposed mental imagery (projection). Sketching can provide the ability to isolate and amplify visual components and provide the awareness of one’s own cognition (p. 15).

Figure 1 represents an early depiction of *Ten good reasons to draw* which combines the attributes of drawing with ‘designerly’ functions (tasks) relevant to the creative thinking processes of novice graphic designers. Research confirms that sketching, or indeed any form of hand-eye coordination provides valuable functions in the creative process. Whether a pencil or stylus is used, the physical act of drawing can aid concentration and memory (Andrade, 2010; Wammes, Meade, & Fernandes, 2016). Some drawing activities like doodling can help people maintain focus and concentration and achieve creative ‘flow’ (Csikszentmihalyi, 1990, p. 8). Sketching can encourage fluency (McKim, 1980; Runco & Chand, 1995) and ‘divergent-production’ (Guildford, 1967, p.8), which promote creativity and innovation. The ambiguous, indeterminate nature of sketching can avoid the early crystallisation of ideas which may freeze design development (Goel, 1992, p.100).

Sketching helps novice designers’ see it’ and ‘store it’ reducing the load on the cognitive processes needed to design (Bilda, Gero & Purcell, 2006, p. 607). Hand-drawn mind maps and diagrams can quickly visualise abstract ideas using ‘morphograms’ (lines, crosses, arrows, boxes, and blobs) combined with gestalt principles (Tversky, 2005, p. 31). Design problems can be clarified and transformed through visual metaphors, analogies and pictorial sketches (Casakin & Goldschmidt, 1999). Drawing makes internal discussions external. A
sketch’s ‘backtalk’ can produce new meanings, discoveries and plausible interpretations (Goldschmidt, 2003, p. 84). Even partial solutions or representations can aid the designer’s thinking processes (Cross, 2011, p. 84). Goldschmidt (1991) observes that ‘the dialectics of sketching is the oscillation of arguments, which brings about the gradual transformation of images, ending when the designer judges that sufficient coherence has been achieved’ (p. 123).

Crossing out, making mistakes and finding visual connections with a pencil or stylus can leave a ‘thinking trail’ which provides valuable insights into the creative process for designers, students and teachers. Using drawing to scope the problem before seeking a ready-made solution can avoid accidental plagiarism. Simple drawing activities like copying and tracing can encourage profound observation, increasing visual awareness of source material and sensitivity to different visual styles (Schenk, 2016, p. 209). Using drawing to collaborate can be an efficient way to design and communicate in ‘real-time’ and view the process in one eye span.

As well as providing cognitive value, drawing can facilitate efficient workflow in the planning, production and delivery at different stages of the design process. Petherbridge (2010) summaries the qualities of drawing in *The Primacy of Drawing*. ‘It’s essential aspect is its suggestiveness: open-ended, ambiguous, imprecise, it allows for interpretations and reinterpretations and lends itself to corrections, second thoughts, re-drawings, rewritings and re-orderings’ (p. 28).

**Why not draw?: Barriers and road blocks**

So, if sketching is so useful, why don’t design students use drawing in the classroom? This question became the impetus for my doctoral thesis. I began observing undergraduate design students while they engaged in group creative thinking activities in the classroom. Students appeared to avoid drawing their ideas and relied heavily on mental imagery (MI), providing lengthy verbal explanations. I noted that students only reached for a pencil when the limitations of their mental processing required them to draw (Verstijnen, Leeuwen, Goldschmidt, Hamel, & Hennessey, 1998, p. 4). It was usually me who was compelled to ‘sketch out’ or make a diagram to clarify the group’s design proposals. Without a visual record of their ideas, I was unable to provide meaningful feedback.

However, despite this reluctance to draw in the classroom, I saw evidence of ideation drawing included as part of students’ assessment submissions. Some process material included mood boards, scans taken from their sketchbooks or a folder of digital iterations. A portfolio component is included in most units of the Visual Communication Design course at WSU. This material is often graded to provide incentives for students to record their design processes. This disconnect between my design processes; what students did during ideation sessions in the classroom; and what was in students’ assignments needed further investigation. Were the design students at WSU typical of undergraduate graphic design students?
For the thesis, I investigated the prior training, attitudes, and creative thinking behaviours of first-year graphic design students using a Why Draw? questionnaire. Petherbridge (2008) observes that ‘few students in the twenty-first century develop sophisticated hand-eye skills, and most drawings appear to be slight, spontaneous, expressive and gestural and often deliberately de-skilled’ (p. 31). Some students were self-conscious about their lack of drawing skills and others did not make a distinction between process drawing and final illustrations.

