intermission

As an inductive study, it is not built on theory, but on data. It is active and alive. When I introduced the 'plug-in' workshop, I realised the emphasis on the process of asking 'how', instead of 'what'. The workshops continued one after the other, without me having knowledge of all the related literature that would later become integral to understanding the biopic analyses and contextualising the findings of the relational syntheses. I started to understand the meaning of an inductive study, where the qualitative data analysis guided the theory identification because of the concepts and themes emerging from the students' work.

To be honest, my exposure to practitioners in the field, their processes, tools and techniques provided me with an initial understanding of other ways of critical and creative design inquiry, as compared to theoretical views or academic literature. I am grateful for introductions to practices whilst in Chicago – passionate and committed individuals, meeting some in person and pursuing desktop studies on others. Networks of like-minded persons and practices, representing informal or other ways of design engagement, within spatial design that combines education and practice. I am excited to be presenting the literature review in an integrated format that combines all voices – design pedagogy, professional design practice – and feel that the overlap or interrelation is the point where the magic of possibilities for engaged learning lies.

PART B SITUATING THEORY: ACADEMIA AND PRACTICE

Theoretical foundations and professional practice interpretations

The literature review is an integrated discussion to investigate the interdisciplinary nature of transformative learning in the context of design studios where spatial problems are being explored. It explores how disruptive tactics upset the status quo of design practice in the studio environment, to become stimuli for transformation when various perspectives are acknowledged and internalised during the design process. It formulates a narrative to explore the potential value of empathy, including rival opinions and furthermore considers normative dissociation to adopt an 'insider's voice' on complex design issues. In the process, it reveals how another approach can prompt connectedness and meaning-making within the milieu of design education, by considering theory from designerly thinking and design thinking. Competing positions and criticism are considered to obtain an understanding of different views. In addition, practice formats and conventions typical of industry provide an overview of current and active ways of engagement to delve deeper into design issues.

The review weaves emerging developments in the discipline and profession with that of disciplinary specific theory and intends to demonstrate the validity of exploratory practices in the educational design studio, and its relation to industry. In addition, it considers the opposite, how the nature of the profession informs the relevance and validity of educational activities to promote transformative engagement. In this way, the interrelation draws a holistic picture of the aspects under investigation, with active links between the chapters in *Part B*. The literature review demonstrates the significance of intersections between disciplinary fields, and the integration possibility from a research *through / by* design approach. The related literature is therefore presented in terms of a collective understanding crossing boundaries in an interdisciplinary approach, and not disciplines as individual silos. Therefore, the researcher is considered a strategist in assimilating and interpreting the literature, and not an expert in all individual fields.

The review aims to demonstrate the challenges still facing design education, and the search for other methods to expand the traditional 'mechanistic pedagogy' to a 'systemic pedagogy' (Salama 2005). Seminal texts, landmark studies and current sources are integrated to refine the dialogue in search of modalities in spatial studio engagement that are underutilised and ignored. The investigation focuses on discovering how the affective domain development can be revealed through active student participation in order to reveal whether emotionally connected learning is possible and how it could benefit transformative development. The inquiry includes potential shifts in worldviews, by considering ontological shifts and epistemological transitions.

Part B is divided into three chapters, *Chapter 2*_Disruption by dissociation, *Chapter 3*_Human-centred design and *Chapter 4*_Transformative engagement, each dealing with pertinent aspects as set out in the three research sub-questions:

sq1 *How does the insertion of a disruptive action by dissociation as designer, influence meaningful connection and design action?*

Chapter 2 introduces disruption as a way of engagement in the architecture studio and starts with an overview of the traditional design process in spatial design. The investigation expands to consider other ways, hybrid tactics, which promote connected learning and transformative engagement. Examples from practice orientate the discussion of disruption to compare its different uses. A discussion on research *through / by* design contextualises the understanding from discursive design, creative arts and architectural perspectives.

'Dissociation of self' as designer is contextualised as an action of disruption in the search for deeper understanding and meaningful connection related to complex design issues. It discusses disruption as part of a hybrid design tactic approach and not as a method in itself. It becomes an act of inquiry during the conventional spatial design practice, in order to supplement the familiar and traditional design process. Normative dissociation, as a non-pathological concept, is introduced as a way of relating to the user's intangible and unspoken needs and requirements directly, by presenting examples from the performing and creative arts.

sq2 *How can the adoption of a human-centred approach expand an empathic understanding when dealing with complex spatial design issues?*

Chapter 3 revolves around human-centred design (HCD) by considering the potential interrelation between two historically separate, but related concepts, design thinking (DT) and designerly thinking (DℓT). The literature review reveals noteworthy overlaps in the methodological approaches, although not necessarily acknowledged in academic research. The notion of empathy is explored as part of a human-centred approach, as framed within DT. It is explained in relation to its development, use and critique it has received. DT is furthermore contextualised in relation to DℓT that is considered the precursor of DT. This study speculates on the value of an integrated approach, combining DℓT with an academic / research focus (design knowledge) and DT that is practice-driven (design knowing). It is investigated in the context of complex design issues within the educational design studio, where students' transformative engagement is the focus.

sq3 *How does the shift to insider perspective transform design thinking in students to reveal other design agendas?*

Chapter 4 discusses transformative learning from the perspectives of student cognitive and ethical development, reflective practice, but also within the affective domain and considerations for connected knowing. It provides a background to determine whether a shift towards a human-centred design culture can be identified with related design attitudes, values and ethos to underscore a design culture of a 'connected' perspective. Premise reflection and challenging worldviews are integral to this discussion, which is contextualised by the students' learning ecologies. The final discussion challenges the idea of transformation as a linear, sequential process, versus an open flexible plane for exploration.

Chapter 2 DISRUPTION BY DISSOCIATION

dis•rup•tion noun.

The act or process of disrupting something, a break or interruption in the normal course or continuation of some activity, process, etc (Merriam-Webster Dictionary 2021).

Chapter 2 explores literature related to the idea of disruption as part of the methodology when dealing with complex design issues. As a disruptive design approach for systems change, it is intentional and "about finding ways of reimagining the status quo to make the old obsolete and the new possible, desirable, and sustainable" (Acaroglu 2017:5, 7). The intent of disruption is understood from a design practice perspective and is explored in the context of spatial design education.

dis•so•ci•a•tion noun.

The act of process of dissociation, the state of being dissociated…The process by which a chemical combination breaks up into simpler constituents (chemistry)…the separation of whole segments of the personality (as in multiple personality disorder) or of discrete mental processes from the mainstream on consciousness or of behaviour (psychiatry) (Merriam-Webster Dictionary 2021).

Literature regarding dissociation is founded in psychiatry where an understanding of aspects of dissociative mental disorders are explored in relation to non-pathological dissociation, which are naturally part of our daily lives (Butler 2006). The phenomenon of shifting between dissociative states is also considered (Sar 2014) in the context of a human-centred design approach, where students are expected to 'put themselves in the shoes of the user' and experience design issues from another perspective.

Disrupting the *status quo*

Architectural design education

Discourse on spatial design education, with particular emphasis on architecture, expresses a need for a paradigm shift from "the static domain-knowledge traditional approach" to an "interactive dialogic approach" to learning (Salama 2015:6). This ongoing debate received much attention in the 2000s, becoming a springboard for future and contemporary criticism, with the writings of Pilling and Nicol (2000), Salama (2009) and Harris and Widder (2014). This discourse supports a wide inquiry into architecture and spatial design practices and design pedagogy, with critical discourses in a variety of conferences globally. The 2019 conference presented by the international research organisation, Architecture, Media, Politics, Society (Amps), titled *Education, Design and Practice: Understanding Skills in a Complex World*, focuses on the relationship between practice and education, especially in an increasing complex world that requires interdisciplinary work to address complex challenges in the built environment (Amps New York 2019). Keynote speaker, Penny Deamer, presents a provocation and argues that architecture is rhizomatic and impure. Therefore, a systemic way of thinking and agency beyond design is required to address challenging issues in the world. She furthermore states that a

broader sphere of knowledge can support design scenarios which are no longer object based, by adopting multi-scalar views with real-world projects.

