

THE EMERGENCE OF AN AMPLIFIED MINDSET OF DESIGN

distinct approaches to postgraduate
design education

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DECLARATION

I, Mafalda Vaz Pinto Castro Moreira declare that the enclosed submission for the degree of Doctor of Philosophy consisting of a written thesis meets the regulations stated in the handbook for the mode of submission selected and approved by the Research Degrees Sub-Committee of The Glasgow School of Art. I declare that this submission is my own work, and has not been submitted for any other academic award. The use of all materials from sources other than my own work has been properly and fully acknowledged.

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ABSTRACT

Change is a defining characteristic of design. Within a context of increasing global complexity, research shows that design activities are expanding to wider territories, creating a complex disciplinary landscape. In response, this thesis contributed with an emerging approach to design that is termed *amplified mindset of design* (AMD). This amplification is impacting design education and creating a need to update its models. In response to this context, this research answers the following research question: How can distinct approaches to postgraduate design education help future designers develop an amplified mindset?

First, to articulate and evidence the conceptual framework of an amplified mindset of design, this research captured from the literature a set of views gaining ground in the contemporary design discourse and then refined these through fieldwork. As a result, the amplified mindset of design is defined as an emerging integral position in design oriented to addressing complex scenarios through collaborative approaches to generate sustainable ways of working and living. Second, intending to build a rich, in-depth investigation into the phenomenon of design education for an amplified mindset of design, this research followed a qualitative methodology divided in two parts. Initially, two Instrumental Case Studies were conducted to gain insight into two Masters programmes that showed signs of an amplified approach to design. Findings from the case studies were used in the second part of the methodology focused on designing a Masters programme for the specific development of an AMD. In addition, this research interpreted the conceptual framework of an amplified mindset of design as educational guiding principles and consulted relevant literature from the field of education to develop a Masters programme entitled *MDes in Adaptive Design Practices*. Such process followed an iterative approach that included a series of individual interviews supported by visuals and principles of low fidelity prototyping. Lastly, a focus group with design educators, practitioners, and students was conducted with the aim of ascertaining the relevance of this Masters programme to the emerging demands of the design industry.

In conclusion, this thesis brings clarity to the current ambiguous disciplinary landscape by revealing an emerging design identity (AMD) which was used to develop a new approach to design education. For designers working within this emergent context, the amplified mindset of design encapsulates a terminology to better equip them to advocate for an integral position especially suited to dealing with complex design scenarios and changing contexts. For design educators, the conceptual framework of an AMD is flexible enough to be adapted into different

educational formats by providing categories of educational demand for emerging design practices. This thesis offers the MDes in Adaptive Design Practices as a potential proposal for the development of an AMD, and an approach to curriculum development informed by design methods. This Masters programme was designed to equip students with knowledge and skills to situate themselves in the current expansion of design practices, and to explore new territories of design. Furthermore, this thesis proposes that other disciplines seeking to innovate can use the AMD in education and training contexts to develop a more comprehensive and synergistic approach better suited to deal with the global complexities they may face.

STATEMENT ON THE USE OF VISUALS IN THIS THESIS

This opening statement does not intend to enter discussions on design research focusing on, for example, conceptualisations of the characteristics of design research (examples include Friedman 2008, Michel 2007, Rodgers and Yee 2015), the symbiosis between text and visual materials (Vihma 2007 for example), design as an epistemological practice (Cross 2001, Jonas 2007, Nova 2014), or even the processes of design research (see for example Gray and Malins 2004, Koskinen 2015). This statement offers, instead, a practical overview of how I have navigated the realm of research into design as a designer (through design), and opens doors for future research. Producing a piece of research in the field of design and design education, I have used visuals to first engage with theory (literature) and practice (fieldwork), which were followed by more typical social sciences methods and text-based materials. Visual representations were used in this thesis as a form of understanding, discovery and critique (Lawson and Dorst 2009), and as boundary objects (Eckert and Boujut 2003) to mediate the communication of this research, and to negotiate meanings during fieldwork. Due to the relational nature of this investigation, the visualisations serve, in places, to make explicit my interpretation of the issues addressed and contribute to improving the reader's understanding of them. This is the case in Chapter 2, in the figures that relate literature topics to a design model called the Rose Window (McAra-McWilliam 2008). During the fieldwork covered in Chapter 4, visualisations served to stimulate and mediate (Eckert and Boujut 2003) conversations with the participants, and to better communicate this research to the reader. Examples include:

- Maps of field activities;
- Diagrams used to pilot and conduct interviews;
- Diagrams that articulate the various research processes and its consequences, for example, section 4.8 which covers changes in the conceptual framework of an *amplified practice/ mindset of design*;
- Diagrams informed by low-fidelity prototyping principles (Brown 2008, NESTA 2013), used to negotiate with participants the meaning of several visual representations (Carlile 2004, Eckert and Boujut 2003), which informed the qualitative approach employed in this thesis to develop a Masters programme centring on an amplified mindset of design.

In Chapter 5, visuals are then used to communicate (Inns 2013) and translate (Kolko 2010) the analytical processes and findings in order to make them as transparent as possible for the reader. Examples include the use of:

- NVivo software to visualise links between data, and attempt first codes;
- Diverse types of maps (hand-drawn and digital maps, highlighting relations between themes or summarising themes, for example) used to interpret, reduce, and transform data into findings;
- Tables to synthesise themes and their codes;

- Maps to highlight relationships between the findings and the conceptual framework of an amplified mindset of design developed in this thesis.

Furthermore, visualisations were used in Chapter 7 to communicate the outcomes of this thesis: an amplified mindset of design, and a Masters programme to develop such a mindset. The latter resulted in the visual development of a curriculum as an alternative form of curriculum development that highlights the relationships between curriculum activities.

Finally, this qualitative methodology informed by the design practice of generating visuals is argued to enrich traditional qualitative approaches in pedagogical research. Designers immerse themselves in contexts to generate empathy with people and their contexts (Michlewski 2015); by contrast, educational research consulted during this research (see for example Belenky et al. 1997, and Perry 1999) revealed that educators usually assume an outsider role, using interviews as a main research method, which generates abstract findings. Design offers an insider predisposition that can enrich educational research. Moreover, the use of visualisations in a designerly way increases the potential for communicating this research outwith the field of design. The use of visuals in this research can itself be understood as demonstrating an amplified mindset of design, evidencing its element of *making things visual* which denotes the designer's ability to envision solutions in complex contexts – which in this thesis comprises the expanding field of design.

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GLOSSARY OF TERMS AND ACRONYMS

Terms

Adaptive practice of design – An adaptable expertise in developing strategic, interdisciplinary, and collaborative design approaches across different sectors.

Amplified mindset of design – An emerging integral position in design oriented to addressing complex scenarios through collaborative approaches to generate sustainable ways of working and living. The conceptual framework of an amplified mindset of design comprises core design skills (amplified by), a set of behaviours, attitudes and beliefs about design.

Crossdisciplinary – An understanding is demonstrated of disciplinary difference and of the different problem-focus of other disciplines.

Design Innovation – An emerging design practice that is adaptive, and has a social and cultural strategic focus. Through collaborative and networked practices it seeks to develop agency in its audiences, and seed transformational change.

Design as Integrative – Refers to design work developed in boundary spaces, using inclusive practices that go beyond the creation of tangible outcomes.

Design practice – The exercise of the design profession and designerly approaches, or, “the practice, which forms the personal development of every individual designer.” (Lawson and Dorst 2009: 284).

Design as Transformative – Refers to design work developed with transformative (strategic) intent to shape futures, which leads to the transformation of design practices (with a growing social focus) and the designers’ identity.

Integral – Goes beyond an inclusion stance towards a transformative stance. Refers to the principle of ‘transcend and include’ in Integral Theory.

Interdisciplinary – An understanding is demonstrated of at least two disciplinary competencies. One is primary, yet there is the ability to employ the concepts and methodologies of another discipline. Strengthens understanding of the primary discipline.

Metadesign – An emerging augmented mode of practice that goes beyond design. It is concerned with principles of practice to generate more sustainable modes of living, through collaborative and synergistic practices.

Mindset – Primary attitudes or assumptions that determine personal beliefs; a driver for behaviours and outcomes that influences personal choices.

Multidisciplinary – An understanding is demonstrated of disciplinary difference and there is an ability to learn from other disciplines.

Paradigm – Dominant concepts and beliefs that lead to behaviours and worldviews, while giving space to existent contradictions.

Quadruple bottom line – A position on sustainability that uses experiences to address human behaviour and transform the human-biosphere relationship through physical, emotional, and spiritual consciousness development.

Synergy – The interaction or cooperation of two or more organisations, substances, or other agents to produce a combined effect greater than the sum of their separate effects.

Transdisciplinary – An understanding is demonstrated of at least two disciplinary competencies, neither of which is primary. Results in a trans-methodological perspective. Abstracts disciplines to bridge new problems.

Acronyms

AMD – Amplified Mindset of Design

BERA – British Educational Research Association

BSA – British Sociological Association

CA – Content Analysis

CS – Case Study

HE – Higher Education

ILO – Intended Learning Outcomes

RW – Rose Window

SC – Social Constructionism

SCQF – Scottish Credit and Qualifications Framework

SERA – Scottish Educational Research Association

TA – Thematic Analysis

CHAPTER 1: INTRODUCTION

This chapter offers an overview of this exploratory research including its guiding research question, its relevance to the field of design and design education, and the structure of this thesis. References to authors and sources are documented in the remaining chapters.

1.1 – Overview and relevance

This research is an exploratory investigation into design education for emerging ways of designing or emerging design practices which this thesis has conceptualised as an *amplified mindset of design* (AMD). “How can distinct approaches to postgraduate design education help future designers develop an amplified practice?” was the initial research question that guided this investigation. Here, the word initial signals a small but important shift in the research from amplified *practice* to amplified *mindset* of design, which resulted from fieldwork and further research. This led to the refinement of the research question, research outcomes and this research’s contribution to knowledge (see section 6.1). The amplified practice of design was initially intended to inform the creation of educational work packages that later developed into a Masters programme informed by the renamed conceptual framework of an amplified mindset of design.

Table 1 breaks down the initial research question and aim into research sub-questions and objectives, anticipating a qualitative case study methodology to investigate two postgraduate programmes that showed signs of an amplified mindset of design. Findings from these case studies were used to design the layout of a Masters programme (initially intended as educational work packages) to specifically develop an amplified mindset of design.