Mastery of rapid hand drawing was a huge advantage to the artist and designer before the development of more sophisticated computer hardware and software. It is interesting to note that quick, accurate hand-drawing skills are still valued by many designers (including my students). Petherbridge (2010) refers to this phenomenon as ‘the persistent cult of the sketch’. She observes that ‘the ability of the rapid sketch to reveal the thought processes of the artist has been remarked upon throughout history, and even today sketches continue to be regarded as the touchstone for evaluating the talent or ‘genius’ of an artist’ (p. 26). The cult status of sketching has contributed to a misunderstanding of the role of drawing in the creative process of many of my students and this has led to feelings of inadequacy in those students who state they ‘can’t draw’ or ‘don’t draw’.

Interviews with high achieving final year students provided further insights into students behaviours and attitudes to drawing. Many students did sketch ‘privately’ at home, but these drawings were not included in their assessment materials because they were considered too ‘messy’. Some students feared ‘exposure’, believing their ‘child-like scribbles’ would be judged unfairly by their teachers and peers. Other students considered making a rough sketch was a ‘waste of their limited time’ for some assessment tasks. They preferred to create and rearrange their ideas directly on the computer using the final output program. One fourth-year interviewee admitted;

I’ll just start off by saying that, normally, in my design process, I’m not a sketch person. I’m not really much of a person to just jot down ideas on paper, like write things down. I just go straight into the digital design phase, and I just immediately just start making something (Participant 5, 2018).

**Back to the drawing board?: The drawing trail**

The following drawing examples have been selected because they reflect crucial turning points in my thesis development and triggered memories and insights relevant to the discussion. I began with a sketchbook and a systematic approach which evolved over the years into a haphazard collection of partially finished notebooks, iPad sketches and scraps of paper. I used scribbles and doodles to play with ideas and combined words, images and pictorial notation while listening or reading. Hand-drawn mind maps and flow diagrams were used to scope the issues and define the argument. I also used drawing to trial drawing activities through drawing. I used rough sketches, layouts, grids and thumbnails to define the structure and design of the thesis document. ‘Drawing’
was used to re-interpret, revise and modify as the thesis progressed. Very few ‘collaborative’ drawings were produced during this process. However, many of the drawings were used to illustrate and evaluate the content and direction of the thesis with my supervisors.

I acknowledge that the following visual examples have been chosen with certain biases. Despite my background as a graphic designer, I too fear the judgment of my creative capabilities from students and colleagues. What would my rough scribbles and messy doodles reveal about me as a visual practitioner and researcher? At the beginning of this enquiry, I was quite self-conscious about the marks I made, but as the years progressed a more authentic representation of my use of drawing in my processes emerged.

**The cover page: Getting started**

The inside cover page of my first sketchbook resembles a teenage diary, drawn with care and serious purpose. I had imagined filling the pages with pencil sketches which I hoped would provide vital insights into the development of my research. My title page resembles some of the sketchbooks that were submitted by 1st and 2nd-year students in my first years of teaching at WSU (2010-2011). Some were quite decorative and carefully ‘coloured-in’ resembling a high school project book. Many of these visual diaries were actually ‘scrapbooks’ containing glued found images with little or no sketching.

The practice of handing in physical, sketchbooks or ‘visual diaries’ was gradually replaced by online digital submission a few years after I started teaching. However, design thinking activities that use drawing are still encouraged and demonstrated in the classroom of most Units at WSU. The founders of Stanford University ‘d.school’, Tom and David Kelly, encourage the use of sketching and notation and give their students the following advice:

> Instead of letting thoughts run through your head and down the drain, capture them systematically in some form of idea notebook. Keep a whiteboard and marker in the shower. Schedule daily ‘white space’ in your calendar, where your only task is to think or take a walk and daydream. When you try to generate ideas, shoot for 100 instead of 10. Defer your judgment, and you’ll be surprised at how many ideas you have – and like – by the end of the week (Kelly, 2012, p. 117).

Some of the final year students I interviewed as part of the *Back to the drawing board?* study continued to use some form of notebook or sketchbook throughout their four years of study. However, most of these students identify themselves as ‘illustrators’.