Various other presenters from higher education institutions address the notion of alternative methods, tools and techniques in the studio from a variety of design disciplines. Explorations encourage more engaged learning opportunities and experiences in which students can challenge familiar practices in favour of exploring new design pedagogies as other ways of design inquiry (Kenniff 2019). In addition, presenters from practice present qualitative ways of engagement, reporting on real-life projects by discussing multiple qualitative ways of inquiry in the field (Leblanck & Candau 2019). Noteworthy is the dialogue between the profession and education, concerning design inquiry. The papers show interrelated potential for expanded design inquiry in the educational design studio, as the profession proves the value and benefit of introducing rigorous methods of active engagement. In another milieu, an open online repository for hybrid design methods focuses on active involvement from participants to support the practice-led developments for engaging communities in design (Stein et al n.d.).

In this light, Salama (2012:2) argues for "a new thinking about architectural education and design pedagogy" that due to its complexity and intricacy, require "different modes of knowledge production" by shifting from a 'mechanistic pedagogy' to a 'systemic pedagogy'. This can be achieved by refocusing the former's outdated principles and practices, on student-centred learning. Real world projects, combined with holistic and collaborative skills, elicit curiosity about challenging design issues, to create life-long learners (Salama 2015:6).

> It is a sad fact that most design studios do not encourage a more holistic approach to architectural education, one that promotes awareness of social-cultural and environmental issues, collaboration and teamwork, dialogic learning, sensitivity to and awareness of differences, critical discourse, innovative design, and technical competence. Hence, there is a glaring need to harness and holistically form a student's sense of self, identity, and place through responsible teaching practices and activities (Salama 2015:9).

Research shows that architecture schools are increasingly searching for ways to be agile and remain active in their inquiry, amidst a multitude of institutional obstacles (Spiller & Clear 2014:13). However, the emphasis on problem solving and formal investigations (Awan et al 2011:27) remains a challenge for renewal of design investigation, with the "… dominance of aesthetics, style, form and technique in the usual discussion of architecture …". According to Till (2009:167), problems consider the past, and agency hopefully addresses the future. This shift in emphasis could be the stimulus needed to transform design engagement in the spatial design studio. Salama (2012:6) supports this notion by introducing appreciative inquiry that focuses on transformative human systems and identifying positive aspects, as an alternative to problem solving, which relies on fixing what is wrong or broken (Hammond in Salama 2012:6).

This modified perspective brings opportunities for transformations on many fronts, from the development of the student, to a re-alignment of complex issues as design focus. Living situations are mutating, the world is becoming more mobile and temporal in the way we engage with spaces due to technological advancements that allow for asynchronous, remote and indirect work (McCullough

2005:xiv). In comparison, flux extends to contingent scenarios of living and "volatile aspects of building" (Awan et al 2011:27) that requires considering agency, over objects, and highlighting the social, by "negotiating a new set of social relations, to think outside the norm, in order to project a new spatial, and hence social, conditions" (Till 2009:167, 169). The discourse in architectural pedagogy is "calling for a more socially and politically engaged role for architecture, I argue that it is design research which can really drive new agendas" (Fraser 2013:13).

> But architecture is becoming increasingly complex and we face challenging times requiring new kinds and more comprehensive skills and modes of thought. [...] Besides, architects are designers and should apply their design skills to more than buildings (Buchanan 2012:17).

The unpredictable and contingent factors related to spatial design bring an "inevitable condition" in which "a dynamic context of networks" are to be negotiated (Awan et al 2011:28). Contingency and agency therefore become integral considerations in situations where people fluidly and temporarily appropriate space. The production of space, as a social act (Lefebvre 1991) that is a "shared enterprise", dynamic and temporal, becomes a political gesture of assuming power, interaction and control (Awan et al 2011:29-30). The effect of this political understanding brings the role of the architect or designer to the fore, by questioning the traditional position as an expert who has limited power and therefore should be seen as an agent, instead (Awan et al 2011:28, 31). In support, Till (2009:183) explains that the architect or designer enables and empowers, and is in service of, others. In this way, the emphasis on tectonics and aesthetics is seen as superficial, compared to the social and ethical elements and relationships that are integral to rich social contexts.

Reynders (2012:2) echoes this view by referring to an "enabling design culture" or process, aiming at "enabling social infrastructure that redefines notions of the body, of temporality and of belonging within the everyday." Moreover, the shortcoming that Till (2009:112) identifies when the designer becomes an "agent of control", is shared, and therefore this study proposes the role of the architect as an 'agent of contingency and change'. Design inquiry without "a degree of curatorial obsession" and "without the desire to arrive at a universal truth" (Reynders 2012:3, 6) is advocated.

The refocus of the emphasis on the context, situation and scenario, as well as the user, reveals a complex condition that both the designer and user wants to understand in depth. In *The Semantic turn: a new foundation for design*, Krippendorff (2006:xiii) argues for an understanding of design as a sense-making activity. He argues different interpretations, from intentional interpretations, experiences and perceptions through design to the user's understanding of products and concludes that "[m]aking sense is the result of human activity as well, but not as tangible as objects often are" (Krippendorff 2006:xiii). The emphasis on product design relates directly to spatial design, as meaning is not only found in relation to products, but also to spaces. Thus Krippendorff (2006:xv) asserts that:

> Design has to shift gears from shaping the appearance of mechanical products that industry is equipped to manufacture to conceptualizing artefacts, material or social, that have a chance of meaning something to its users, that aid larger communities, and that support a society that is in the process of reconstructing itself in unprecedented ways and at record speeds.

In addition, Forester (in Till 2009:168) suggests to replace "the normative metaphor or design" with "the idea of 'sense-making'." Buchanan (2012:10) motivates for the consideration of the experiential to connect to deeper experiences in an educational context, for students to become attuned to a finer articulation of their observations and understandings. Furthermore, Alexander's (2002-2004) four-volume book series, *The Nature of order*, redefines "architecture for the 21st century as a field, as a profession, as a practice and as a social philosophy" (The Nature of Order n.d.). Book Four, *The Luminous ground*, reveals the essence of his search for meaning in architecture by concluding the need for balance between the objective, mechanical manifestation of buildings, and the spiritual, emotional and personal to be the foundation, as a "new cosmology" (The Nature of Order n.d.). The search for the intangible and emotive in design is considered in the split-brain theory of Salama (2012:5), arguing that "architectural education is unique since it requires the full activation of the two sides …" where left is associated with cognitive thinking, and right with a holistic and relational understanding of parts.

Historically, deliberate disruption is visible in the 'Radical Architectures' of the 1960s and 1970s, "a time when traditions were questioned, destabilised, undermined or even destroyed" (Colomina 2012:2). This came in light of the position of architecture in a socio-political context with the rejection of the pedagogy of the Beaux-Arts School in 1968 and the burning of the Yale School of Art and Architecture in 1969. Further student uprisings were prevalent in other areas of the world, also addressing pedagogical concerns, and furthermore to destabilise traditional structures of institutions (Colomina et al 2012:3)

> With a typically short lifespan, these diverse experiments often found one of the following ends: abandonment or dissolution; assimilation into a generic mainstream education; or termination due to financial and/or political constraints. Many radical pedagogies trace an art typical to avant-garde practices, from radicality to conventionality, from subversion to institutionalisation. And yet much of the discipline's strength came from these experiments. They affected the institutions that swallowed them up and they lie within the discipline, waiting to be reawakened by another generation… (Colomina 2012:6).

The Radical Pedagogies is a research project by Beatriz Colomina and an ongoing group of PhD students investigating "radical strategies of architectural pedagogy", asserting that the discipline can best be changed by revolutionising the way it is taught by forming new relationships to "technological, social-political and cultural transformation of the time" (Colomina 2012:1). The practices of this approach as captured in the book: *Radical pedagogies: architectural education and the British tradition* (Froud & Harris 2015) receives criticism, when a subtler voice is identified as something other than radical, in an attempt to "define what is at the core of architecture" (Day 2015). The criticism opens the dialogue whether these pedagogies are not reactionary instead of radical, in the fact that they explore situations and user requirements, human needs, utility and comfort of enjoyment (Day 2015).

