


“Do you see yourself as someone who thinks like a designer?” [Question to a classroom teacher.]

“No.”

Educators are designers: designers of physical [designing and setting up classroom learning spaces], written [designing and writing learning and teaching activities] and digital [designing digital artefacts and learning paths] spaces for learning. One mismatch - educators are designing each and everyday without being consciously aware of their action. The six pieces of literature listed above have been chosen to critique in terms of contradictions, tensions and/or discords in their language and understanding of designing and design thinking. This may assist teachers to recognise their skill set, and how that knowledge may be helpful into the future as they conceive spaces for learning that are likely to meet the evolving needs of the students they teach, now and into the future.

Brown (2009, p. 4) believes that design thinking is a capacity shared by everyone, however, through time these capabilities have been over-looked because of more traditional problem solving strategies. This is a discord because Kimbell (2011, p. 288) has found without deep research, that understanding ‘design’ and understanding ‘thinking’ is difficult, therefore it is little wonder that difficulties surround articulating what design thinking is. Kimbell adds that despite claims that design thinking is user centred (2011, p. 289), the designer is still consid-
ered the main person within design (2011, p. 300). This is another discord with Brown, who states that design thinking is human-centred (2009, p. 4, p. 14, p. 115).

Martin in Kimbell (2011, p. 295) views design thinking as a balance between abductive, deductive and inductive reasoning as is used by managers, and is of value for businesses, e.g. logistics. Castellion’s review of Martin (2010) highlights the necessary awareness of matching the design to what is technologically feasible, in order for the design to be sustainable. This is the design process as described by Kolko (2010) and is a contradiction to Brown (2009), who describes design thinking in terms of what professional designers do and make. Despite this contradiction, Kimbell’s table showing different ways of describing design thinking (2011, p. 297) has Martin and Brown sharing the same description. This table highlights further examples of contradictions via the different ways of describing design thinking.

Kimbell (2011, p. 300) suggests that when designers have empathy with users, the designer is presented as an agent of change in the organisation. Educators/teachers are agents of change, and therefore could be considered as design thinkers. Having empathy, ‘walking in someone else’s shoes’ is what Brown (2009, p. 49) considers an important distinction between design thinking and academic thinking.

An agreement that design thinking is a process system, a method and not a theory is consistent across the chosen literature. Brown’s (2009, p. 16) view is that design thinking is non-linear and is an exploratory process, a system of overlapping ‘spaces’: inspiration which provides the opportunity for searching for solutions; ideation as a process to generate, develop and test ideas; implementation which is the path leading to the market. The overlapping oc-
curs because the process is not linear, and the designer may revisit. Brown offers another explanation: to view the overlapping spaces of innovation in terms of constraints. (Brown, 2009, p. 17). The framework for the design thinker is provided by constraints (desirability, viability and feasibility) which the design thinker has brought into balance. Design thinkers, according to Brown (2009, p. 21) have to navigate between these constraints because they have shifted from ‘problem’ to ‘project’, which is the vehicle to take the concept to reality.

Kumar (2012, p. 13) believes that understanding the design innovation process is a requirement towards achieving reliable innovation - including understanding the specific activities at different stages of the process. Kumar bases the process around four principles: building innovations around experiences, thinking of innovations as systems, cultivating an innovation culture and adopting a disciplined innovation. (Kumar, 2012, p. 3-7). Whilst Kumar’s process appears on the surface to be in agreement with Brown as being nonlinear and iterative, underneath there are contradictions arising from the more prescriptive nature of Kumar’s system.

The language of the design thinking process is contradictory and awash with discords, which provides challenges for designing spaces for learning. Innovation is used by Brown as a continuum (2009, p. 16) - a system of overlapping spaces: inspiration, ideation and implementation [as discussed earlier]. Kumar (2012, p. 1) defines innovation as a noun, ‘a viable offering that is new to a specific context and time, creating user and provider value.”