**Mind mapping: Scoping**

The second page of my first sketchbook (Figure 2) is a hand-drawn mind map. This drawing is one of many produced while writing my PhD proposal. Mind mapping helped define the issue, guide the literature review and facilitate
discussions with my supervisor before I started writing the thesis. Mind mapping is a common ideation technique used by many students and incorporated into some assessment tasks at WSU. In this diagram, I started organising my thoughts around, what I believed at the time, was the main reason why students were reluctant to drawing in front of others, lack of design thinking skills. Mind mapping is a form of drawing, using phrases, words, symbols and pictures to generate concepts and thoughts, arrange, connect and compile idea fragments into conceptual fields.

In this first mind map, I included comments received from students during my first-semester teaching; 'I can’t draw', 'It’s a waste of time', 'It’s quicker on the computer', and ‘I didn’t do art at school’. It was early days for my research, and I had not yet thought about how students were generating and developing their designs outside the classroom. I hadn’t considered that there might be some design procedures and briefs that might benefit from drawing activities more than others. It is interesting to note that this first mind map was redrawn from a previous sketch roughly drawn on the first page of my brand-new sketchbook. Sadly, this first sketch was ripped out, destroying the evidence of my first thoughts and a messy mind. Possibly I feared the judgment of my drawing and writing skills. Perhaps it was full of spelling mistakes!

From student interviews, I learned that some students believed their ‘poor’ sketches would attract lower grades, so they redrew or ‘fixed up’ their thumbnails and storyboards in their final submissions. One student commented after graduation:

> With the individual reports that we often had to do, if they said include sketches and thumbnails, I must admit, I sometimes didn’t have any. I would go back and just go, ‘Yeap, this is what it looks like now, I’ll just do a quick sketch of what it would look like’. Sometimes I did sketches, but sometimes I didn’t, and I just had to make something up a little bit (Participant 9, 2017).
Looking back on this first mind map, I can see my bias towards using drawing to generate ideas is evident in the comments. I initially saw students lack of drawing skills as the problem. I had not yet completed my literature review or fully understood the role and value of drawing in the ‘digital age’. However, this first mind map facilitated an important discussion with my supervisors, which influenced the direction and scope of my research. It was decided that more information was needed to find out what prior visual literacy skills students had, did they think it was important to have some drawing ability to be a visual communicator? If they don’t draw as part of their process, what activities did students used to generate ideas?
Visual notation: Understanding & remembering

One of the pages in my first sketchbook (Figure 3) is devoted to finding a thesis title to help clarify the direction of the research. This combination of keywords and incidental doodles could be classified as ‘visual notation’ or ‘visual query’ (Schenk, 2016, p. 177).
Keywords have been bolded and circled, and horizontal lines divide sections to provide some organisation and clarity. Many students begin their creative thinking with a list of keywords either written in a notebook or typed on the computer. I prefer to write my notes by hand as this helps me make connections more fluidly. When I made these notes, I was not aware of the research that confirmed that any hand-eye coordination could help you concentrate and remember, such as doodling (Andrade, 2010). In 2010, the results of the ‘free recall’ experiments conducted by Wammes, Meade, & Fernandes (2016) had not been published yet. Their paper argues that ‘engaging in drawing promotes the seamless integration of many types of memory codes (elaboration, visual imagery, motor action, and picture memory) into one cohesive memory trace, and it is this that facilitates later retrieval of the studied words’ (p. 1773).

My early visual ‘notes’ were initially used to organise my thoughts and help define and communicate unresolved issues with my supervisors. Terms such as ‘mishmash rehash’, ‘cut and paste reliance’, ‘lazy design thinking’, ‘done to death’, ‘copy-cat’, ‘me too’, ‘safe’ and ‘no risk’ design, reveal some of the early frustrations and assumptions I made about students’ creative processes. At this time, I began consciously drawing ‘pictures’ and finding a visual metaphor to help me remember the content and connect ideas from the literature. While this was a fun activity, it was quite slow and in the end, not practical. I did not persist with this form of pictorial note-taking and instead used highlights and annotations in Adobe Acrobat directly in texts or made notes on post-its in physical books. In the last year, I included my literature review in the analysis program, Nvivo. This software allowed me to organise and ‘code’ the interviews, literature, images, and notes into chapter themes in one location.

Note-taking is encouraged during WSU tutorials and pencils and paper is always provided in my class-rooms. However, I have noted a significant change in students’ note-taking behaviour since I began teaching in 2010. If prompted to take notes, students would often take a photograph on their phone or iPad instead of writing the information down. One student explained that this was to retain all her information in one location.