Perhaps that is why triads of design engagement find their way into design literature, to connect deeper, by considering various ways of operating in a design project. 'Think', 'make' and 'share' (Reynders 2012:4), 'think', 'feel' and 'do' (Fisher & Clarke 2012), 'see', 'feel' and 'change' (Brown in Mezirow et al 2009:10) and 'say', 'do' and 'make' (Sanders in Tharp & Tharp 2018:75) advocating complementary modalities, which each elicits different responses and representations. Upon closer inspection, some

are assigned to a cognitive understanding and way of generating knowledge, 'think' and 'see'. While 'feel' is associated with subjective meaning-making, and the combination of the split-brain (Salama 2012:5), 'make' and 'share' allow for design responses. The two modalities, allowing for engaged action, 'do' and 'change' highlights social agency (Resnick 2016) in the design studio, where the student or designer is motivated and committed to make positive self, or design scenarios. This could be why supposed 'radical' interventions go unnoticed, not because they are radical, but due to its integrated and relational immersion and understanding of complex design challenges.

Change becomes possible when the student in design education or the designer in practice, adopts a social constructivist or anti-positivist worldview. This approach acknowledges, respects and embraces the understanding that there are no universal laws or rules, but that people and communities construct their own realities and ways of being in the world (Salama 2012:6). Transformative learning also speaks to shifting worldviews (Mezirow 1991:107-108). This is significant for design education because transformation only becomes possible when the designer is confronted with personal prejudices and judgements relating to individual 'points of view' and 'habits of mind' (Mezirow 1997:5-6). Simaan (2020) demonstrates this in a study of transformative education in the Global South, through critical consciousness, awareness and reflection.

Interior architecture's expanded field

The expanded mandate of the discipline of interior architecture offers an engaged attitude to the spatial design disciplines, which includes environment-behaviour approaches (Poldma 2009:266) in the way new spatial typologies are emerging. The urban condition is increasing in complexity, with blurred thresholds, urban interiors, multi-scalar scenarios (Attiwill 2009). This brings a revised understanding of the discipline that has expanded over the past 20 years from interior as enclosed building typology, to the notion of 'interiority' as possibility that enables spatial manipulation as a 'condition', instead (McCarthy 2005:112-113).

McCarthy (2005:112) refers to Bachelard in *The Poetics of space (*1958/1994) when he describes spatial elasticity, she notes: "Interiority (climatic, physical, psychological, social) is the point at which the understanding of what an interior is becomes elastic". This is interior architecture's response to complexity – fluidity and contingency embedded in living scenarios within the environment, as energies and forces to construct situations (Attiwill 2011:16-17). It becomes a way to mediate the urban condition that is in constant flux, for meaningful living encounters and experiences as "the in-between, momentary and fluid experiences that one encounters while moving through such blurred boundaries" (Atmodiwirjo & Yatmo 2019:108). Lee (2009:2) makes the argument for interior territories that are situated and "uncover emerging spatial and temporal practices alongside the material and immaterial ecologies …"

This understanding of the interior as an expended field, expresses interiority, infused with meaning through social relationships. Giunta (2009:59-60) refers to a "transition from *urban place* toward *environmental system*" by considering three actors: bodies (social component), objects and spaces

(relational system of thresholds). In this way, the understanding of interiority and intimacy (McCarthy 2005:117) crosses multi-scalar urban conditions to reveal at its core, relational spatial scenarios with people at the core.

An implied decolonised design pedagogy

The related understanding of interiority and the human condition referred to above provides the grounds for an implied decolonised design pedagogy embedded in this study. "Decoloniality is a humanising and liberating force" and Mabhena (2016) further explains decolonisation as thoughts, ideas and beliefs of individuals or groups, and decoloniality as its practice. Fataar (2018:vii) argues for the inclusion of indigenous and non-Western thinking and practice to restore a "full incorporation of humanity's knowledge systems". Santos (2016) concurs by advocating for relevance of plurality and ecologies of knowledge in diversity of intercultural translations of the Global South. "This body of knowledge needs to have ownership by all cultural groups in a way that facilitates accessibility, empathy and sharing" (Fisher et al 2017).

In the context of design education, decolonial thinking lies in both the content and process of design engagement to express cultural hybridity (Fisher et al 2017). They further discuss storytelling as vehicle to explore various identities, visual mediums to reveal multiple intelligences (after Gardner 1983) and the need for compassion to better understand various living situations. Simaan (2020:7) reflects on an occupation science education project that uses different immersive and reflective activities, to question how students "position themselves in relation to the community studied". In addition, "how they reflected on themselves as collective occupational beings embedded in their own communities …" (Simaan 2020:2). Lessons learnt reveal awareness, positions, approaches and alternative methods, highlighted through alternative processes of learning. This epistemic reflexivity (Whiteford & Townsend in Simaan 2020:9) surfaces multiple voices of the Global South's knowledge production and ways of knowing. Wilson (2008:6, 10-11, 39) shares and celebrates indigenous research methods that are focused on building relationships, relational accountability and worldviews as a circular approach.

> … I hope that you will come to see that research is a ceremony. The purpose of any ceremony is to build stronger relationships or bridge the distance between aspects of our cosmos and ourselves. The research that we do as Indigenous people is a ceremony that allows us a raised level of consciousness and insight into our world.
>
> *If research doesn't change you as a person, then you haven't done it right* (Wilson 2008:11, 135).

Berlanda (2017:71) argues for a systemic reform of architectural education, moving beyond the understanding of architecture as the built form, "to develop responsive architectural solutions to the social, economic and environmental realities facing the built environment". Moreover, he cautions against considering heritage separate from context and history and expresses the potential for "new epistemologies South of the Equator", to emerge (Berlanda 2017:72). Decolonisation of education furthermore includes empathic-reflective-dialogical re-storying as teaching strategy in a religious education project, to "empower students as agents of their own learning" (Jarvis 2021:68, 74). In this

project, identity capital (after Hermans 2010) enables students to move between various positions or perspectives, self-narrative assists with new constructs of experiences and re-storying create "new interpretations of lived experience" as "co-production of new knowledges" (Jarvis 2021:71-72).

This short discussion on an implied decolonised design pedagogy sets the scene for the study to unfold, as the concepts and ideas shared above are embedded in the plug-in workshop, the design approach and attitude to studio engagement. It outlines the context for theoretical investigations and constructivist interpretations of data analysis and reveal findings in an integrated and inclusive way. This is an attempt to delve deeper into the intangibles of life and living and the complex socio-political interactions being enabled or constrained in the built environment.

Relationship: science and design

The way we view the world and make sense of its complexities through design, present opportunities to engage with academic rigour in the spatial design studio. What does this mean for research in the context of design and of professional practice? In an article, Cross (2001) outlines the trajectory of the design science development from the first intent to introduce 'design as a science'. In addition, the 1962 *Conference of Design Methods* in London, presents a positivist approach to design methods in the context of engineering design (Jones & Thornley in Cross 2001:1). Archer (1965) contributes with his completed PhD thesis, titled *The Structure of Design Processes*. He aims to identify and establish design as distinct from the pure sciences and recognises not only Design Research and its methods of design, but also its ontology (Davis & Gristwood 2016:1). Simon's (1969), *The Sciences of the Artificial*, supports this notion, by promoting a systematic design process. These assertions of 'design as a science' compared to 'design as a profession' elicit reaction due to the systematic focus to design. As a result, the inquiry receives much criticism in the 1970s, especially from (Alexander 1964) and (Jones 1970), due to the advocating for a rational approach to design (Lawrence in Davis & Gristwood 2016:2-3) over an intuitive response. "I dislike the machine language, the behaviourism, the continual attempt to fix the whole of life into a logical framework" (Jones in Cross 2001:2).