INITIAL RESEARCH QUESTION	INITIAL AIM
How can distinct approaches to postgraduate design education help future designers develop an amplified practice?	Identify distinct approaches to post-graduate design education, which can help future designers develop an amplified practice.
SUB-QUESTIONS	OBJECTIVES
What can be defined as an amplified design practice in the literature and in the field?	To define the characteristics of an amplified design practice from the literature and the field.
Where are there examples of design education which focus on the development of students for this type of practice?	Look for examples of education for this type of practice in the field.
How does teaching happen in these postgraduate design programmes?	Explore the characteristics of each programme focusing on its methods and content.
How can these distinct approaches to design education be developed into work packages to encourage the adoption of an amplified mindset by design educators and students and help future designers develop an amplified practice?	Develop a distinct series of work packages, for design educators which encourages and adopts this mindset. Gain feedback on the relevance and use of these work packages in practice.

Table 1 – Initial research questions, aim, objectives and outcomes

Relevance to the field of design and design education

Design practices are currently undergoing yet another moment of expansion, creating an ambiguous and ill-defined disciplinary moment in need of clarity. Within a complex global context, design is amplifying its territories to include interdisciplinary work for social innovation, healthcare, and policy-making, for example. This is leading to more diversity in design practices and in the existing plurality of meanings attributed to design. As designers reinvent their practices, they struggle to communicate their roles and the value they bring to complex projects. Some argue that design is losing its identity. However, this reflects a dynamic discipline that is constantly adapting to generate preferable and meaningful solutions. This investigation explored this context to capture an emerging identity of design through a conceptual framework entitled an *amplified mindset of design*.

The widening of the field of design is generating a need in the literature to change design education models and develop new ones that are flexible, networked, and cross-cultural. Therefore, this thesis intends to contribute to updating design education and aligning it with the identified needs of emerging design practices by developing an educational approach for such needs. Additionally, throughout this research and due to the tacit canon of design education, a limited use of educational theories able to advance the field was identified, which this thesis explored further.

The UK context

The design context of the UK was chosen as the focal point of this thesis for three reasons. First, due to Britain's early industrial revolution, the subsequent creation of a system of design schools in the nineteenth century (Dilnot 1984, Julier 2000, Rust, Mottram and Till 2007), and Britain being the birthplace of design research in the 1960s (see for example Jones and Thornely 1963, and Jones 1992). Second, due to the rich debate in design found in the UK and the pioneering design practices found nationally that can be said to be influential throughout the western world. Third, as a study conducted in the UK, this thesis aimed to explore the rich national context of design as a starting point for contributing to advancing the field.

1.2 – Intended contribution to knowledge

Conceptual framework of an amplified practice of design

From the investigation and insight into this ill-defined moment of amplification in design came the development of an initial conceptual framework of an *amplified practice of design* as an interpretation and synthesis of the complex disciplinary landscape. This framework was refined during fieldwork, analysis and further literature review. A final contribution to knowledge is offered in section 7.1 under the name: *amplified mindset of design*. This conceptual framework intends to

crystallise an emerging approach to design, representing a sense-making intervention into a fragmented discourse and blurred disciplinary boundaries. As an open framework it highlights four emerging elements that form an amplified perspective on design: championing the art of making visual; being adept at building and working in networks; mastering social skills; following a human-centred and synergistic worldview. These comprise key elements of contemporary demand in design education for emerging design practices. Designers can use the conceptual framework of an amplified mindset of design to situate and advance their practices, and design educators can shape the framework to their educational needs and contexts for the development of future designers.

Educational work packages for an amplified practice of design

Educational work packages informed by an amplified practice of design were intended as another contribution to knowledge by this thesis. These work packages aimed to advance design education and intervene in the ambiguous current disciplinary context by inspiring design educators to include approaches in their programmes that encouraged the adoption of an amplified perspective. While maintaining the overarching research goals of this study, the shift in this research, referred to above, instead led to the development of a Masters programme as the final contribution to knowledge in design education. This programme offers a distinct combination of collaborative methods, relational theories and a strategic approach to design supported by the use of visualisations to develop an adaptable expertise in students in developing strategic, collaborative, and interdisciplinary design approaches across sectors.

1.3 – Thesis structure

The structure of this thesis is summarised in Figure 1, highlighting the fact that the findings from the analysis of the case studies covered in Chapter 5, and the educational literature review of Chapter 6 fed into the fieldwork devoted to designing a Masters programme in Chapter 4.

Emerging approaches to design were explored in Chapter 2 and included views of design as transformative and integrative, as well as examples of emerging specialisms such as metadesign and design innovation. These aspects informed the development of a conceptual framework that this thesis termed *amplified practice of design* as a first step to encapsulating emerging design practices and identifying the categories of educational demand for educating future designers to operate within emerging design practices.

Chapter 3 covers this study's qualitative case study approach informed by social constructionism, and the instrumental use of two case studies (CS1 and CS2) to assist in the creation of an educational approach to an *amplified practice of design*. The chapter closes by discussing this thesis's use of thematic analysis.

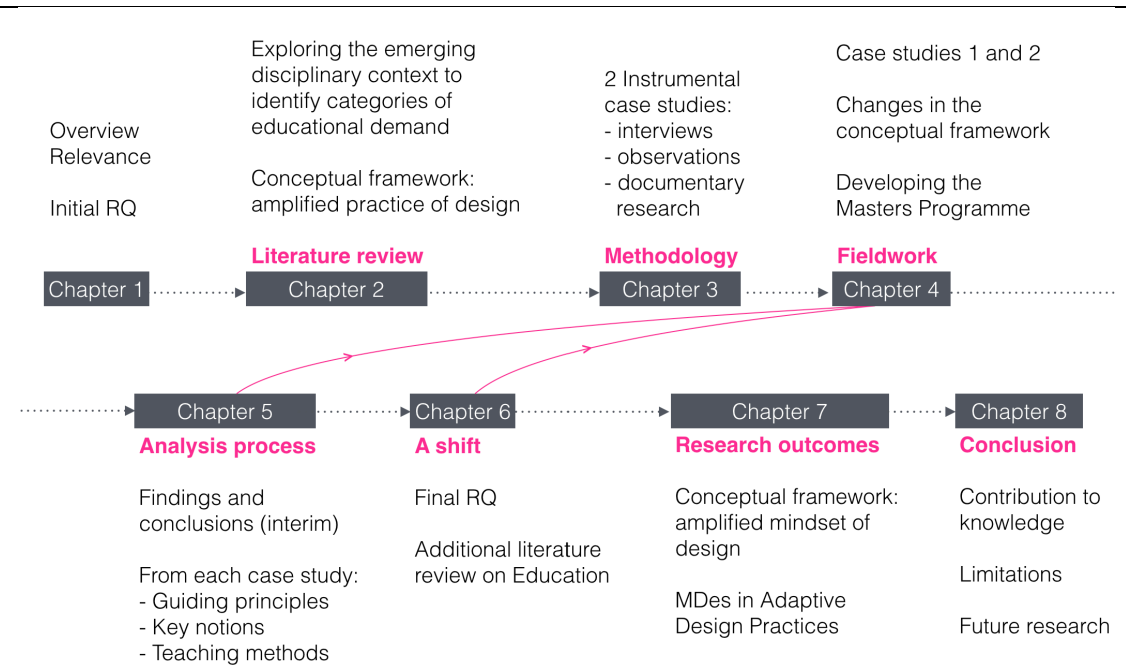


Figure 1 – Structure of this thesis

Chapter 4 describes and reflects on fieldwork activities. These include the two case studies, changes in the conceptual framework of an amplified practice of design into an *amplified mindset of design* (further explored in Chapter 6), and the iterative process of qualitative interviews informed by design methods of low-fidelity prototyping and directly aimed at designing the layout of a Masters programme for an amplified mindset of design.

Chapter 5 covers the analysis process, (interim) findings and conclusions of both cases studies, all of which were used to inform the development of the Masters programme. The chapter also highlights the amplified character of each case.

Chapter 6 explains and justifies the shift anticipated in previous chapters regarding the amplified mindset of design and its impact on the research question and outcomes. Additionally, fundamental educational literature found relevant to this research is discussed and used to inform (in Chapter 4) the development of the Masters programme for an amplified mindset of design.

Chapter 7 represents the culmination of the outcomes of this research in two sections offering the final versions of an *amplified mindset of design*, and the MDes in Adaptive Design Practices aimed at developing such a mindset.

This thesis closes with Chapter 8 which discusses the contribution to knowledge made by this investigation, the limits of this research, and aspirations for future research.

CHAPTER 2 - LITERATURE REVIEW: A COMPLEX CONTEXT

The ecology of the design discussion is complex and multifaceted. This chapter outlines what those different facets are and how pulling them together created a set of principles for an educational programme at a Masters level (initially intended as educational work packages) as a useful approach to aligning design education with the fast changing emerging design practices.

This literature review introduces an emerging design paradigm characterised as humanistic and holistic, and highlights the inadequacy of current design education models for emerging design practices. A new teaching paradigm for design education is then presented which informs the remaining sections. These cover emerging approaches to design characterised by views of design as transformative and integrative, and by a growing importance of subjective aspects of design practices. Metadesign and design innovation are then discussed as examples of design disciplines with emerging approaches.

This chapter closes with the interpretation and synthesis of the previous sections into a conceptual framework of an *amplified practice of design*, for three reasons. First, to clearly reveal the intricate state of emerging design practices. Second, to bring some clarity to the complex and multifaceted design discourse. Third, to be used as guiding principles for the development of an educational programme during this research. The conceptual framework offered in this chapter represents a first attempt to describe an amplified practice of design, which will be refined throughout this thesis, with a finalised version offered in Chapter 7.

2.1 – Broadening boundaries in Design

To introduce an emerging paradigm in design that will be explored in this thesis, this section outlines a broadening path of changes in design that challenge disciplinary boundaries and highlight design education's inadequacy to respond to these shifts, to what designers need in their professional endeavours, and to adjust to what design is becoming. To venture on such an historical track has its challenges due to the myriad of concepts and classifications of design that differ from author to author. Also, design involves complex social relationships (Dilnot 1984) which have been less well documented than artefacts. Diverse interpretations and understandings of design have been changing and co-existing through time, adding to previous developments in a layered historical path of changes (Heskett 2001) that advances the discipline. This diversity can be said to result in an attempt to keep the discipline open to change (Dilnot 1984), which is both a challenge and strength of design. As Buchanan (1992) states:

The history of design [...] is a history of the changing views of subject matter held by designers and the concrete objects conceived, planned, and produced as expressions of those views.

Buchanan (1992: 19)

Additionally, design education can be said to be dominantly tacit and taught by experience (Heskett 2001, Patera 2009), which makes it difficult to write about it as there are no fixed educational models for design. As it is a discipline with a vocational heritage, educators are often engaged in professional design practice, using it to inform their roles as educators (Britt 2008). Reinforcing Dilnot's reflection on the discipline's openness to change, in his book *Design Attitude* Michlewski (2015: 387) also refers to the tendency of designers to move away from pre-defined frameworks, and to their preferred focus on creating novelty that challenges the status quo. This is an advantage for the creation of innovative approaches in design practice and design education. To some extent, this research started to explore design education from this disciplinary mindset. However, it later recognised that a closer examination of educational theories and student development theories could highly benefit design education.