First thought drawing: Creating

Some of my first visualisations began as doodles or ‘first thought’ sketches. These drawings were drawn subconsciously, playing around with metaphors and fun ideas. Figure 4 is an example of a drawing that began as a doodle, was transformed and drawn over with a ‘second thought’ sketch, traced and developed as an under-drawing which was later scanned and redrawn. This sketch was done while contemplating the unique qualities of drawing, making the connection between hand, eyes and the mind after reading Betty Edward’s Drawing on the Right Side of the Brain (1997) and related discussions.
Students often refer to these kinds of first-thought sketches as ‘doodles’. Doodles provide a compelling ‘thinking trail’ revealing intuitive decision making not evident to the drawer/designer at the time of the doing. Doodles are common in the sketchbooks of those students who identify themselves as illustrators and often include character explorations.

The final illustration derived from this doodle was drawn using my finger on an iPad using the sketch app ‘Brushes’. The recording feature in this early version of the app resulted in an animation. This ‘replay’ of the drawing revealed how I approached the doodle and how I resolved the composition. A few years earlier, David Hockney (2008) pioneered ‘device’ drawing using his iPhone to draw and record his process using the ‘Brushes’ app. In an interview with Colin Grant (2010), Hockney reflects on the value of recording the drawing process for analysis, ‘I can see just how I’ve made the strokes to form the drawings.’ (p. 3).

Every student enrolled in the Visual Communication degree at WSU in 2013 and 2014 was given an iPad as part of their enrollment. Despite this, many students did not use this device to sketch in their creative process. Two of the twelve interviewees of Back to the drawing board? noted that they sometimes used a tablet and Sketch app to create roughs, graphics and final illustrations.

**Drawing analogies: Thinking**

When refining the thesis ‘storyline’ and structure, I returned to a pictorial approach. This decision was instigated by Michelle Fava, one of the founders of the Thinking Through Drawing Research Network, during a visit to Cambridge in 2017. Fava demonstrated her ‘one card, one concept’ approach using visual
analogy and metaphors. I was instructed to draw pictures representing keywords, concepts or metaphors, then verbalise these ideas while making changes and clarifying the drawings. Fava (2017) explained that in 'order to consider the ambiguous, we recruit symbol systems of various kinds, which allow for indeterminacy and doubt, while we engage in clarifying our thoughts' (p. 318).

At first, I was quite self-conscious about my drawings and slow to put down what was in my thoughts. Fava helped move the process along by drawing aspects of the conversation on the cards with me. When I am teaching, I often intervene to demonstrate creative thinking activities with my students. This pictorial, metaphoric approach did help clarify the argument and frame issues related to future design education, student attributes, design course entry-level skills, and employment prospects. It also presented a new question for my study; what are the consequences of not drawing in the design process? Grouping and regrouping the individual cards also helped organise the different components of the research into chapter headings for the first time.

Collaborative drawing: Communicating

Figure 5 is an example of notes taken during a conversation with a casual tutor about the use of drawing in her graphic design practice. Although I had not included pictures or doodles, this page is an excellent example of the value of writing and making hand-drawn connections to clarify points during an interview. During the discussion, I boxed the titles and subtitles, used arrows and links between the 'client expectation' and different job requirements. Speech bubbles were used to indicate another 'voice' and summarise the findings. It was 2011, and the casual tutor noted a change in the kind of design work she was doing that year.
There was an increase in design adaptations for new media platforms and variations on existing branding, which she referred to as ‘face-lifts’. She commented that some of these design tasks had low budgets and fast turnarounds, so it was necessary to start and complete the design in the final output program. She noted a change in her clients’ visual expectations and requests for computer printouts of design proposals. Her long-standing client, who used to ‘sign off’ on a rough mock-up with an accompanying colour swatch, didn’t want ‘surprises’ anymore and had asked for a printout of the final design. This change had resulted in the client making changes to the job right up to the last minute.