The unstable context of the late 1960s puts this discourse of design science in perspective. Rittel and Webber (1973) refer to 'wicked' problems, which cannot be solved by the same systematic processes applied to address 'tame' (Cross 2001:2) or well defined problems. Cross (2001) identifies a number of new journals of the 1980s and 1990s that continue the discourse. However, with limited practical applications to support the scientific research (Cross 1982). Gregory (in Cross 1982:122) articulates the focus on 'problem' from a scientific perspective, to the constructive approach concerning 'method':

> The scientific method is a pattern of problem-solving behaviour employed in finding out the nature of what exists, whereas the design method is a pattern of behaviour employed in inventing things…which to do not yet exist. Science is analytic; design is constructive.

Cross (2001:3) clarifies the relation between design and science by identifying three understandings, scientific design relying on scientific methods to address complex industrial problems; design science

requiring scientific knowledge and a systematic design; and the science of design or the study of design investigating design practices and methods, procedures and techniques, the latter referring to design as a process, being constructive.

> There may indeed be a critical distinction to be made: method may be vital to the practice of science (where it validates the results) but not to the practice of design (where results do not have to be repeatable, and in most cases must *not* be repeated, or copied) (Cross 2001:2)

This statement by Cross (2001:2) does not take into account that 'method' could also be used in design where the aim is not to solve problems, but to consider 'method' as an exploratory process, instead. In this light, science can be connected to the designerly thinking's concept of 'solution-led goal analysis' (Cross 2006; Krippendorff 2006) and 'method' to 'dialogue with the situation' (Cross 2006). This notion relates to *Chapter 3* – 'Human-centred design' and to 'discursive design' (Tharp & Tharp 2018) below.

Mini-summary

The literature shows that both the search for a 'science of design' and the developments of 'design as a practice' within the spatial design studio, experience the systematic, objective and rational as an obstacle to immersive and engaged design encounters that are robust enough to address ill-defined problems and scenarios that are temporal, contingent or fluid. The traditional scientific methods remain outcome and product driven, compared to the constructive approach that utilises process, with understanding as outcome. To follow is a discussion on the various design domain positions and the relevance of discursive design, especially in the context of design inquiries not aiming to solve problems, but to provoke. This aim, unaccustomed to spatial design, is explored for usefulness to deepen design understanding and to ask better questions.

Research domains and tacit knowledge

Friedman (2008) argues the relation between theory construction and the domains of research in a critical article, scrutinising Freyling's (1993) research paper, *Research in Art and Design*. His criticism is that Freyling's notions of research *into* art and design, research *by* art and design, and research *for* art, are not understood well in relation to explicit and tacit knowledge and that reference to these are made without proper regard for its application (Friedman 2008:155). 'Research *into*' relates to research into various theoretical perspectives and 'research *for*' with the aim to produce an artefact for communication or representation. In addition, he describes 'research *through (by)*' as materials research, development work and action research as a practical inquiry (Freyling 1993:5). Friedman (2008:154-155) finds the creation of knowledge when using 'research *through / by*' problematic and makes the relation to Polanyi's (1966) book, *The Tacit Dimension*. Friedman (2008:154) agrees that tacit knowledge is needed for being human, but asserts that knowledge or theory cannot be constructed using tacit knowledge. Friedman (2008:155) refers to Polanyi when he says, "Tacit knowledge is

embodied and experiential. Theory requires more." He thus expresses concern that research *by* design cannot produce theory.

Gourlay's (2002) rival paper describes Polanyi's (1974) interpretation from a different perspective – 'tacit knowing' instead of 'tacit knowledge'. Extensive evidence shows in Polanyi's writings and his own utterance on the matter, supports this view, "Knowledge is an activity which would better be described as a process of knowing" (Polanyi in Gourlay 2002:8) and "I shall always speak of 'knowing', therefore, to cover both practical and theoretical knowledge" (Polanyi in Gourlay 2002:8). The interpretation of 'tacit knowledge' according to Friedman (2008), therefore relates to theory as an outcome of knowledge, which is not possible using 'tacit knowledge'. He says "… the misguided effort to propose tacit knowledge or direct making as a method of theory construction …" is a dead end (Friedman 2008:158). In comparison, 'tacit knowing', according to Polanyi, refers to a 'process of knowing', or according to Sternberg (in Gourlay 2002:7), refers to 'procedural knowledge'. Belenky et al (1986) also include 'procedural knowing' as part of their developmental understanding, which articulates it as 'connected knowing' and 'separate knowing'. Perry's (1970) influential developmental research explains a sequential scheme. This discourse is addressed in *Chapter 4* – Transformative learning.

To further contextualise the discussion Gourlay (2002:8) explains Polanyi's approach to 'tacit knowing / knowledge' as a "part-whole model of perception and cognition derived from Gestalt psychology". The parts in relation to the whole is emphasised, the integration, in order to understand the "subsidiary" and "focal" elements of tacit understanding (Polanyi in Gourlay 2002:9).

Due to the interdisciplinary nature, holistic understanding and the evidence for 'tacit knowing' as a process instead as theory construction, this study supports the views by Gourlay (2002) and Nonaka & Takeuchi (1995) as a reading of Polanyi's (1966) expression of 'tacit knowing'. Instead of 'tacit knowledge' intended at theory construction, due to the understanding of tacit knowledge being experiential and individual, relating to the model of knowledge creation by Nonaka & Takeuchi (in Gourlay 2002:2). With this understanding, considering 'design as a discipline' (Cross 2001:4), shifts emphasis to where a systematic way is balanced with design practice's intuitive processes from the perspective of a constructivist paradigm, instead of a positivist 'doctrine' (Schön 1983).

> Schön proposed instead to search for 'an epistemology of practice implicit in the artistic, intuitive processes which some practitioners do bring to situations of uncertainty, instability, uniqueness, and value conflict,' and which he characterised as 'reflective practice' (Cross 2001:4)

From a creative arts perspective, the knowledge-method debate contributes to this view, as Sullivan (2010:82) describes:

> … traditional modes of research have a hard time accounting for the breadth and depth of knowing we associate with the full scope of human understanding. For many, it is the outcome of other ways of knowing and creating knowledge within the studio context of visual arts that offers different yet complementary pathways to coming to understanding things.

The domains of 'practice *around* inquiry' in visual arts address various dimensions to articulate a particular method, discursive domain / method, dialectical domain / method and deconstruction domain / method. Relevant for this discussion is the emphasis on the meaning dimension, which is investigated through discursive methods related to agency and structure. Also relevant is the dialectical method focused on the change dimension combining agency and action (Sullivan 2010:107). These ways of engagement are considered interchangeable and associated to the metaphor of a braid after Murray Gell-Man (in Sullivan 2010:114):

> … a simple and complex liquid structure with powerful generative potential for change – is the image of the braid. Metaphors help us to see things differently as we further our understanding of relationships and networks, influences and connections, and this can intrigue visual arts researchers. What is proposed is that the braid, with its infolding and unfurling form that disengages and reconnects with the core themes while continually moving into new spaces, serves as a useful metaphor that captures the dynamic complexity and simplicity of art practice as research (Sullivan 2010:112).

Furthermore, Sullivan (2010:134) explains a framework for visual arts knowing, as a triad containing 'thinking in a language', 'thinking in a medium' and 'thinking in a context', where "mindful practices are *structured* [medium], *framed* [language], and *embodied* [context]". This triad describes a "practical-theoretical" approach that is dialogic concerning the viewer [language], symbolical related to the artwork [medium] and responsive towards setting [context] (Sullivan 2010:134).

> Contemporary artists adopt many practices that dislodge discipline boundaries, media conventions, and political interests, yet they do so within a realm of aesthetic experience, cultural commentary, educational relevance. The image of the artist as creator, critic, theorist, teacher, activist, and archivist partly captures the range of art practice today (Sullivan 2010:156).

How does this understanding relate to the spatial design studio?