– **Fast changing paradigms**

This research follows the French sociologist Alain Touraine's (2007) understanding of paradigms as dominant concepts and beliefs that lead to behaviours and worldviews that, while recognising forms of domination, give space to existent contradictions. Multiple dominant paradigms have been informing design practices since the 1960s, which constituted a pivotal moment in design in the UK with the establishment of design methods, the Coldstream report in higher education (HE) and the students' revolution, which laid the conditions for the first significant changes in design education (Lord 2009, Souleles 2013).

A short historical incursion demonstrates a shift from the simplistic and rigid paradigm of the first generation of design methods (Alexander 1964, Cross 1993), followed by a user informed design paradigm in the second generation of design methods (John Christopher Jones 1977, Rittel 1972), and the emergence of a constructivist paradigm in the 1980s (Kazakçi 2013) which brought a focus on interactions and processes leading to a widening of design's outcomes to include virtual interfaces (Burns et al. 2006), managing processes and strategy-creation in multidisciplinary teams (Cooper and Press 2003). Although there was a parallel narrative focused on developing alternative life styles (Armstrong et al. 2014) with social and environmental concerns (from figures such as Victor Papanek, Bill Mollison, Ernst Schumacher, and Ralf Erskine) the 1980s were still characterised by a well-established business agenda (Bremner and Rodgers 2013, Cooper and Press 2003, Julier 2000), leaving social and regeneration concerns underexplored. In design education and academia, the emerging immaterial outcomes of the 1980s and the new interventions of design in business management opened the doors to the teaching of design management (see for example Gorb 1987) and to research in design thinking (see for example Lawson's *How Designers Think* [1980], and Rowe's *Design Thinking* [1987]). Design's research activities started to inform design practices (Buchanan 1998) creating a more independent sense of the value and potential of design, setting the conditions for the exploration of new territories by designers.

An emerging humanistic and holistic paradigm

Currently we are witnessing yet another expansion in design from the previous constructivist paradigm to a humanistic and holistic paradigm (Tschimmel 2014a) considered key in this research to working across disciplines and generating sustainable solutions to the complex realities of the 21st century. By exploring this paradigm and current emerging design practices, this thesis intends to highlight key elements of emerging design practices that are missing in design education. These key elements can then be used as guiding principles for this thesis' educational proposal.

The humanistic and holistic paradigm can be said to embrace the multidimensional complexity of an experience where material and virtual artefacts hold a communicative and symbolic function that expands previous functionality concerns. First, this paradigm was seeded by the advent and dissemination of design thinking that led to the development of new design approaches and new design specialisms, and by its growing popularity among non-designers (Buchanan 1992) for the facilitation of problem solving (Tonkinwise 2013, Tschimmel 2012). Design thinking is defined here as a “set of approaches, methods, tools and techniques for a design-inspired, human-centric creativity, advocated by design thinkers, increasing innovative powers of companies through the design process.” Michlewski (2015: 138). Second, the triggering context of this design paradigm was not only the growth of research activities in design but also the globalisation of the 1990s which brought a constant search for differentiation and attractiveness in design solutions, to be used as economic strategies to generate new markets (Julier 2000). Subsequently, design specialisms grew in diversity (Souleles 2013), and immaterial design outcomes emerged as services, strategies, experiences (Burns et al. 2006) or cultural policies (Julier 2000).

At this time in the UK, HE in design was expanding towards academisation as polytechnics merged into universities in the 90s and began to offer postgraduate level education. This led to building a disciplinary body of knowledge through growing research into issues around design (Cooper and Press 2003, Souleles 2013). Facing this scenario, Buchanan (1998) argued that academia started bringing new insights to industry that anticipated “new conditions for practice”, and collaboratively explored professional design challenges. Although research in design has the potential to bring insights to industry, this research argues that research findings often sit within academia, which still struggles to communicate with the industry. In the same year of Buchanan's article, the Royal College of Art in London created a Design Products course to abolish the divide between design specialisms, focusing instead on processes and on the combination of theory and practice (Furniss 2015). This was a dim sign that a siloed approach to design education was not working anymore due to the rapid changes that were happening in the discipline.

The raw materials of design's immaterial outcomes started to be people and the knowledge that they generate. This focus on people can be said to reinforce the need for design solutions to be more ethically grounded (Imbesi 2012). In a

seminal paper, Margolin and Margolin (2002) proposed a social model of design focused on going beyond responding to markets and selling products to providing the fulfilment of human needs to improve social life. Later, Krippendorff (2005) advanced this position with his “semantic turn” proposing a human-centred focus for the design of meaningful artefacts (physical or virtual) with the potential to have a positive impact in the users’ communities. Examples of this social focus in the UK include:

- the research project Design Against Crime (Gamman and Thorpe 2009);
- the Design Council’s (n.d.) project *Designs of the Time* (Dott) that took place in 2007 aimed to create a dialogue between designers, communities and service providers to address issues such as dementia, sexual health, schools and unemployment;
- the Design Council’s (n.d.) project *RED* also from 2007, which used design innovation as an interdisciplinary cross-sector approach to addressing issues from health to sustainability.

The wide reach of a human-centred approach in design can be said to have opened the doors to a holistic paradigm that expands the previous economic and social focus to include environmental concerns (Manzini 2011) and political agendas (Furniss 2015). This expansion had been anticipated by the study *Design 2020 - Design Industry Futures* (Cooper et al. 2009), which argued the need for designers to develop a sense of professional responsibility, and a focus on improving quality of life and sustainable modes of living. Emerging ways of designing currently include working within governments and national health systems, and work with a wide variety of stakeholders to shape organisations and intervene in decision-making and policy-making processes (Armstrong et al. 2014, Junginger 2013). Thus, interdisciplinary work is becoming the norm for designers (Furniss 2015) working with or developing new design practices. The previously demarcated boundaries in design are becoming ambiguous and call for new pedagogical strategies and approaches. But the growing variety of design practices and specialisms only generates fragmented approaches to complex problems that require a holistic approach from design education that crosses disciplinary boundaries. Although placed in specialism silos, the early stages of emerging design practices have the potential to overcome disciplinary constraints to pursue a broader approach to design.

The widening of design’s interventions demands from designers a systemic mindset and a holistic approach (Burns et al. 2006) that should be developed in design education, this thesis argues. To educate design students for our global complex context Fleming (2013) advocates for an integral model of design education informed by Integral Theory (Wilber 2000) which includes empathy skills and ethically informed behaviours. Other examples from the literature in design education include a focus on systems thinking (Wang 2010), a multidisciplinary model (McArthur 2010), or an international and holistic model across design specialisms (Mendoza and Matyók 2013), for example. The previous examples are geographically dispersed (Taiwan, United States, Australia) but in a globalised world they offer inspiration, and an account of global education

tendencies with worldwide influence. Due to their integrative and relational characteristics these examples of design education exemplify the emerging humanistic and holistic paradigm and reflect the broadening of design practices to include concerns with society and sustainability. More and more there are signs, mainly in the form of aspirations found in design literature, indicating that design education is trying to keep up with the emerging disciplinary change. However, more can be done to balance design education's excess of specialisms because their fragmented focus is not wide enough to cope with the growing complexity of the 21st century. In this literature review, this thesis aims to contribute to such a balance by exploring the multiple facets of emerging design practices, identifying its key elements and using them to develop a set of educational guiding principles that can better align design education with the demands of emerging design practices.

– Design education: aspiring to adaptive and holistic models

In light of the fast changing paradigms in design over the last 50 years, it can be said that current models of design education are not responding enough to the need for new pedagogical approaches. Underlining the inadequacy of current design education models for developing emerging design practices, a considerable body of literature argues for more flexibility in those models (Furniss 2015, Martin 2010, McAra-McWilliam 2007, McWilliam and Haukka 2008). The following subsections present a selection of design education models that go beyond disciplinary perspectives to respond to a global complex context, followed by a discussion of the challenges related to this context. However, this thesis goes further in arguing for a model for postgraduate design education that undermines disciplinary silos within design and includes a deeper exploration of human relationships and personal development in design students to better equip them to intervene at cultural and social levels.

Supporting educational theories are also lacking in current design education models and could, this thesis argues, enable design education to better adjust to what design is becoming. The literature reviewed in this section is mainly from the field of design, where this thesis argues more bridges with educational theories are needed. References to theories of education were sparse, and included the following:

- Martin's (2010) references to learners' dispositions using Dweck (1999), to the pedagogies of the oppressed (Freire 1972), and to paradoxes of learning (Jarvis 1992);
- Tschimmel's (2004, 2006) reference to cognition theories, and Wang's (2010) specific reference to Vigostky (1978);
- Mendoza and Matyók's (2013) use of sources from transformative learning and curriculum theory;
- Young's (2013) reference to threshold knowledge (Meyer and Land 2003).

Fundamental concepts of learning in HE found in education literature can enrich the designer-educator's knowledge and contribution to design education. This

realisation has derived from fieldwork and a shift in the research (referred to in section 4.8 and further explored in section 6.1). A discussion of concepts and theories of learning relevant to teaching for an *amplified mindset of design* (the final name of the conceptual framework) is included in section 6.2. Nonetheless, and acknowledging the importance of educational literature, the following contributions from the literature in design education can be used as aspirational guidelines to better equip design students to develop collaborative work between disciplines, different organisations and audiences. Although the following examples show aspirations to move beyond disciplinary boundaries, these are still enclosed within Design and overlook fundamental aspects of student learning from the field of education. Their focus rests on desired outcomes of learning alone, overlooking the student-learning path to fulfilling those outcomes. This thesis argues that it is key for design educators to explore literature on learning dispositions (Crick and Goldspink 2014), and epistemological development (Perry 1999, Belenky et al. 1997, and MacLellan 2015), for example, to build more robust teaching approaches that can increase the chances of success in achieving educational aspirations.

Aspirations for flexible models

The following educational models can be interpreted as adapting to the disciplinary shifts currently taking place, signalling a move to close the gap between rapid changes in design and the previously noted relative stability of design education pedagogies. Literature that reflects on the future of design education focuses on the need to develop students' thinking processes and on interdisciplinary models.

First, advocating for a focus on transforming students' worldviews and developing individual ethical awareness, Findeli (2001: 16) puts forward a new model for educating designers that is inspired by systems science, complexity theory and practical philosophy intended to develop the designer's perception and action. Although Findeli's contribution is very relevant to this emerging paradigm it could benefit from the recognition of the importance of epistemological development in design students. Also focusing on perception and cognition, Tschimmel (2006, 2010) argues for a lesser focus on methods and more on thinking in design education (also found in Furniss 2015). Tschimmel adds that metacognition skills must be honed for the development of self-awareness regarding learning abilities, knowledge of the dynamics of creative thinking, and methods and strategies of problem solving, which would better prepare students for the complexity of emerging and future design practices. In this line of thought, McAra-McWilliam (2007) refers to the need for a model that educates students to embrace ambiguity in processes and welcome complex and paradoxical realities to produce innovative solutions. As an over-arching principle, Press (2013) suggests providing students with tools to gather and adapt knowledge: a learning to learn skill.