The key insights were that sketching, doodling, mind mapping and thumbnails were still used by this graphic designer in the design process, but these sketches were no longer shared with clients. Her experience mirrored my experience working in a busy graphic design studio the previous year. Drawing parallels to my own experience prompted the question; Is there a ‘generational use of rough sketches’ linked to pre-computer training?
Another page from my sketchbook (Figure 6) shows my visual responses to Robert McKim’s 30-circles exercises from *Experiences in Visual Thinking* (1980, p. 124). I gave myself 60 seconds to draw as many pictures and symbols that contained a circle that I could image. My visual responses can be read in chronological order reading from the top right to bottom left and reveal the progression of my thoughts. Afterwards, I listed the most apparent ‘themes’, strategies and applications that I used such as looking at; 2D and 3D shapes; positive and negative spaces; joining more than one circle; changing the nature of the circle shape and considering a different point of view.
I only considered the use of abstract patterns and intersecting shapes after I had exhausted the other approaches. It is from this drawing exploration trial that I developed the first drawing activity using a ‘squiggle’. As a child, I had fond memories watching Mr Squiggle, a popular ABC children's television program devised by Norman Hetherington in the 1960s. The squiggle was also used by the psychiatrist Winnicott in therapeutic consultations with children in the early 1970s to establish contact and rapport (Ziegler, 1976, p. 178). My definition of a ‘squiggle’ is a few random shapes and lines utilizing the visual phenomena' pareidolia'. Pareidolia is the tendency to interpret a vague stimulus as something known to the observer, such as seeing shapes in clouds, seeing faces in inanimate objects or abstract patterns, or hearing hidden messages in music' (Dictionary, 1989).

Leonardo da Vinci advocated the use of ‘untidy indeterminacies for working out composition, as he believed that they stimulated visual invention (Fish & Scrivener, 1990, p. 117). Da Vinci wrote in his notebook, ‘I cannot forbear to mention among these precepts a new device for study, which, although it may seem but trivial and almost ludicrous, is nevertheless extremely useful in arousing the mind to various inventions’ (p. 508).

To understand pareidolia better, I practised resolving squiggles every day for a few weeks and noted an improvement in the time it took me to find a picture and draw a less obvious response. Practising and rehearsing the drawing activities in this way was an effective way to think through the procedure and delivery of the Speed Squiggle activity. This activity was trialed with 1st-year design students as a ‘warm-up’ exercise as part of the Back to the drawing board? study. It was designed to provide drawing confidence, demonstrate the value of iteration and model creative thinking strategies.
Another example of my ‘private thinking’ drawings is a pictorial diagram or rough schematic (Figure 7), which describes one of the first designs of the Speed Squiggle activity. This drawing combines simple 3D elements to explain the components and functionality of the activity visually. The steps of the activity are shown indicating a possible warm-up activity, time limit, and ‘self-assess’ of the squiggle responses. Two approaches to the activity are shown. One where the user draws then sees other examples, then draws again and the second approach where the user sees the examples first and then draws their
responses. A rough note on the facing page asks, ‘Can the humble squiggle be used to indicate the level of visual literacy skills of adult learners and improve visual memory?’ I had developed grand ambitions for this Squiggle app.

Reflecting on this drawing, I can see an early attempt to find a ‘hypothesis’ and solve the ‘problem’ using a quasi-scientific approach. Would seeing other people’s squiggle responses before you had drawn your own, influence the number and quality of the final responses? This activity was trying to emulate a common design thinking strategy that I had observed in the classroom where students search for possible solutions online before adequately defining the brief. This rough schematic allowed me to talk through the thinking behind this proposed drawing activity with my supervisors before diving into the development of a computer prototype. Questions like, what is best design thinking practice? And what qualities constitute a ‘good’ squiggle response? And how would this be measured? The Speed Squiggle went through many more similar sketch iterations before it was trialled with students in the classroom. Thinking through the activities in this way ultimately saved me a lot of time.

Seeing students’ ‘first thoughts’, working roughs and digital iterations is a quick way to evaluate if a student has understood the design brief. Meaningful feedback can be given more readily over a working drawing before a design becomes fixated or set.
Figure 7: Pictorial diagram of proposed Speed Squiggle activity, first sketchbook (2011)
Flowchart: Illustrating

Figure 8 is an example of a hand-drawn flowchart. This drawing is the last entry in my first sketchbook and reflects the ambitious nature of the proposed methods for *Back to the drawing board*? Visual notation, incorporating comic conventions such as speech and thought bubbles, was used to make connections between the improvisational drawing types, the proposed research communities, and the methods and possible outcomes of the research. Different colours divide the layers vertically and flow down to the intended outcomes of the original study. The aim was to demonstrate the value of hand-eye
coordination in the creative process, encourage image-making participation in the community and improve the design thinking skills of students. I numbered the steps in the process to add clarity.

Pen and coloured markers were used to draw over the original rough pencil (under drawing). The final drawing was used in a post-graduate show-and-tell presentation. The drawing and sharing of this diagram allowed me to crystallise my thoughts around the practice-led component of my thesis. I revisited this drawing several times along my ‘research track’. The methodology and methods employed in Back to the drawing board? have changed significantly since this drawing was done and new sketches have replaced it. However, it still serves to remind me how far my study has developed.