In *Design Research in Architecture: an Overview*, Verbeke (2013:137, 145) investigates what research *by* design means in the field of architecture by considering its definition in context of artistic developments and introduces a scheme for engaging with a design research project. He deduces that there is much to transfer from 'research by art practice', which is founded on "exploratory and curiosity driven activities", based on experiences, and that "production of art, and of making and performing, as the key paths to develop insight, understanding, and knowledge" (Verbeke 2013:144).

> Research by design … the main pathways to establish new understanding and knowledge. It creates cutting-edge exploration and progress, both in practice and in studio work. It results in the development of spatial understanding and human ecology with daily impacts upon behaviour and living conditions. It is not about analytical thinking in the narrow sense, but rather about exploration … (Verbeke 2013:157).

Verbeke (2013:151-156) bases this conclusion on the evidence from the research by design work at RMIT University, Melbourne, and also higher education institutions in Ghent and Brussels, together with PhD examples through research *by* design projects. On closer observation, these PhD studies relate closely to a discursive design approach, or making complex issues visible (Tharp & Tharp 2018).

Leon van Schaik asks four questions regarding design practice research in architecture and notes that these are important to the built environment and creative industry professions, where we have the responsibility of "successful adaptations to a changing world" (Blythe & van Schaik 2013:53). The square brackets below, is a short response in the context of this study, to Blythe and van Schaik's (2015:53) four questions:

- What if design practice matters and is researched? *[Exploratory investigation as provocation]*
- What would we do? *[Introduce disruptive ways of design engagement]*
- How would we do this? *[Refocus the emphasis on the user, consider the intangible]*
- What would we discover? *[Perhaps transformation is possible]*

Salama (2012:9) argues for design inquiry in architecture to equip students with an understanding and appreciation of various types of knowledge, not only as consumers of knowledge, but to "contribute to its production". The question remains, how can this be achieved?

> It is about extending horizons, changing borders, stimulating curiosity and exploration. It is about imagining, visualising and projecting alternative worldviews, as well as developing spatial understanding and making possible future worlds – and thus also contributing to the understanding of underlying process of the present (Verbeke 2013:157).

Discursive design

The quotation above relates to the essence of discursive design, and aligns furthermore to a discussion on 'research *through / by'*, in a recent publication. Tharp and Tharp (2018) point to four domains of discursive design. First, an outline of its definition:

> The creation of utilitarian artifacts whose primary purpose is communicative. It is a means through which ideas of psychological, sociological, and ideological import are intentionally embodied in, and engendered through, artifacts. The ideas are capable of sustaining a complex of competing perspectives and values. Used as tools for audience reflection, the practice is located within the *About-For-Through framework* as *discourse-through-design* (Tharp & Tharp 2018:548).

Considering the plug-in workshop of the biopic investigations, Figure 3-2 below indicates its position within the domain context of this investigation (Tharp & Tharp 2018:344-345), as highlighted. It is positioned as an overlap between practice and inquiry by integrating 'social engagement' and 'applied research'.

PRACTICE

Social engagement	Practical application
_share	_tool
_awareness of substantial issues	_distinct operational goal

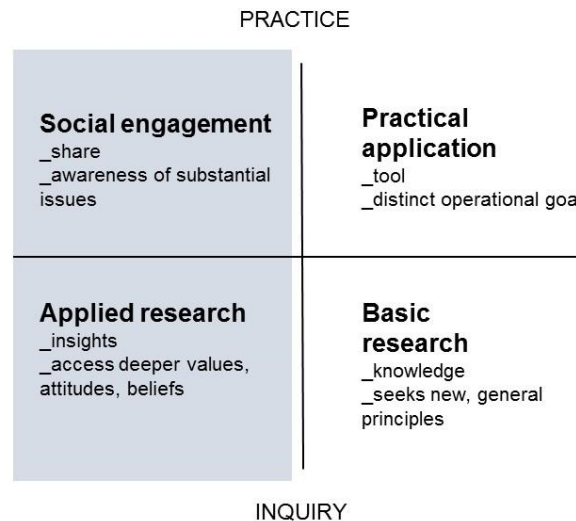| Applied research | Basic research |
| _insights | _knowledge |
| _access deeper values, attitudes, beliefs | _seeks new, general principles |

INQUIRY

Figure 2-1: Plug-in workshop within discursive design research domains

(After explanation of Tharp & Tharp 2018:344-345)

While discursive design began as a form of critique or activism opposing typical commercial design and certain sociocultural conditions like rapid consumerism, over the years it has been applied in various other ways (Tharp & Tharp 2018:345).

Historically, *critical design*, *speculative design* and *design fiction* are three examples of practices or "species" of discursive design that Tharp and Tharp (2018:83, 85) assert will in time no longer be considered because of its differences, but "due in part to writers articulating generally similar distinctions" in a wider context. Therefore, this study does not consider these three fields as separate to one another, nor different to discursive design, although there are basic differences. Instead, the historical differences and development are considered in a collective sense and some examples are used below.

We feel discursive design provides a more accurate and appropriate categorization of the broad practice evident today and one that is capable of accommodating new instantiations that might be on or over the horizon (Tharp & Tharp 2018:93).

The inherent purpose of discursive design is not to solve problems by generating products of physical outcomes, but rather with the intent to probe responses by eliciting "another agenda" that "tells a story, often with a moral or message" to an audience (Tharp & Tharp 2018:403, 442). Interaction with an artifact brings a deepened understanding of complex issues due to the audience's engagement, which can bring immersive experiences. Messages are internalised through various interpretations, which have the potential for impact in a positive way (Tharp & Tharp 2018:474).

An example of a disruptive approach is the work of critical designers, Dunne and Raby, that uses design "as a medium to stimulate discussion and debate amongst designers, industry and the public about the social, cultural and ethical implications of existing and emerging technologies" (Dunne & Raby n.d.).

Critical design is not a movement, but a way of looking at the possibilities of design beyond its "narrow definition". In *Design Noir: the secret life of electronic objects*, Dunne and Raby (2001) tested the perceptions of electronic objects through a series of Placebo prototypes in self-selecting participants' homes to find out if people are open to radical ideas being meaningful versus products industry promotes. The intent of the project was for people to think about products in different ways in relation to their environments, providing some sort of "psychological comfort" (Dunne & Raby 2001:75).

> Critical design uses speculative design proposals to challenge narrow assumptions, preconceptions and givens about the role products play in everyday life. It is more of an attitude than anything else, a position rather than a method (Dunne & Raby n.d.).

The usefulness of discursive design's attitude and approach for spatial design is the deepening of understanding and the acknowledgement and internalisation of different potential perspectives due to the engagement with an artifact. This purpose relates directly with Polanyi's (1966) perspective of tacit knowing as process. No solution is proposed here, but the exploratory engagement with the process, the message embedded within the artefact, and interaction with it, are interpreted as the outcome that manifests in the audience as its user. The biopic investigations aim to explore how the plug-in workshop could align with this view and perhaps awaken potential responses expressing a particular mind set, *declarative* ("something to say"), *suggestive* ("evidence but no proof"), *inquisitive* ("seeks understanding"), *facilitative* ("help others") and *disruptive* ("wants to interfere") (Tharp & Tharp 2018:348).

The position of discursive design artifacts within 'research *through / by*' emphasises a process-driven endeavour. In this light, Brooker and Weinthal (2017:51) explain 'research *through* design' as an operational field and productive activity (Snyder, Van Ouwerkerk in Brooker and Weinthal 2017:51). The discussion associates research through design as a speculative and cognitive activity and aims to "know what doing means by doing" in order to formulate quasi-theories and to validate practices (Brooker & Weinthal 2017:51-52). This study, however, does not aim to develop theories, but instead to provoke by means of a speculative inquiry, using hybrid methods as an approach or tactic in the 'plug-in' workshop. The use of an artefact in the study is merely to test how issues can be made visible during the design process.

This approach integrates critical reflection and intends to stimulate a response to make design activity visible without the intention to solve problems. Bowen (2010:2, 5) developed a critical artefact methodology "*within* a design process" of product development with the tactic to "…discuss with users a set of critical artefacts I had produced with expressed provocative alternative possibilities." Bowen (2010:5) explains the context of critical artefact methodology existing "within a design process … a tool for opening up the design space …" Although Bowen's (2009) process is product-people driven, directly relating to user's needs, it is argued here that the application could be meaningful to test on a spatial level. The value of such an approach could address design awareness to create added meaning in the built environment.