Second, as interdisciplinary projects and open-design projects became more common in emerging design practices, Teixeira (2013) and Young (2013) stress the need for design education to focus on developing students' confidence and

knowledge of their professional contribution. Also derived from this tendency towards interdisciplinary work, Gornick and Grout (2008) argued for the need for a change from a “discipline-specific culture” to a broader approach open to other disciplines, methods and practices, an argument which was also found in other authors such as McArthur 2010, Murphy and Baldwin 2012, and Young 2013, for example. Moreover, Murphy and Baldwin (2012: 94) see the principles of emergence and integration as important guidelines for design educators to consider so that students can develop an “emergent, adaptive and dynamic role”, very much needed in design’s contemporary context.

Beyond discipline

The models of design education presented next are examples of emerging models that focus on networked ways of working and holistic ways of learning design that incorporate interdisciplinary approaches and diverse social and cultural interactions.

Culturally Adaptive Pedagogy model

Aimed at meeting the future professional’s needs, unknown markets and emerging societal cultures, McArthur’s (2010) Culturally Adaptive Pedagogy in art, architecture and design, proposes a set of skills that higher education students need to develop in order to deal with a multidisciplinary and ambiguous area of education. These skills include collaborative strengths, cross-cultural literacy, conceptual thinking and high-order communication skills. In McArthur’s (2010) model, the traditional art/design studio is taken as a cross-cultural, multidisciplinary environment, housing both virtual and real interactions, where open-ended processes embrace diverse disciplines, cultural backgrounds and assumptions about education. Therefore, the studio is seen as a fruitful place for exchanges at different levels, opening up its potential to pursue new education models to expand the development of core design skills towards more interpersonal skills. This model can pose personal challenges for design students regarding intercultural and interpersonal relationships, and must not be ignored in the development of adaptive models in design education.

Reinforcing the need for models such as McArthur’s, Adams et al. (2013) explored the major changes in the student fabric, in which the Western white middle-class male majority is rapidly giving way to more cultural and gender diversity in educational environments. Brought about by globalisation, this fact aligns with the demographic changes referred to in section 2.3, reinforcing a need to address intercultural aspects in pedagogical approaches and curriculum design.

Holistic models

Other examples of new design education models include Mendoza and Matyók’s (2013) holistic model of education for global citizenship as an answer to the growing internationalisation of education. It is a model based on empathic behaviour with transformational concerns that embrace reflection and conscious awareness through “processes that focused on mutability, combination and

transformation rather than production, reproducibility and ownership." (2013: 219). It can be argued that such a model also responds to the rapid changes in the global student body explored by Adams et al. (2013).

A second holistic model with a transformational and strategic intention was found in Fleming (2013) and follows a global trend of bringing sustainability to design education. His model offers an integral model for design education that is aligned with Integral Theory and informed by the Quadruple Bottom Line model of sustainability. Fleming's model follows the mantra "form follows worldview" (Fleming 2013: 48), relating to the student's introspection of personal intentions, values and behaviours that inform their path towards sustainability.

Challenges of amplified education models

The growing social and cultural diversity in design education referred to here, and the social and multidisciplinary direction that emerging design practices are taking, asks design education to include the development of social skills such as collaboration, empathy and facilitation (Murphy and Baldwin 2012; Wrigley and Bucolo 2012, Yee et al. 2013), to advance and balance a traditional focus on disciplinary core skills concerned with the production of visual 2-D or 3-D products. However, this presents challenges. Firstly, for design educators it is a challenge to build a curriculum that explores the expanded roles of designers as "managers, facilitators, educators, entrepreneurs and communicators," (Yee et al. 2013: 236) without overloading it. Secondly, these new roles are more socially (interpersonally) oriented and can cause ambiguity regarding the design expertise within those roles. As Fleischmann (2012) points out, the communication problems that are often present in multidisciplinary contexts, and the lack of knowledge of team dynamics from the students, corroborate the need to develop the social skills referred to above. Moreover, the tendency towards multidisciplinary and collaborative environments in design highlights the importance of assisting students in understanding and communicating the value of their intervention, as noted by Young (2013: 186), who suggests that students be introduced to "threshold knowledge and translation mechanisms".

As the literature in design education signals a move towards interdisciplinary, networked, and social models of education it becomes relevant to follow a sociological approach to education (Trowler 2005). It is an unexplored approach in education literature which considers learning as placed not only in the student's mind but also in "social participation and dialogue". It is evident that the complex current context challenges designers to define their identity in the face of emerging design practices, and challenges design educators to adjust and develop educational approaches for such a plural scenario. To respond to this challenge, this thesis interpreted the Rose Window model (McAra-McWilliam 2008) as a holistic/integral teaching paradigm and used it as a lens through which to explore the literature on emerging design practices in the next sections of this chapter.

2.2 – Rose Window: an integral design model for a complex context

Central to this thesis is the perspective that an integral teaching paradigm needs to underpin postgraduate design education, especially given the gap between design education models and the needs of the increasingly diverse and complex emerging design practices. Following the mainly tacit character of design education, Irene McAra-McWilliam (2008) developed the Rose Window model informed by her professional experience and used it in her approach to design education. This model reflects a holistic understanding of design as a social practice of seeing and interacting with the world and by extension as a way of being in the world, and is aimed at contributing to the development of the design student's identity (McAra-McWilliam 2015). Due to its adaptability and inclusive way of addressing design practices that fit the emerging humanistic and holistic paradigm, the Rose Window model was interpreted and synthesised with elements of Integral Theory (Wilber 2000) in a combination that advances the emerging paradigm into a new paradigm for design education. The model was used in this research to help identify key elements from emerging design practices that can make up the guiding principles for this thesis' educational proposal.

After introducing the origins and relevance of the Rose Window model (RW), exploring a merger with the quadrants of Integral Theory (Esbjörn-Hargens 2010), the integral character of the RW is highlighted by comparing it with other design models.

Origins and relevance

In use at the Institute of Design Innovation (InDI) at the Glasgow School of Art where this research was conducted, the RW model resulted from Irene McAra-McWilliam's (former director of InDI) design experience, research and observation of peer designers. Although developed in the 1990s, literature on the RW model is limited and the earliest reference was found in an article where Roussos (2003) reported on McAra-McWilliam's keynote speech at the First International Conference on Appliance. This report offered little detail on the model, characterised as a creative process model:

The creative process model [of the Rose Window] works best for planning or reevaluating a strategic design process because it exposes the *raisons d'être* behind observable characteristics or designs and interactions.
Roussos (2003: 76)

Other sources used in this research include: one keynote presentation (McAra-McWilliam 2008), one lecture (McAra-McWilliam 2015), unpublished work by McAra-McWilliam (2010), unpublished work by Dessart (2013), a project conducted by the Design Innovation Studio (Reid 2012), and an interview conducted by myself with Irene McAra-McWilliam (Moreira 2015a). However, as an apt and rich model that evidences the emerging holistic and humanistic paradigm in design, the RW could benefit from further exploration so that its contribution to the wider design community could be farther-reaching and more

impactful. Therefore, this thesis sought to contribute to the discipline of design by re-interpreting this model born from practice, enriching it with an adaptation of the quadrants of Integral Theory (Esbjörn-Hargens 2010). Integral Theory can be defined as a comprehensive, all-inclusive framework that brings together complementary and paradoxical perspectives, going beyond an inclusionist stance towards a transformative one (Wilber 1997, 2000, 2006). It is therefore highly useful to forming a comprehensive understanding of emerging design practices. However, due to the broad scope of Integral Theory, this research restricted its use to its quadrants.

Given what was outlined about developments in design, the merger of models put forward here offers a more comprehensive model that transcends and includes existing research, and seeks to advance the current paradigm with a more effective model of understanding design, for two reasons:

- First, the RW's integral approach to design practices focuses on the designer as a whole and can be used for student development, drawing on the different ways that it aligns with the emerging integrative and holistic design education models and the need to address students' personal development, discussed in the previous section. Also, examples of the use of the integral quadrants in education for exploring complex and emerging phenomena (see for example, Davis (2010) focusing on assessment and Renert and Davis (2010) focusing on mathematics teaching) reinforce its adequacy for this research (see sections 4.9 and 7.2).
- Second, foundational educational literature (covered in Chapter 6) follows a dominant narrative focused on individual experiences and behaviours of students, such as learning dispositions (Crick and Goldspink 2014), self-theories (Dweck 2000) and epistemological development (Belenky et al. 1997, Perry 1999), which highlights the need for a more comprehensive approach to learning in a design education model for the emerging contemporary context. The same can be said about design's signature pedagogies (Shreeve 2015) which focus on forms of teaching from a mainly objective perspective. Additionally, the previous examples of design education that are relational and integrative reinforce the aforementioned need.

An integral model

The RW model offers four interrelated but distinct ways in which designers approach their practice: ways of making, ways of thinking, ways of seeing and ways of being. These four modalities constitute facets of the creative mind, co-existing as a whole, influencing and complementing each other (McAra-McWilliam 2008), and as illustrated in Table 2 these signal commonalities with the interdependent quadrants of Integral Theory (Esbjörn-Hargens 2010): the behavioural dimension (objective), systems dimension (inter-objective), cultural dimension (inter-subjective), and experiential dimension (subjective).

Rose window model	Dimensions of the integral quadrants
Ways of making	Behavioural dimension (objective)
Ways of thinking	Systems dimension (inter-objective)
Ways of seeing	Cultural dimension (inter-subjective)
Ways of being	Experiential dimension (subjective)

Table 2 – Commonalities between the rose window model and the integral quadrants. (Esbjörn-Hargens 2010, McAra-McWilliam 2008)

In design education, the merger of these models, or the RW alone, can be used as tool to critique how students learn to be designers. Design is traditionally learned through ways of making, lacking a formal focus on exploring thinking and epistemological knowledge, for example, and a more formal exploration of ways of seeing that include communication and empathy.

This thesis interpreted the RW (see Figure 2) using a visual grammar that reflects the dynamic relations and wholeness of the model. This is not only a conceptual interpretation of the RW model, but an exercise in communicating its fundamental elements. The four design modalities depicted in Figure 2 cover surface levels (*ways of thinking* and *ways of making*) and deeper levels (*ways of being* and *ways of seeing*) of design practice. The surface levels can be associated with traditional design approaches, whereas the deeper levels of design practice complete the model with intangible levels that McAra-McWilliam (Moreira 2015a) argues constitute distinctive aspects of this model.