Kuratko, Goldsworthy & Hornsby (2012, p. 104) define innovation as “the extended process of providing the artefact to a larger audience.” Throughout her literature review, Kimbell (2011) uses ‘innovation’ on fourteen pages, without definition, however, always in the context of design thinking. Kimbell (2011, p. 296) introduces the term ‘social innovation’, with-
out detailed discussion or explanation. Kolko (2010) does not define ‘innovation’ despite using it in his synthesis, whilst throughout their literature review Razzouk & Shute (2012) make no mention of innovation. This discord potentially adds confusion for the novice design thinking educator should they embark on utilising design thinking when designing spaces for learning. Would creativity be a synonym? Kuratko, Goldsworthy & Hornsby (2012, p. 104) suggest that “creativity, design, innovation and entrepreneurship are related terms and influence each other.” Another discord from Kuratko, Goldsworthy & Hornsby (2012, p. 109) where they state that design is the same thing as innovation. As well, Kuratko, Goldsworthy & Hornsby (2012, p. 104) introduce ‘entrepreneurship’ into the design thinking mix, suggesting that entrepreneurial behaviour is imperative if the idea is to be sustainable, for the design to become marketable and to be finally available to the targeted audience. In an educational environment, there are possibilities for linkages with the work of Zhao (2012) and Robinson (2011), who believe that entrepreneurship and creativity are necessary in twenty-first century. Kimbell (2011, p. 293) candidly uses ‘entrepreneurship’ in a caption to an image, and no other author mentions the concept.

Diagrammatical representation of the design thinking process is a discord for educators as they attempt their design thinking journey. Kuratko, Goldsworthy & Hornsby (2012, p. 105) show the relationship between design, innovation and entrepreneurship as concentric circles resembling a ripple effect of a rock thrown into water: design leading to innovation, to entrepreneurship, creativity and proactivity as interrelated concepts. Kumar (2012, p. 7) suggests a mind map superimposed over concentric circles to connect and integrate the concepts. Kumar separates business and technology-driven innovation from design-driven innovation. Castellion (2010) in his review of Verganti’s text, highlights design-driven innovation as a man-
agement of innovations that customers do not expect but eventually love. (The iPod and related products are examples.). Kolko (2010) provides a simplified visual for the synthesis process, and reiterates that the process is not linear as it has been represented. Brown (2009) offers three rudimentary visuals to demonstrate the design thinking process: p. 65 demonstrates the emotional positive and negative ‘ride’ of hope - insight - confidence; p. 68, a visualisation of divergent thinking of the initial possibilities and convergent thinking as the narrow solution; and p. 161, the “Ways to grow” matrix to evaluate the innovation efforts of a company.

Brown (2009, p. 26-27) discusses smart teams - all of us are smarter than any of us. This is evident in participatory digital culture, and is fundamental in Brown’s design thinking. This is another discord. He distinguishes between multidisciplinary and interdisciplinary teams, preferring the latter because “there is collective ownership of ideas and everybody takes responsibility for them”. (Brown, 2009, p. 28). Kimbell (2011, p. 287) uses the term ‘multidisciplinary’, without definition other than to say they ask the ‘what if...’ questions.

Walker School’s brief, Dear Architect, is a design thinking project involving all the users in the immersion/inspiration stage of the design thinking process. In this example, the learning for the architects would have been considerable and would provide a valuable experience for future projects as they have learnt collaboratively from the full gambit of users in an educational facility. This design consideration, and the involvement of teams has a powerful influence on the resulting design brief. This is in contrast to the school undergoing a major [re]building programme, where Lee (2014) recognises that the opportunity for all users to participate in the design thinking of the physical space is lost. However, there remains an op-
portunity to apply design thinking to the organisation processes associated with the fit out of
the new [re]built spaces.

Alpha Cindy Avita High School, a member of the Alpha Public Schools in San Jose, California (Alpha Public Schools, 2014, p. 2) explains its choice of design thinking for the design of their new high school. The choice was based on the human-centred nature of design thinking, “…we needed to clearly understand our students’ and families’ [‘our users’] needs within this context, not as we interpreted them, but as they did through their experiences.” This articulation is recognisable as that of Brown (2009), not Kumar 2012) who notes the ‘experience’ being that of the designer alone.

Plemmons (2012, p. 9) gave students iPads to wander the halls of the school to survey students as part of the design thinking process: another example of the design consideration to include the users. The result was successful - the development of a participatory culture in the library. Students know that they have a voice in the decision making process and now openly contribute their ideas to improve the library’s programmes.

The Unquiet Librarian (2013) describes as a ‘third party’ recount of the experience of using design thinking at the Lovett School Story Studio. The focus for this design thinking appears to be on ideation of the space, without the involvement of the student users. Despite this, the Story Studio is heralded as a success.