The fact that critical artefact methodology is not aimed at outcome or solution, but provocation instead (Bowen 2009), allows for a triangulated relationship of 'thinking', 'making' and 'sharing' (Reynders 2012:4). Thinking and making are related to critical inquiry, and sharing enters into a dialogue where the exploration can prompt intentional probes. The main difference between the purpose of discursive design as explained by Tharp and Tharp (2018) and the 'plug-in' lies in the audience. The former relates to an external audience, unfamiliar to the intent and message of the artefact. The latter focuses on the students as internal audience, to disrupt the status quo of the studio, as the traditional intent of spatial design education is to formulate solutions and to create products.

Disruptive design methods

> The design approach is comparable to the deliberate introduction by an anthropologist of a refrigerator, mobile phone or a video camera into a community that had never before seen such devices … [t]he intervention can serve as a catalyst or an inhibitor that brings current practices into sharp relief and provides a focus for reflection and discussion (Coyne 2013:195).

When "disruption as a research method" is considered in spatial design, participants are exposed to scenarios outside their normal daily routine and practice, and through critical reflection (Coyne 2013:198). The shift in a spatial design focus from a "mechanistic pedagogy to systemic pedagogy" (Salama 2012:1) can present such an upset.

> The idea of a design intervention is to expose something about the context in which it is placed. If this is true of physical and propositional interventions, as a stimulus to and constituent of research then it is also the case with exposure to other 'others', such as other disciplines, even cultures and histories (Coyne 2013:200).

Background to disruptive practices contextualises the discussion of disruption in design pedagogy, in order to understand its application and purpose. Clayton Christensen is the first to use the concept of 'disruptive innovation' in his 1995 article, *Disruptive technologies: catching the wave* and expands the concept in the book, *The Innovator's dilemma* (1997) within the discourse of business innovation. Christensen founded the Clayton Christensen Institute, "a non-profit, nonpartisan think tank dedicated to improving the world through disruptive innovation" (Christensen Institute – About us 2019).

> Disruptive Innovation describes a process by which a product or service initially takes root in simple applications at the bottom of a market—typically by being less expensive and more accessible—and then relentlessly moves upmarket, eventually displacing established competitors (Christensen Institute – Disruptive innovation 2019).

Christensen et al (2018) reflect in a recent publication on the misconceptions and misinterpretations of disruptive innovation's core principles in practice, and evidence of a lack of engagement with its theoretical foundation as an academic discourse since the mid-1990s. After an in-depth investigation of disruptive innovation's history and development, Christensen et al (2018:1043) conclude,

> … our understanding of the phenomenon of disruption has changed as the theory has developed … from a technology-change framework – essentially descriptive and relatively limited in scope – to a more broadly explanatory causal theory of innovation and competitive response.

This goal orientated approach of disruptive innovation is contrary to the intent of this investigation, as the 'plug-in' workshop aims to provoke deeper understandings, instead of creating products or objects. Similarly, Acaroglu's (2017) *Disruptive design: a method for activating positive social change by design*, is dedicated to finding ways to solve complex social and environmental issues. The three-part method of mining (problem loving), building (systems mapping) and landscaping (ideation and intervention) enables action that reaches beyond symptoms and "shift, deconstruct, reimagine and reconfigure the world around us" (Acaroglu 2017:1-3). Disruptive design as a method, directly addresses the way systems work by reframing problems as opportunities through an integrated practice for making change. Included here are "complex problem solving, social innovation, sustainability, systems thinking and activated change (Acaroglu 2017:5-6). The disruptive design method aims to move from innovation, "doing the same things a bit better", to disruption, "making things that make the old things obsolete" (Acaroglu 2017:8). Acaroglu furthermore started the UNSchool, an online training/education platform where the twelve units of the disruptive design method can be explored in its full complexity (Acaroglu 2017), making this method accessible to a wider audience.

This study's attitude of disruption as an approach, instead as a method or tool, is the big difference. However, Acaroglu's (2017) bigger purpose for social innovation, systems thinking and activating change, present synergy in the intent of the biopic investigations. It relates to a design approach of investigating undefined futures or problems using iterative design, through interconnected systems consideration in search for positive change by applying hybrid methods.

The disruptive design method advocates for sustainable change – social, economic and environmental – and uses an 'iceberg' diagram to demonstrate visible symptoms as complex design challenges, caused by hidden deep-seated underlying problems (Acaroglu 2017:12). This understanding relates to the 'knowledge iceberg' where explicit knowledge is visible above, but implicit and tacit knowledge perhaps hidden below, but giving flexibility to support explicit knowledge (Haider 2009:78).

In *The Design Way: Intentional Change in an Unpredictable World*, Harold and Stolterman (2012:1-3, 5) motivate for a "reconstituted culture of inquiry and action" to equip designers able to address emergent challenges of today and the future by focusing on "generative human agency" through "good judgement – not problem solving". The reference to human agency highlights the disruptive aspect of modal shifts (Cross 2006:88) when designers are expected to shift between different modes of working and of refocusing their attention to different design perspectives. Discussions concerning various modes of operation and different perspectives of multiple stakeholders are presented in detail in *Chapter 3*.

Mini-summary

Considering the above literature, a process-driven approach to design inquiry, which is open-ended and fluid, appears conducive to promoting deep engagement, making critical connections and gaining insight. Experiential and intuitive aspects of a constructivist approach are understood from a creative arts perspective, considering a fluid and interchangeable approach to exploring other ways of knowing in favour of making challenging issues visible. To transfer this way of thinking to spatial design education, discursive design brings opportunities for provocation to the studio, where students can ask better questions and connect directly with difficult issues through a process of critical reflection, without solving problems. The integration between examples from practice and developments in academia, are evidence of its value. Research *through / by* design therefore offers opportunities for tacit knowledge to emerge as part of the process of knowing, integral to constructing meaning, instead of knowledge.

Dissociation

The process of constructing meaning relies on the perspective of a person. In the spatial design disciplines, adopting another's view is integral to a well-rounded understanding of a design project. The 'point of view' and 'habit of mind' (Mezirow 1997:5-6) influence an individual's response within a situation, which is dependent on the contextual scenario and the person's own prejudices and perceptions. The role of the designer often takes the position of the expert, and in a traditional sense, takes precedence, which Till (2009:151) suggests should change from "expert problem solver to citizen sense-maker". This study agrees and challenges the traditional understanding and argues for a human-centred approach, where the user's needs and requirements are acknowledged and incorporated from the outset, as a fundamental part of the process (Brown 2009). The related literature directs the discussion to the concept of dissociation, which proves valuable within the performing and creative arts, in the form of normative dissociation (Panero et al 2019; Pérez-Fabello & Campos 2011).

A background understanding of the psychiatric origin of dissociation brings a clearer picture of its use within the spatial design field, as a pathological condition (American Psychiatric Association 2013). The understanding of dissociation for this investigation draws a relation between its meaning and interpretation from psychiatry as pathological condition, normative dissociation as non-pathological phenomenon (Butler 2006:45), to application in the performing and creative arts, and design knowledge (Goel 2001).

Psychiatry

Definitions from the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), fifth edition (2013) are used as background to define the pathological conditions identified in support of this investigation.

> Dissociative disorders are characterized by a disruption of and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control, and behavio(u)r. Dissociative symptoms can potentially disrupt every area of psychological functioning (American Psychiatric Association 2013:291).

Morrison (2014:13) describes mental disorders as processes instead of people, to avoid labelling where individual diagnoses are made. The dissociative disorders under investigation are depersonalisation/derealisation disorder and dissociative identity disorder (American Psychiatric Association 2013). The purpose of this inclusion is to find a broader contextualisation within the health sciences, to better understand the action of separating the self as designer, and adopting another person's reality for increased insight within a particular and new design situation. The difference, however, is that this study employs a deliberate dissociation, as non-pathological or normative dissociation (Butler 2006), and not as pathological "unbidden intrusions into awareness and behaviour, with accompanying losses of continuity in subjective experience" as with dissociative symptoms in a psychiatric context (American Psychiatric Association 2013:291).