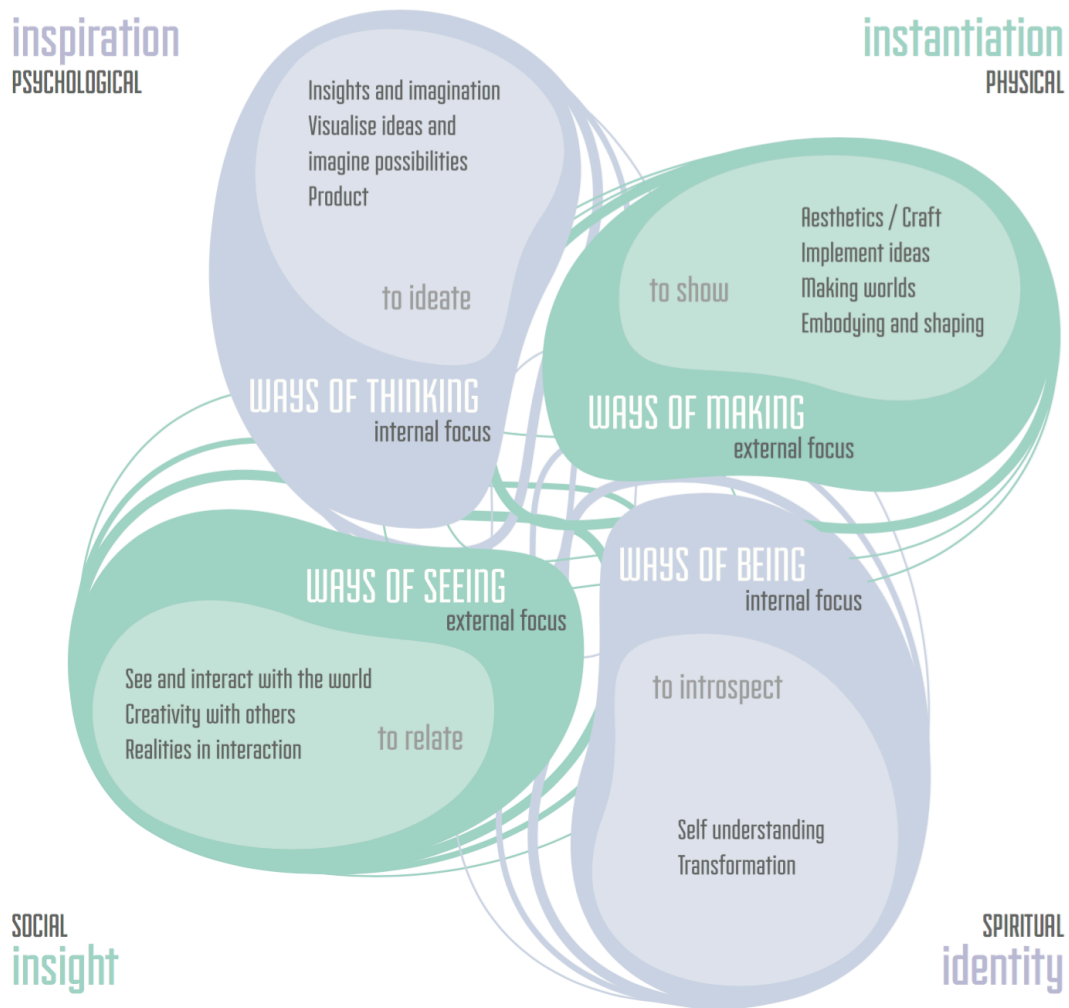


Figure 2 – Interpretation of the Rose Window Model. Adapted from McAra-McWilliam (2010, 2015)

Additionally, the integral perspective found in the RW evokes the integral quadrants that are part of Integral Theory's AQAL system, a neutral map for providing an ample understanding of any phenomenon or topic (Wilber 2006), such as emerging design practices, which can lead to the generation of sustainable solutions/approaches to complex issues.

As seen in Figure 3 the quadrants offer a layered map that shows the overlap of diverse dimensions and combinations through which a certain phenomenon or subject can be examined: individual, collective, interior, and exterior, as well as experiential, behavioural, cultural and systems perspectives. The left-hand quadrants seek to explore subjective realities observed from within, and the right-hand quadrants by opposition focus on an analytical and objective perspective obtained from the outside (Fleming 2013). The top quadrants focus on individual dimensions, and by opposition the lower quadrants cover collective dimensions (Esbjörn-Hargens 2010).

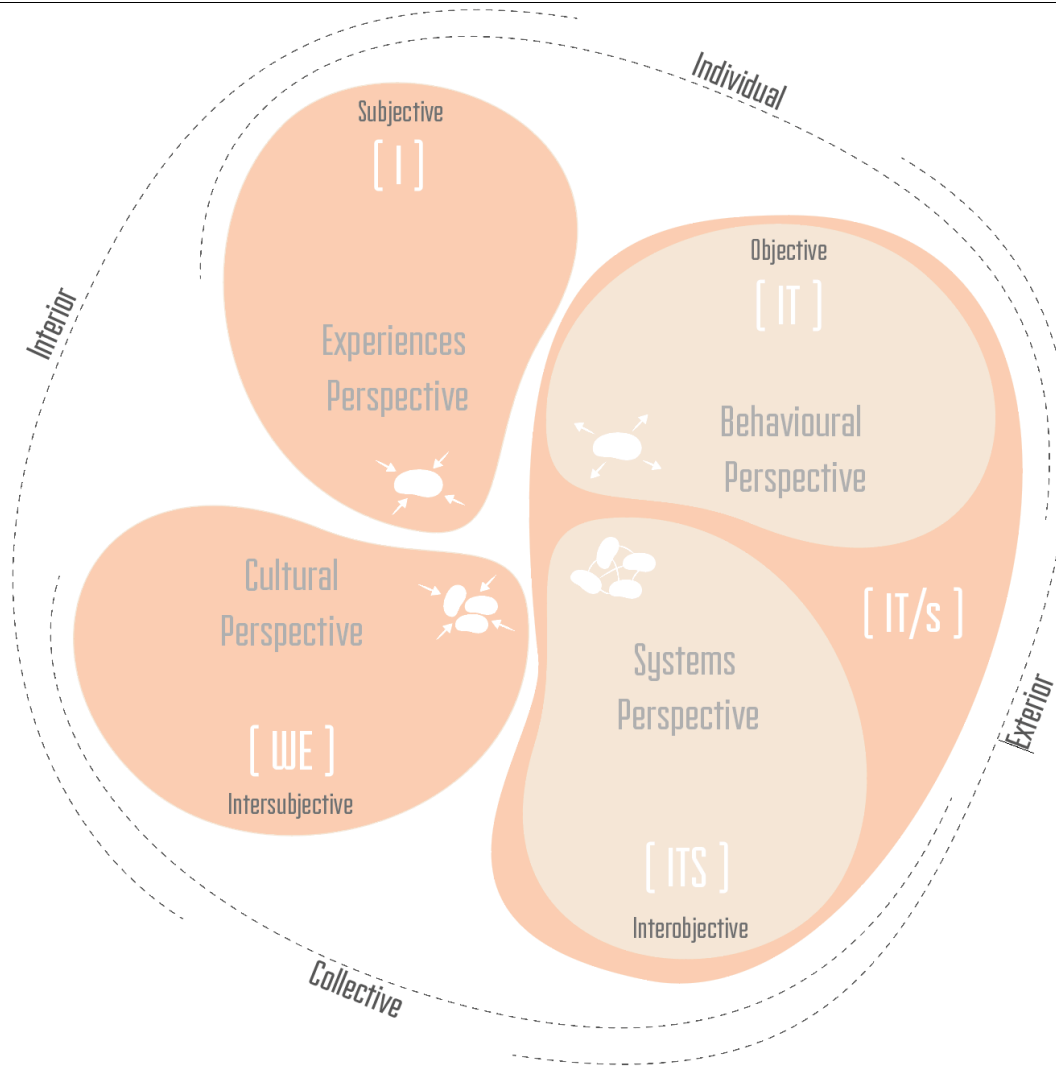


Figure 3 – The Four Quadrants and The Big Three.
Adapted from Esbjörn-Hargens (2010), Wilber (1997, 2006) and Fleming (2013)

Adding another layer to this model, Figure 3 also shows that the quadrants can be included in three domains of reality (Karpiak 2010) referred to as the ‘Big Three’ by Wilber (Esbjörn-Hargens 2010), representing first-person (subjective), second-person (intersubjective), and third-person realities (objective and inter-objective). As in the RW, the value of the quadrants rests in the aggregation of complementary aspects in one map (Paulson 2008). By acknowledging the quadrants and being aware of their diverse dimensions, Esbjörn-Hargens (2010) claims that individuals, teams and organisations can adjust and craft their interventions more aptly to the complex global context, and by extension to design’s complex context. From an educational perspective, developing this integral perspective can lead to more mature epistemological states in the students allowing them to translate different types of knowledge in order to navigate complex and challenging contexts (Hedlund-de Witt 2010). Each *way* of the RW will be explained next along with its corresponding integral quadrant. However, merging these models was not an obstacle-free process, yet,

the resultant overlap was built on the strengths of each model, not creating a uniform model but rather creating “unity-in-diversity” through the integration of common features and differences (Wilber 2000). Figure 4 illustrates the merger of the two models and highlights that the deeper levels of design practice show a more harmonious match with the integral quadrants. To solve a few discrepancies between the models in their top quadrants, the “Big Three” were used in the top modalities of the RW to represent objective and tangible design practices, which include both systemic and behavioural perspectives. The aggregation of both models served to highlight the integral character of the RW model which will be used to further explore the literature on emerging design practices.