Lee (2014) mentions the lack of input opportunities in the design phase of the [re]building at the school. This is regrettable because ideas from students and teachers who will occupy the
space into the future are lost. However, of greater concern is that this appears to be a regular pattern in many schools. There is a distinct lack of design thinking transferring into the designing of spaces for learning. “Building the Education Revolution” [BER] was discussed as a ‘windfall’ to Australian schools, despite evidence where local users were not consulted or included in the design process. Examples where the local school communities took the planning process to account were reported in national newspapers. (e.g. The Goanna, 2009).

Nothing changed, the buildings progressed. As a result, Australian schools are littered with e.g. expensive libraries [without qualified staff to manage the spaces], school halls which are unable to accommodate the school population and often without meeting environmental considerations [e.g. air-conditioning alone, no overhead fans; rainwater tanks - without being able to harvest the water]. Clearly a lack of design thinking to involve and include the users, or maybe the problem caused by the constraint of time and urgency.

The key principle from the literature which has transferred most to the successful practices which have been cited, and has been most successful, is the inclusion of the perspectives of the users. Brown (2009, p. 229) consistently refers to this as “human-centred”. Brown (2009, p. 236) suggests not asking ‘what?’, rather ask ‘why?’. This matches the curiosity of young children, which add value to Patsarika (2014), and is being considered by Lee (2014) in a design thinking task, nurturing creativity from a young age. The challenge is to keep this creativity going throughout schooling and into adult life. (Brown, 2009, p.222).

A theoretical consideration from the literature which does not appear in real world practice, is the connection between theories of learning and design thinking. Design thinking is not a theory, rather it is an approach to thinking about design, a method. Design thinking is there-
fore accessible to ‘lay persons’, rather than being linked to professionals e.g. architects and fashion designers.

Limiting design thinking to physical spaces does not take into consideration design thinking for teachers designing pedagogy. Research from Carroll, Goldman, Britos, Koh, Royalty & Hornstein’s (2010, 39) took design thinking into K-12 classrooms to research design thinking in classrooms. Their method was guided by the sociocognitive view of learning as espoused by Vygotsky. This social view of learning supports twenty-first century learning skills of communication, collaboration, creativity and critical thinking. They found that students saw themselves as change agents and they demonstrated empathy in relation to understanding human needs. (Carroll et al, 2010, p. 45). Both of these are essential to design thinking.

Hattie (2012, p. 104) states that to teach well requires a deep understanding about how we learn. Hattie’s seminal works, Visible Learning and Visible learning for teachers focus on being ‘visible’: student learning visible, making teaching visible. Hattie (2012, p. 42-43) bases his work on Piaget’s theory of learning, and how children develop their thinking through stages. As teachers embed Hattie’s visible learning and visible teaching, learning intentions and success criteria into their teaching cycles (e.g. Lee, 2014), teachers are becoming change agents. As well, at this school (Lee, 2014), Mathematics is taught across K-6 by Extending Mathematical Understanding [EMU]. (Gervasoni, n.d.). Teachers are collaborating, visiting and observing each other’s practice in a safe, collegial environment where authentic feedback is welcome and requested. Risk taking is becoming part of the culture. The classroom environment is positive and supportive for students and their risk taking. The question might be
asked: Where does design thinking fit in this schema? The answer is that it is just below the surface, ill-defined and with a little tweaking will become part of the ‘way things are done’.

Makerspaces (Martinez & Stager, 2013, p. 45) are examples of design thinking as students follow a nonlinear iterative process as they ideate and prototype authentic design creations. Learning theory behind Makerspaces is constructionist and they present a unique opportunity to live out ‘there’s no such thing as finished!’ Again, Kelley, in conversation with Tischler (2009) reiterates that children are naturally creative, until the education system affects them.

Nussbaum (2010) suggests that design thinking is a failed experiment, and has moved on to another framework: creative intelligence. Nussbaum puts the failure at the feet of those who turned the thinking into a linear process. However, this author believes that what design thinking has done is provide a process for the creativity in humans to be rekindled. That is not failure; that is success.

Differences across the design thinking considerations can be reconciled by following ‘one’ rather than ‘many’. Kelley, IDEO partner of Brown, started ‘design thinking’. Kelley (2009, in conversation) reflects on this, “it's the most powerful moment that words or labelling ever made.” The reason being that design thinking is a method, not a ‘thing’. With this in mind, educators who are masters at methodology, would be advised to follow Brown (2009) as his work is authoritative. By doing this, it is anticipated that educators will see themselves as design thinkers, taking their skills forward to design spaces for learning into the future…and with a copy of IDEO (2012) in their bag.
“Do you see yourself as someone who thinks like a designer?” [Question to a classroom teacher.] “YES.”

References

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