Depersonalization / derealization disorder: depersonalization can be described as "[e]xperiences of unreality, detachment, or being an outside observer with respect to one's feelings, sensations, body, or actions" and derealization as "[e]xperiences of unreality or detachment with respect to surroundings", where a person has no control over the condition, due to "persistent or recurring episodes" (American Psychiatric Association 2013:302). *Dissociative identity disorder:*

> Dissociative identity disorder is characterized by a) the presence of two or more distinct personality states or an experience of possession and b) recurrent episodes of amnesia. The fragmentation of identity may vary with culture (e.g., possession-form presentations) and circumstance … the disruption in identity involves marked discontinuity in sense of self and sense of agency, accompanied by alterations in affect, behaviour, consciousness, memory, perception, cognition, and/or sensory-motor functioning (American Psychiatric Association 2013:291-292).

These definitions only provide a background understanding of the extreme manifestations of pathological dissociation that are not within the control of a person. The symptoms of detachment from self and context derived from depersonalization / derealization disorder, and the shift between personalities from dissociative identity disorder (American Psychiatric Association 2013:292), highlights its embodiment. The researcher is not a medical or health expert, thus this inclusion as overview to contextualise the discussion about non-pathological dissociation.

Normative dissociation and art practice

> … the term *nonpathological dissociation* implies an altered state of consciousness that is not organically induced, that does not occur as part of a dissociative disorder, and that involves the temporary alteration or separation of normally-integrated mental processes (Butler & Palesh in Butler 2004:5).

In contrast to pathological dissociative disorders, normative dissociation is a non-pathological experience of dissociation, with its forms of "absorption in activities, daydreams, fantasies, and dreams", and functions such as "processing, escape and reinforcement of dissociation in daily life" (Butler 2006:59). The 'dissociations of everyday life' happen through *absorption* and *attention,* where absorption is the "intense focal concentration and cognitive involvement in one or more aspects of conscious awareness" (Tellegen & Atkinson and Tellegen in Butler 2006:46). Attention, first identified by Janet (van der Hart & Horst in Butler 2006:47) is described as,

> ... the narrowing of focus and commitment of cognitive resources to the attentional object result in the exclusion of other *content* from the phenomenal field and, at times, consequent alternation of the context in which the attentional object is experienced (Butler et al in Butler 2006:46).

Butler (2006:46) further explains normative dissociation:

> The excluded content may include sensations, perceptions, thoughts, changes in feelings of relatedness to self or the world, a diminished sense of volition, or loss of self-awareness and reflection (metacognition), as many people experience – or come to realize they have experienced – on a long-distance drive or when watching an engrossing film.

The difference between attention and absorption is in the intensity of focus and attendant qualities. Attention highlights phenomenal awareness and relates to observation, absorption is where a person is totally immersed or engaged, and the context diminishes (Butler 2006:47). Kihlstrom (in Butler 2006:47) notes that dissociation could be present where "awareness and voluntary control are key elements to consciousness; when there are disruptions in one or both of these processes".

An understanding of normative dissociation states is important specifically in reference to a deliberate engagement in dissociative experiences in daily activities. The study focuses on dissociation as a human-centred design approach, where students deliberately detach from themselves as designers, and directly associate with the conditions and situation of users for which they design. The fact that normative dissociation is voluntary, and can be controlled, provides a platform to enable this design perspective. The study furthermore explores whether the dissociation could become second nature, something that should not need to be 'switched on', but rather as an attitude and embedded design value, that becomes a part of the designer's 'makeup' or disposition.

Butler (2006:54) lists one of the adaptive functions of dissociation as important for mental processing, especially daydreaming, which can be related to reflective practice (Schön 1983), due to its opportunities for internalisation "that allows the mind the opportunity to wander where it might or perhaps where it needs to go … the internal world of thought, imagination, or memory …" (Butler 2006:6). Absorption and imaginative involvement as normative dissociation reveal a "dimensional construct" versus markers of pathological dissociation that "measure a latent class or typological construct" (Waller in Butler 2006:58).

> To be useful as a concept, dissociation should not be applied to ordinary instances of less-than-full engagement with one's surroundings, experiences and actions. Rather, it should pertain to qualitative departures from one's ordinary modes of experiencing, wherein an unusual disconnection or disengagement from the self of the surroundings occurs as a central aspect of the experience (Cardeňa 1994:23 in Butler 2006:58).

In a study completed by Panero et al (2019), a group of acting students from a theatre conservatory programme is measured according to the Dissociative Experience Scale-II (DES-II) to determine whether they are able to 'become' their characters over a six month period. The study shows evidence of higher scores in acting students compared to the general population and speculates the reason being individual self-reflection of acting students during the process of 'becoming' the character (Panero et al 2019:12). "Actors must realistically portray imagined characters in imaginary circumstances by 'becoming' their characters" (Panero et al 2019:1). Another finding is the phenomenon of depersonalization, where students are able to absorb themselves through an 'imaginative involvement' by recalling personal experiences that are alike to the performance and "may reflect acting students' capacity to shift between different states of mind" (Panero et at 2019). This implies that acting students rely on their own personal experiences, or projections thereof, in order to find that absorption.

What does this mean for design students?

An embodied experience is required in order to immerse themselves in the character and context. Design students often conduct site visits with the hat of a quantitate mapper, someone documenting the tangible and physical aspects, and as a result, the intangible, emotive and experiential are missed. Therefore, this study focuses on the human occupation and inhabitation and the fluid agency and appropriation inscribed within spatial scenarios. This becomes even more pressing, when no qualitative requirements and needs of users are present, specified or observed. How would a design student connect to the unspoken? Westbrook (in Panero et al 2019) relates "being in the moment" to "embodying the circumstances of the script" and "being in character" to "embodying the character". Method acting, a prominent technique used in the US, is referred to as a method where the actor is encouraged to make an "emotional connection to the character" (Konijn in Panero et al 2019:3).

> Actors enter into the lives of characters, and thus might "dissociate" from themselves. Method actors strive to "become" another person by taking on their characters' emotional life. This bears some resemblance to dissociative identity disorder. […] They therefore learn to feel real emotions as they re-experience personal memories, but they feel these same emotions in an imagined situation (to one of their character). This is strikingly reminiscent of dissociation, particularly derealisation and depersonalization (Panero et al 2019:3-4).

Panero et al (2019:12) report that acting students' absorption and imaginative involvement scoring high, suggest their "capacity to shift between different states of mind." A study by Thomson et al (in Panero et al 2019:14) proposes a multidimensional model of dissociation that "would allow for measurement of the dissociative experiences of creative people who might have the ability to shift fluidly between dissociative states.

Similarly, in a study exploring dissociative experiences in fine arts university students, Pérez-Fabello & Campos (2011:39) report on an educational activity that requires "full commitment and promote

absorption that goes beyond mere observation." The study uses three data collection methods to obtain evidence, the Creative Imagination Scale, the Dissociative Experiences Scale and the Creative Experiences Questionnaire to identify items such as "amnesia, loss of awareness, depersonalization, derealisation, absorption, and identity disorders" (Pérez-Fabello & Campos 2011:40). They speculate that these manifestations of normative dissociation "promote unlimited explorations of convention or reality" (Pica & Beere in Pérez-Fabello & Campos 2011:41). In addition, they found that "[s]tudents who exhibited the greatest dissociative experiences had greater creative imagination and creative experiences than students with low dissociative experiences scores" (Pérez-Fabello & Campos 2011:40). This research does not use formal statistical tools as above, to ensure an exploratory inquiry.

If normative dissociation is possible within the performing and creative arts, why could this also not be achieved in spatial design? This study speculates that through attention and absorption, greater connections within design projects can be realised, to increase understanding and insight into areas that are currently not deliberately addressed.