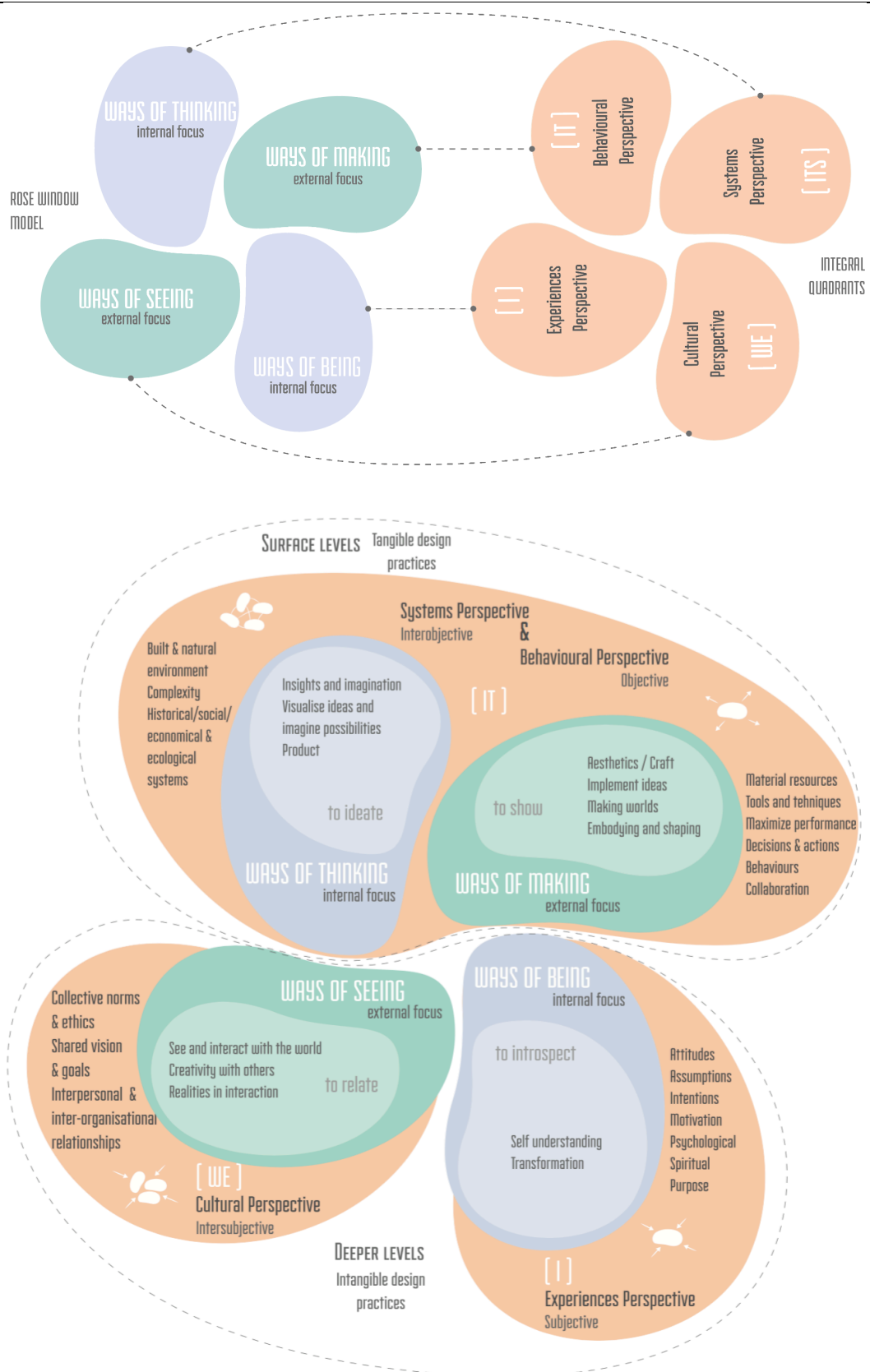


Figure 4 – Merging the Rose Window with the Integral Quadrants. (McAra-McWilliam 2015, Wilber 2006)

Ways of making: embodying and shaping

Ways of making is a dimension associated with more traditional design practices, and refers to externalising ideas and solutions through material expressions. It is associated with the act of creating through embodying (Roussos 2003: 76), forming and transforming (McAra-McWilliam 2010), showing and expressing (McAra-McWilliam 2015). Through the use of mock-ups, prototypes, and storytelling media for presentations, embodying shape acts as a debate tool for preferred solutions (McAra-McWilliam 2015). As seen in Figure 4, ways of making evidence the behavioural perspective shown in the “IT” quadrant which refers to an objective individual-exterior dimension (Wilber 1997). However, emerging practices of design include teamwork with extended design teams in the creation of a project’s outcomes (see for example, Design Council 2012, Imbesi 2011, Murphy and Baldwin 2012, Tham and Jones 2008), stressing the need to expand the individual focus of this quadrant to an integral collective behavioural perspective.

Ways of thinking: conceptualising and imagining

As with the previous modality, ways of thinking is at the surface level of design practices but it refers to internal ideation processes of insight and imagination (Roussos 2003, McAra-McWilliam 2010). It is understood by McAra-McWilliam (2015) as the act of conceptualising inner realities, adopting a systemic perspective (as in the “TTS” quadrant) to visualise ideas and imagine possibilities, which is mediated through the use of tools in individual and collective processes. The use of ideation tools can be understood as an objective (Fleming 2013), visible outcome of inner processes, which associates this design modality with a third-person perspective from the ‘Big Three’ (Esbjörn-Hargens 2010).

Ways of seeing: engaging with the world

At deeper levels of design practice, ways of seeing has an external focus concerned with building relationships with the world in general (Roussos 2003), and seeking a collective construction of meaning through empathy and engagement with other perspectives (McAra-McWilliam 2015). This modality can be placed in an integral inter-subjective dimension (Esbjörn-Hargens 2010) that focuses on understanding the collective consciousness and plural realities in society (Wilber 1997). In order to do this, and using McAra-McWilliam’s words (2015), designers use their “cultural antennae” for immersion in, and making sense, of contexts. Drawing or photography are examples of important background activities whereby designers actively search for what to see and feel in their surroundings (McAra-McWilliam 2015). This type of interaction with the world is described by McAra-McWilliam (2010) as an activity that is not neutral observation but one that affects the observer and drives the emergence of insights. Here a clear parallel arises with John Berger’s posited ways of seeing (1972): as knowledge beyond words, and as a reciprocal relationship between the observer and the context, which leads artists (in this case designers) to embody this knowledge through ways of thinking and making.

Ways of being: self-understanding and transforming

Ways of being is placed at deeper levels of design practice, and it refers to curating the self, and building a sense of identity through being and becoming a designer (McAra-McWilliam 2015). This sensibility has a spiritual component (not theologically grounded or in a religious sense) as a personal drive and purpose (Moreira 2015a), which was also found in the integral first-person perspective including psychological and spiritual dimensions (Wilber 1997, Esbjörn-Hargens 2010). In this merger, both ways of being and the “I” refer to personal consciousness and reflective practices regarding interior experiences (Fleming 2013, McAra-McWilliam 2015) that lead to the identification of values, assumptions, motivation, intentions, and purpose (Wilber 1997, McAra-McWilliam 2015).

This modality of design practices goes beyond introspection towards individual transformation (Moreira 2015a), in which the designer is transformed through their practice. This thesis argues that the same can be said about stakeholders and audiences empowered to take action and transform their realities, as a result of a design-led practices such as the ones investigated in this research.

Referring to Mark DeKay’s (2011) model of Integral Design Education, Fleming (2013) presents the “I” quadrant from the perspective of shaping form to engender experience and achieve sustainable solutions for the built reality. Here, the product is put at the centre of the quadrants, not the designer. However, shaping and engendering experience can be looked at from the perspective of the design student in this thesis, which reveals the potential of applying integral principles to design education for emerging design practices.

Ways of being and ways of seeing are taken as the distinctive aspects of this model, which will be highlighted in the following comparison.

Comparing models

The RW model was compared with design models (see Figure 8) such as the Double Diamond (Design Council 2007), the HCD (IDEO 2015), and the Evolution 6² (Tschimmel 2014b), revealing the distinctiveness of McAra-McWilliam’s (2010) model, which adds insights into tacit and less objective aspects of design practices that include immaterial outcomes and intangible aspects of practice, such as ways of seeing and ways of being.

First, the Double Diamond model (Design Council 2007) depicts the design process of more traditional design activities, such as the ones undertaken by Alessi or Lego. However, I had knowledge of its application for curriculum re-design and business innovation processes. As seen in Figure 5, this model comprises a sequence of divergent/exploratory and convergent/evaluative phases of the design process. Although the Design Council (2007) refers to the importance of iteration between phases (mainly the first two phases: Discover, Define), the model can be described as prescriptive in that it outlines a series of steps towards a final design solution. Certainly a useful model for novice designers, it nonetheless hinders the whole experience of the designer. Other ways of knowing

that are less objective or less rational could enrich the design process and potentially challenge its linearity. Between the RW and the Double Diamond (see Figure 8), it can be said that ways of thinking and making have relevance over other design modalities of the RW.

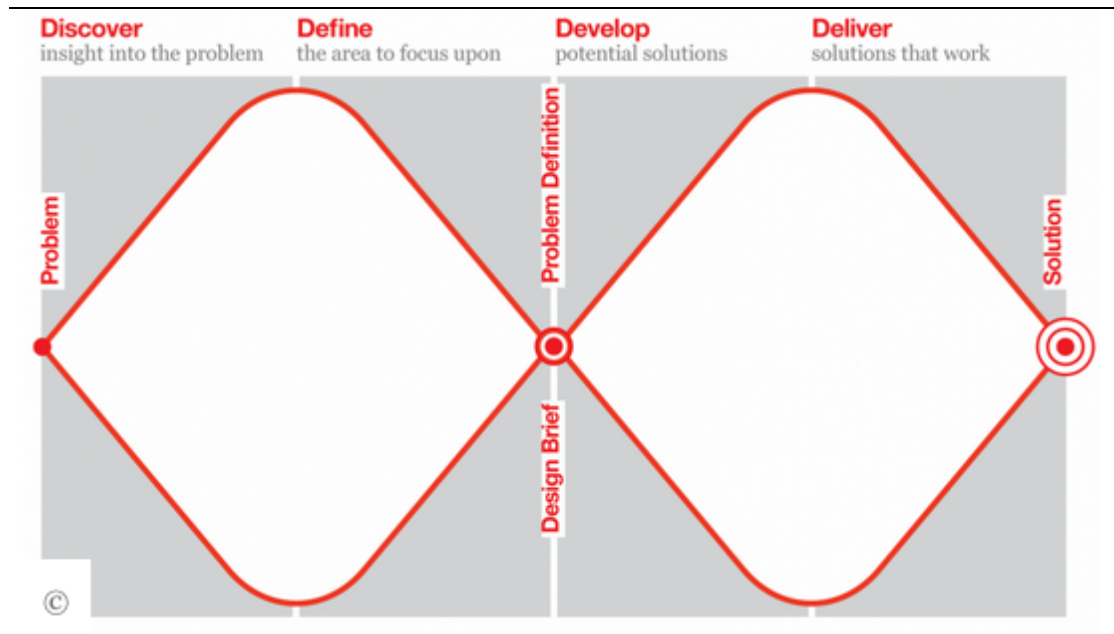


Figure 5 – Double Diamond model of design process (Design Council 2015)

Second, in comparison with the Double Diamond, the HCD (Human-Centred Design) model by IDEO (2015) suggests a far more iterative process, mainly through its visual representation of three overlapped areas (see Figure 6). These are based on the design thinking process offered by Tim Brown (2008): “inspiration, ideation, implementation”. Although it is a model based on design *thinking* processes, its main aim can be located in the production of physical design outcomes, and many similarities can be found with the Double Diamond model. The HCD has an openly human-centred focus, which can be related to the RW’s ways of seeing; other relationships with the RW are offered in Figure 8.