**Thumbnails: Planning**

Midway through the thesis, my ‘storyline’ and chapter headings were formed. A structure of the whole thesis was needed in Word to plan the chapter order and titles I decided to approach the design of the thesis as if it was an Annual Report. This approach became another important turning point in the thesis development. I ‘blue tacked’ A5 pages in a line on my office wall and lightly drew thumbnails of double-page spreads that resembled a magazine or publication ‘spreads’. I then used one page per chapter to combine the metaphors and concepts derived from Fava’s workshop to clarify the content and arguments of each chapter.

These thumbnails provided a detailed breakdown of the proposed thesis content, structure and storyline (Figure 9). I was able to view the whole thesis in one eye span, which allowed for meaningful conversations to occur with my supervisors. Revisions, additions and connections were made using post-it notes. This structure was used to create headings and subheadings in the Word document and content analysis program Nvivo.

![Figure 9: Thumbnail layouts of the thesis content and structure (2018)](image)

**New drawing directions**

After a break from my studies, I had abandoned making entries in sketchbooks. My process drawing practice became haphazard. Some sketches were done on scraps of paper, post-it notes or done digitally and printed or collated in folders on my computer. Many drawings were discarded or thrown away.
From the interview responses with final year students, some students also had an inconsistent approach to using process drawing. Many of the ‘students’ visual notes, scribbles, doodles, thumbnails, storyboards and other hybrid pictorial and abstract sketches were done in private and were not included in their final portfolio submissions. They did not consider them an essential part of the process. Like my “private sketches”, students’ process drawings often resembled shorthand thought fragments that didn’t make sense to others. They were often unfinished, reworked, scribbled over. Most roughs were discarded after they had served their thinking and memory prompt purposes. Looking back through ‘my’ thinking trail I am surprised at how much text, and how little visual representations I employed. Figure 9 is a typical example of my later use of process drawing.

**Are we there yet? Pathways to drawing**

Using process drawing to think and rethink the organization and clarification of my thesis, is a demonstration of a practical application of process drawing. I found a way forward using drawing and experienced the role and value of drawing first-hand. The examples shown in this paper served to stimulate ideas, consolidate my thinking, analyze my approach and communicate this to my supervisors.

Reflecting on these drawings has provided a clear picture of my PhD journey, highlighting essential turning points in the development of the thesis argument. Comparing these drawings with those used by students in the classroom has enabled me to empathize with my students’ creative thinking practices. These experiences have added to a better understanding of their behaviours, attitudes and barriers to drawing participation which has informed the development of the ‘speed drawing’ activities.
While emerging ‘generative’ visualisation technologies and virtual reality models can provide endless iterations, they do not afford the ambiguity of a sketch. The flexibility of drawing in different mediums also adds to the argument that drawing has unique properties and affordances that contribute to creative thinking, communication, planning and evaluation. Redrawing, scribbling and making notes over drawings, crossing out and making mistakes, rearranging and making connections in one eye-span add to the reasons why I choose to use draw in the first place.

Schenk (2016) sums up the valuable role drawing continues to provide designers in her closing paragraph of *Drawing in the Design Process*; ‘Drawing can be employed to persuade or instruct, to search or record, to aid thinking or define solutions. Drawing can always be the right tool for the job, provided one is competent to use it in the right way’ (p. 212). This paper, and accompanying drawing examples provide another demonstration of the unique benefits that drawing offers the graphic designer. This discussion aims to contribute to the thesis argument that ‘process drawing’ should be encouraged and included in the creative thinking toolbox of novice designers.

**Bibliography**


About the author

Janet Saunders is an educator, researcher and visual artist. She is currently an Associate Lecturer teaching Visual Communications at Western Sydney University. Janet has held a variety of illustration, graphic design, production and project management positions within the design industry focusing on interactive online teaching resources which led to her current interest in design education. Her PhD titled Back to the Drawing Board? investigates the role and value of the rough sketch in the creative thinking process identifying ten good reasons why novice designers should include some form of ‘process drawing’ in their creative thinking toolbox. Through her design and image making practices she explores improvisational drawing strategies to develop drawing activities designed to demonstrate and foster drawing participation in the classroom.

Email: j.saunders@westernsydney.edu.au
Website: https://improdraw.com