Design knowledge and dissociation

The book, *Design Knowing and Learning: Cognition in Design Education* (Eastman et al 2001) dedicates a chapter to 'Dissociation of Design Knowledge' in which Goel (2001:221-222) provides neuropsychological evidence of dissociation between two types of design knowledge: type 1 (domain-related and technical) and type 2 (procedural, illusive and exchanged by means of subtle, inarticulate ways). The findings reveal that a natural dissociation exists between the two knowledge types, but that type 2 is essential in order to address ill-structured situations successfully. The recommendation is to provide opportunities in design education for students to develop type 2 design knowledge through real-life situations or projects:

> My own personal view is that the best strategy may be to put students in situations that simulate the ill-structured, incomplete, and under-constrained nature of real-world design problems and allow them to grope their way through (with some minimal guidance) (Goel 2001:236).

He concludes that Type 1 knowledge is essential, but not adequate to address "ill structured" situations and that type 2 knowledge, which is procedural based, could close that gap. Goel (1995 in Goel 2001:14) furthermore argues that the ambiguity embedded in ill-structured problems enable lateral transformation, by "introducing a degree of coarseness into the problem space" to facilitate overlapping ideas in order to reach 'fine-grainedness" in the development of the design. To conclude, Goel (2001:16) states the following:

> There is, or course, nothing new in this proposal. It just reinforces the importance of traditional design studios. The reason they work so well – and must remain an integral part of design education – is that they provide students with practice in the deployment and development of the relevant neural mechanisms necessary to cope with ill-structured situations (Goel 2001:16).

This study supports this notion, but proposes to further the exploration by including the elusiveness of 'ill-structured' situations – human occupation and appropriation – in relation to one another, and interface with objects and the environment. Goel's (2001) argument for emphasis on Type 2 knowledge, relates to the earlier discussion of Polanyi's (1974) proposal for 'tacit knowing' that is process-based, instead of 'tacit knowledge' as empirical and factual. Research on educational development shows the same search for understanding and knowledge in the book, *Understanding by Design*, where Wiggins & McTighe (2005), investigate the meaning of the terms in an in-depth study. They refer to Bloom's Taxonomy (1956) that intends to determine increasingly complex levels of understanding in the hierarchical structure of 'knowledge', 'comprehension', 'application', 'analysis', 'synthesis' and 'evaluation' as a benchmark to measure achievement of goals in learning (Wiggins & McTighe 2005:36). The revision of Bloom's taxonomy (Anderson & Krathwohl 2001), where levels are labelled as verbs, instead of nouns (remembering, understanding, applying, analysing, evaluating and creating), brings the discussion closer to 'tacit knowing' (Polanyi 1974), 'procedural knowing' (Belenky et al 1986) and Goel's (2001) argument for Type 2 knowledge in design.

Wiggins & McTighe (2005:43) propose a third way of knowing, not as noun or verb, but through the creation of meaning as another way to transfer knowledge, by referring to Dewey (1993) and stating that "[u]nderstanding is the result of facts acquiring meaning for the learner" (Wiggins & McTighe 2005:37). The focus on understanding of "big ideas", or "signposts to big ideas" (Wiggins & McTighe 2005:44, 106), or threshold concepts (Meyer & Land 2003) brings learning into a new light regarding meaning.

> The best questions point to and highlight the big ideas. They serve as doorways through which learners explore the key concepts, themes, theories, issues, and problems that reside within the concept, perhaps as yet unseen: it is through the process of actively 'interrogating' the content through provocative questions that students deepen their understanding (Wiggins & McTighe 2005:106).

Meaning in a design context highlights its social construction to complement the meanings developed in education, as Krippendorff and Butter (2007) write on the meanings and contexts of artifacts, by considering a human-centred approach to object (industrial) design that,

> [a]cknowledges the role of humans in actively constructing artifacts – conceptually, linguistically, and materially – being concerned with them, handling them and putting them to work. It acknowledges the diversity of human conceptions that motivate how things are acquired, exchanged, rendered meaningful, and used. Consequently, when we talk of meaning, we must be clear about whose meanings we are talking of and allow for the possibility that we may see things differently (Krippendorff & Butter 2007:2)

Krippendorff (2006:xiii) initially explores the concept of meaning, where design is described as a sense-making activity. Making meaning, relating to a concept or message, finding a way to represent that to an audience, are integral also to discursive design, eliciting various reactions and interpretations (Tharp & Tharp 2018). The dissociative aspect embedded in discursive design, is the abstraction possibilities it offers, as objects do not need a useful purpose, but to provoke thought regarding complex design matters, instead. This noteworthy difference between the meaning-making approaches by Krippendorff

and Butter (2007) and Tharp and Tharp (2018) illustrate the vast array of interpretations and subsequent relatedness to meaning construction in design practice, and therefore also relevant for studio learning.

Wiggins and McTighe (2005:84) propose six facets of understanding, as overlapping and integrated aspects, as "[u]nderstanding is multidimensional and complicated": *can explain, can interpret, can apply, can emphasize* and *have self-knowledge*. These are concepts more suited to finding insights, not only students' understanding of their learning, but also as points of contemplation of students' personal growth. In this light, it provides a stronger foundation to gauge development, compared to Bloom's taxonomy (1956/2002) that is concerned with the learning taking place (what), and not with the student who explores, discovers, by traveling on an individual journey of transformative development as discussed in *Chapter 4*.

Mini-summary

Normative dissociation proves valuable considering the relation between theory and practice, as seen in the performing and creative arts. The synergy between 'tacit knowing', Level 2 learning (procedural), meaning making and student personal development, present possibilities for connected or engaged learning. The discussion reveals different levels of dissociation for consideration in the biopic investigations to follow:

The student as designer: dissociate with self as designer and associate or assume the role of the user through attention and absorption as a human-centred approach. In addition, personal developmental opportunities are dependent on the students' personal attitudes and perspectives.

Context and setting: dissociate with context and setting where the site is unfamiliar and / or no access is possible. It includes context with users by means of normative dissociation and imagination or projecting scenarios from the reality of the user.

Focus/scope: issues are revealed through a procedural knowing instead of prior assumptions or information given up-front, due to a process-driven instead of product/outcome focused engagement. In this way, students dissociate or decontextualize from the traditional architectural process by testing, speculating and making meaning versus a narrow focus on products and results.

Abstraction and materials: unfamiliar second life objects and materials provide a space of ambiguity, in which students can create provoking or discursive responses that are abstract and embedded with meaning as another way of engaging with complex design challenges. The potential for deeper understandings of issues, and of self, exist.

Process (of knowing): a human-centred focus brings meaning-making and its generative and responsive qualities to the fore, where non-traditional ways of engagement in the spatial design studio can stimulate an awareness of 'tacit knowing'.

Chapter summary

Chapter 2 – Disruption by Dissociation, reveals that a constructivist approach to design inquiry allows for multiple interpretations and complexity in the construction of meaning, considering scenarios that are in flux and unpredictable. Process-driven approaches, as research *through / by* design, present the value where students or designers can delve deeper into design projects, because of the emphasis on exploration and understanding, instead of performance, outcomes and products.

The various forms of disruption as discussed, introduce moments of critical reflection in the student designer, as a level of discomfort stimulates either curiosity and engagement, or anxiety and apprehension. The concept of normative dissociation presents opportunities for the establishment of emotional connections to design projects, to create more engaged learning opportunities. This is seen not only in the educational design studio, but also in professional design practice.

Noteworthy is the observation that two 'fringe' theorists consulted in this study – Polanyi (1974) and Alexander (1964, 2004) (both operating on the edges of their fields due to their perspectives or approaches), are sidelined by mainstream theorists throughout history. Why? Could we ask whether this is the case because people do not include or regard that which is outside their control, that which is intuitive and tacit? Could this be a phenomenon similar to the design discourse, where traditional and known methods take precedence over other ways of engagement – design practice that provokes, instead? Although it might be leading to deeper understandings, as a way to create connections to learning.

Perhaps the time for answering *why*, is now.