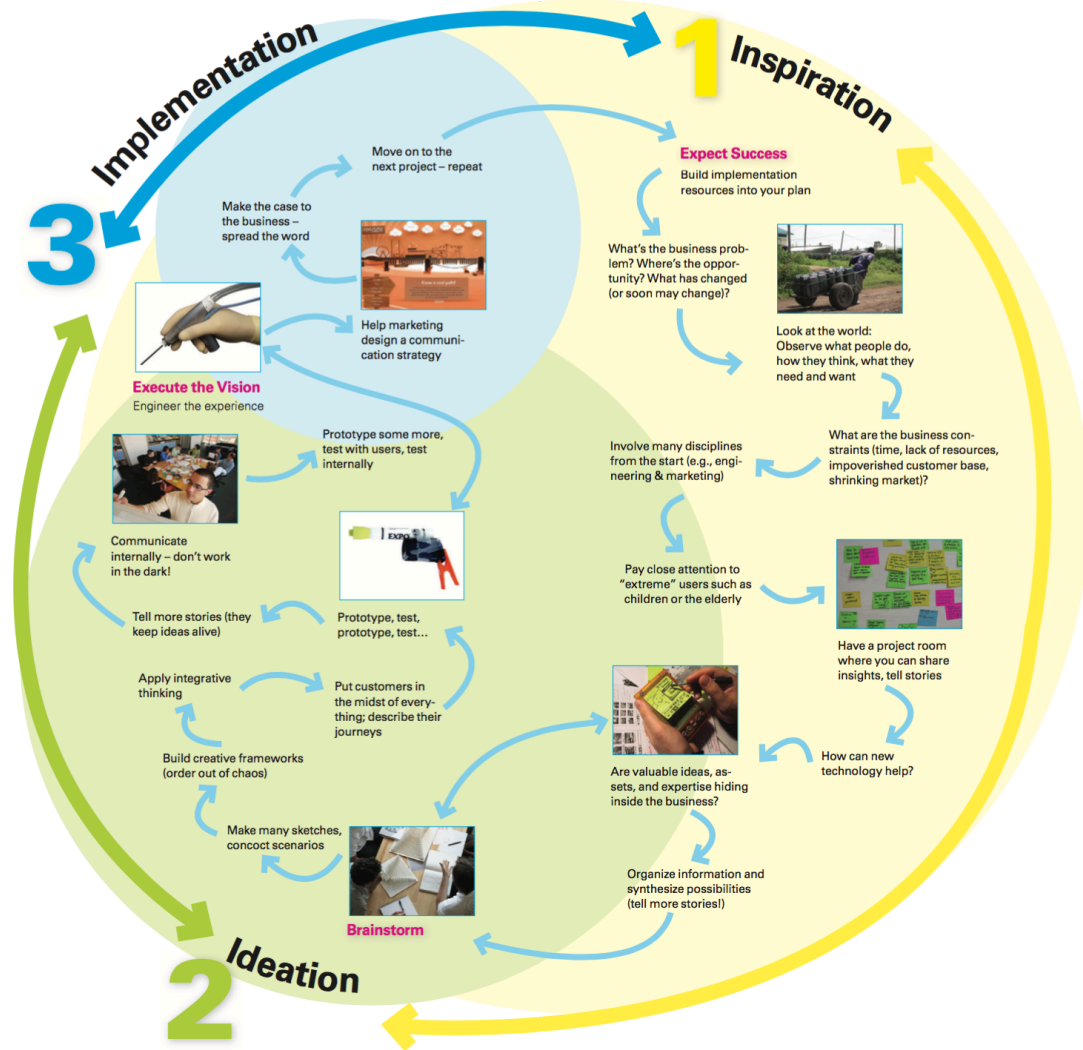


Figure 6 – Human-Centred design process by IDEO (Brown 2008)

Third, the Evolution 6² (Tschimmel 2014b) is a design *thinking* process model that was of interest to this research due to what was perceived as the fluid boundaries between its stages, and its suggestion of iterations and the simultaneous use of the different phases depending on the context of the project. Adding to this dynamism, each phase includes both divergent and convergent thinking (Tschimmel et al. 2015), making it a more comprehensive model than the previous two. Tschimmel's model (Figure 7) focuses on design *thinking*. Therefore, its outcomes are not always expected to be design products, and the process is not the preserve of professional designers. Examples of its application include its use for training and HE curriculum development (Tschimmel et al. 2015).

EVOLUTION 6²

katja tschimmel ©
esadlnamente

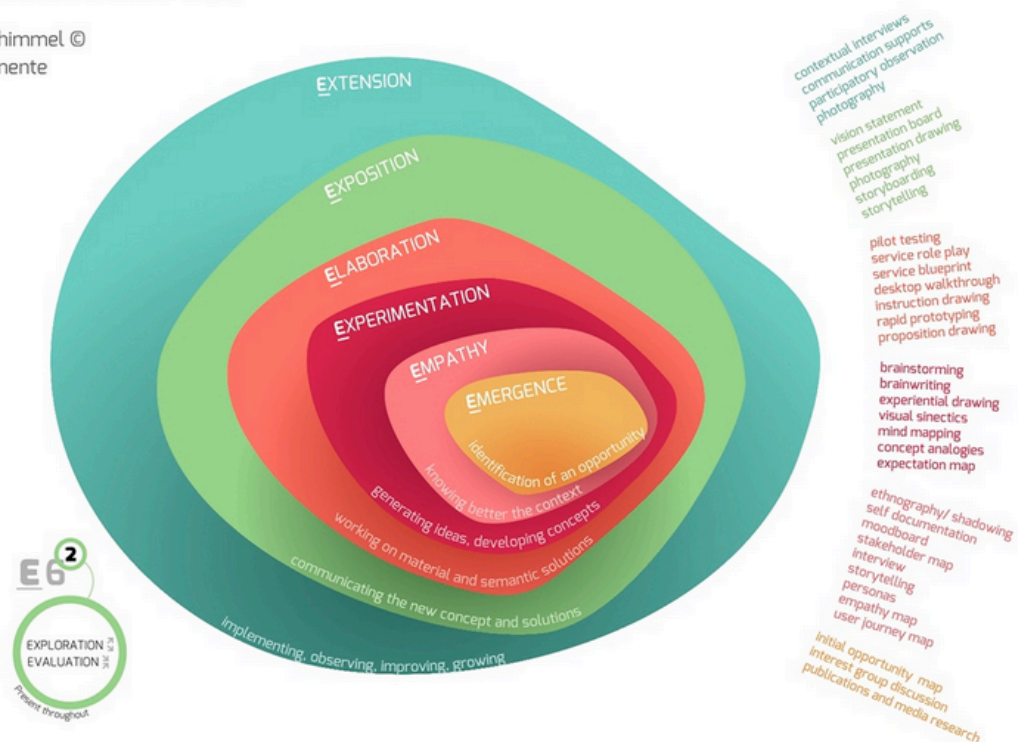


Figure 7 -Evolution 6² design thinking process model (Tschimmel et al. 2015)

Figure 8 depicts correspondences between the four models and highlights that the RW's *ways of being* is not covered in the models compared here. Their function is to explore design processes, not the identity of the designer with which this thesis is more concerned due to its educational orientation.

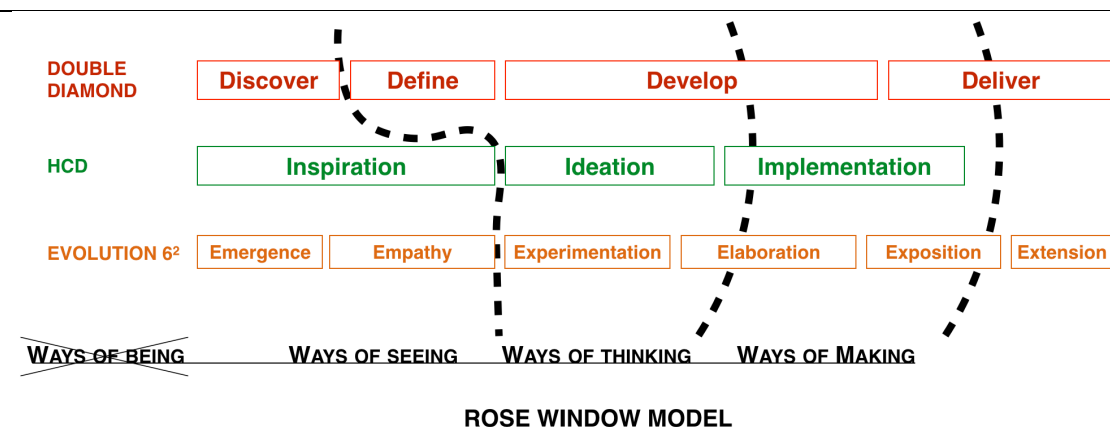


Figure 8 – Comparing models: Double diamond, HCD, Evolution 6², and the Rose Window

The tacit modalities of the RW, that is, *ways of seeing* and *ways of being*, inform the early stages of the design processes, and, for this thesis, the main contribution of the RW model is the fact that it highlights the equal importance of these tacit modalities and the aesthetic and instrumental design outputs covered by other design models. Also, McAra-McWilliam (2010) argues for the inclusion of these

design modalities in design education, focusing on the need to develop the identity of students:

“One of the discoveries in becoming a designer is finding out about ourselves, what we want to accomplish and what the context of designing is.”

McAra-McWilliam (2010: 10)

Although the RW can be used as a process (looking at Figure 8, and as found in Reid (2002) for innovation support of SMEs), the focus of McAra-McWilliam (2010) was on the designer and the act of designing, which is more relevant to this thesis' enquiry and provides an integral lens through which to explore design literature. Moreover, the instrumental models used in design education, such as the three models discussed, can be unsuitable for more complex design processes (Findeli 2001) which are in need of different models. The RW can be one of them. However, this thesis developed another model resulting from an extensive literature review and further fieldwork which can be found in sections 4.9 and 7.2.

From the previous discussion, it is clear that an integral approach to emerging design practices and design education is better equipped (than disciplinary-bounded educational approaches) to deal with the complexity of globalisation and the associated ambiguity arising as design boundaries broaden.

2.3 – Emerging changes in design

Using the RW model as a lens to highlight a growing focus on deeper levels of design practices, this section covers key emerging descriptors of design, the changing roles of designers and its subjectivity, and metadesign and design innovation as examples of emerging design specialisms. The insight generated from the exploration of the previous elements informed the creation of a conceptual framework termed *amplified practice of design* which was used in this research as a set of key elements to consider in an educational approach aligned with emerging design practices.

Plural design approaches

Design has been surrounded by continuous debate on the definition of its uniqueness and value (examples include Burns et al. 2006, Cross 2006, Dorst 2011, Friedman et al. 2014, AHRC-INDI 2014, Julier 2000, Jung 2010, Lawson and Dorst 2009, Manzini 2010, Michlewski 2008, Nelson and Stolterman 2012, Tan 2010). While this thesis recounted the theme of amplification in design in previous sections, the literature reviewed here demonstrated that there is a lack of consensus regarding the character of contemporary design practices (Cruickshank 2010, Hobday et al. 2011, Marsili and Salter 2006, Tschimmel 2014). The plurality of interpretations, sometimes conflicting, can be attributed to different backgrounds, experience and beliefs about design among authors (this variety is found in the examples offered by Yee et al. (2013), for example). This plurality is a distinctive characteristic of Design, a dynamic discipline with a fragmented and fast-changing character (Myerson 1990, discussed by Julier 2000) that responds and adapts to social and economic contexts (Burns et al. 2006, Cooper and Press

2003). This thesis would add that design adapts to the world in general, which includes far more than social and economic contexts. Moreover, recognising that design boundaries will continue to dissolve, Bremner and Rodgers (2013: 8) state “that design is characterised by fluid, evolving patterns of practice that regularly traverse, transcend, and transfigure disciplinary and conceptual boundaries.” Their paper offers a valuable contribution to clarifying the several disciplinary orientations through which design can be understood (see Table 3). These definitions serve to elucidate the use of these terms in this thesis and in the literature, and help design educators articulate their programmes in clear terms regarding their disciplinary orientation.

Clarifying disciplinary perspectives

Looking at the disciplinary definitions listed in Table 3, Bremner and Rodgers (2013) state that design is now characterised as multidisciplinary (examples include McArthur 2010, Young 2013), aiming towards crossdisciplinary practices (found in Furniss 2015, Giaccardi 2005, Tham and Jones 2008, for example). Bremner and Rodgers’ (2013) position could be described as reflecting design education in general and yet does not reflect emerging design practices as explored in this thesis. Murphy and Baldwin (2012) and Wilson and Zamberlan (2015) describe an emerging way of working in design as an interdisciplinary orientation that surpasses a crossdisciplinary position. Anticipating the case studies in this research, case study 1 can be said to operate in the crossdisciplinary realm and pursue an interdisciplinary position. Case study 2 can be defined as sitting in an interdisciplinary arena pursuing a transdisciplinary orientation. These last two orientations can be described as boundary spaces (see Sangiorgi and Prendiville [2015] for examples), argued by Imbesi (2012) as the territory of design. For the emerging holistic and integral paradigm in design, design educators could explore these positions further to align with the needs of emerging design practices. Moreover, Bremner and Rodgers (2013) go beyond this to suggest that alterdisciplinary and undisciplinary pursuits have the potential to discover new dimensions in design and new ways of working. This is a challenging position to explore in design education as it tends towards a “disciplinary dissolve”.

The disciplinary dissolve	
Disciplinary	An understanding is demonstrated of one set of conceptions and one methodological approach from field of practice. Able to tolerate questions and contribute new designs in this field only.
Multidisciplinarity	An understanding is demonstrated of disciplinary difference and shows ability to learn from other disciplines.
Crossdisciplinarity	An understanding is demonstrated of disciplinary difference and can follow problem-focus of other disciplines.
Interdisciplinarity	An understanding is demonstrated of at least two disciplinary competencies. One is primary, yet it is able to employ the concepts and methodologies of another discipline. Strengthens understanding of the primary discipline.

Transdisciplinarity	An understanding is demonstrated of at least two disciplinary competencies, neither of which is primary. Results in a trans-methodological perspective. Abstracts disciplines to bridge new problems.
Pluridisciplinarity	An understanding is demonstrated of a combination of disciplines that are already related in the various domains within design itself.
Metadisciplinarity	An understanding is demonstrated that shows an effort to overcome disciplinarity by using methods to construct overarching frameworks to connect practices and their histories to new problems.
Alterdisciplinarity	An understanding is demonstrated that shows an ability to make connections that generate new methods to identify “other” dimensions of design activity and thought.
Undisciplinarity	An understanding is demonstrated that purposely blurs distinctions and has shifted from being “discipline-based” to “issue- or project-based;” an ability to mash together jumbled ideas and methods from a number of different, distinct disciplinary practices that can be brought together to create new unexpected ways of working and new projects. Displays an “anything goes” mindset that is not inhibited by well-confirmed theories or established working practices.

Table 3 – Disciplinary definitions. (Bremner and Rodgers 2013: 11-2)

However plural design may be, it is pertinent to clarify an emerging position regarding the definition of design as a first step towards the creation of a conceptual framework of an *amplified practice of design*. This framework intends to clearly capture an ill-defined emerging discourse in design so that design practitioners and design educators can use it to advance their practices.

– ***Emerging design descriptors***

The examination of contemporary literature on design led to the identification of two design descriptors: integrative and transformative.

Design as integrative

This descriptor encapsulates the multilayered expansion of design, illustrated earlier in this chapter and presented above by Bremner and Rodgers (2013). It refers to inclusive design practices beyond the creation of tangible outcomes, and work developed in boundary spaces, which can lead to transdisciplinary modes of working at its highest level of integration. First, the expansion described here suggests an integrative view of design entering an all-inclusive paradigm that potentiates the exploration of new territories of intervention. As Muratovski (2015) points out, designers’ works currently extend beyond tangible objects or spaces, and include the design of experiences, systems, strategies and policies. Secondly, this research found different terms in the literature that characterise “boundary spaces” (Sangiorgi and Prendiville 2017). The literature refers to design as a connector between different types of knowledge (Buchanan 1998, Imbesi 2012), different disciplines and people (see Friedman et al. 2014; see the creative consultancy Zilver Innovation in Yee et al. 2013: 139). Creating these connections implies cross-fertilisation (Imbesi 2012), translation, and negotiation activities by

designers (Friedman et al. 2014), which fits one of the current transitions in design identified by Yee et al. (2013)—a transition to greater collaboration. Operating in such a manner requires the integration of diverse, competing and paradoxical perspectives on the same project, highlighting a type of design work developed mainly at social (ways of seeing) and conceptual levels (ways of thinking), as depicted in Figure 9.

This integrative notion of design comprises different levels of integration ranging from a multidisciplinary position at the lowest level of integration, to a transdisciplinary position at the highest level of integration, which is emerging in design as an approach to complex and interconnected challenges of the twenty-first century (Bridgstock 2013). An integrative design position can be inferred from Findeli's (2001) reflection regarding design education for the 21st century:

My suggestion is that we should not restrict ourselves thus, but, instead, open up the scope of inquiry, i.e., in systems theory terms, and push back the boundaries of our system in order to include other important aspects of the world in which design is practiced.
Findeli (2001: 11)

Lastly, alterdisciplinarity and undisciplinarity, advocated by Bremner and Rodgers (2013) can be linked to the description of design as transformative due to their potential to generate new perceptions and unexpected ways of working. Figure 9 shows both design descriptors overlaying the RW, highlighting emerging views of design that focus on deeper levels of practice.

Design as Transformative

The integrative character of design referred to above, at its deepest level, can support the transformative (strategic) intention of designers to morph realities and shape futures, and lead to the transformation of design practices (with a growing social focus) and the designer's identity.

The designers who embrace these changes, and who see themselves as being on the cutting-edge of a rapidly changing and expanding field, are using their expertise to create powerful and influential leadership roles for themselves, expanding their skillset and working with people from other disciplines to co-creating transformative propositions within the context of increasingly complex challenges. Banerjee (2013: 195)

Design's growing strategic influence in shaping the future (Banerjee 2013; Murphy and Baldwin 2012) is expressed in examples offered by Yee et al. (2013) for both private and public sectors. At an organisational level, designers are increasingly playing transformative roles to help organisations pursue systematic innovation, by coaching, mentoring and taking part in structuring strategies (Teixeira 2013). It is a social mode of working (Manzini 2015) that involves interdisciplinary work to co-produce sustainable and transformative solutions for complex contexts (Banerjee 2013). Manzini (2015) explores a social focus of design for change and innovation, and in this context—but from a design education perspective—Mendoza and Matyók (2013) refer to design as transformative, highlighting the importance of developing empathy and citizenship in design students. In relation to this, Hobday et al. (2012) use the term “design sensing” (offered at the

Weatherhead School of Management Conference in 2010)—which includes empathy, emotion, perception and imagination—as a complement to design thinking, forming a holistic design approach to complex problems.

The above reflects an attitude and set of principles for designing at the level of ways of being from the RW as illustrated in Figure 9, where the pursuit of certain modes of designing have a personal impact on designers and on their identity.

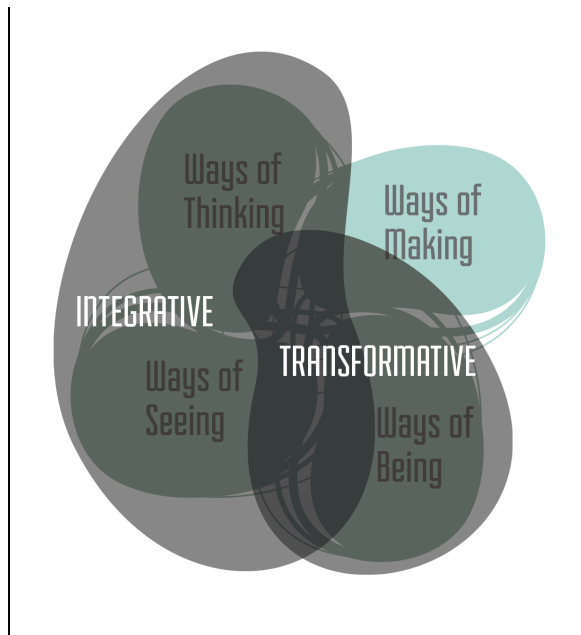


Figure 9 – Design as integrative and transformative overlaying the Rose Window model.

If we draw a parallel with the fundamental principle of Integral Theory (transcend and include), the design descriptor “integrative” fits the *include* clause of the principle, and the “transformative” descriptor fits the *transcend* clause.

At the educational level, embracing these descriptors would necessitate the pursuit of distinct models of design education that, as argued by Murphy and Baldwin (2012), could create a “dynamic and responsive” educational environment based on principles of emergence, interdisciplinarity, integration and knowledge of the value of design.

– ***Subjective levels of practice: leaving the prescriptive realm***

The changing roles of designers recognised in the literature (for example Cooper et al. 2009, Manzini 2013, Murphy and Baldwin 2008, Murphy and Hands 2012, Yee et al. 2013) reflects the designer’s capacity to adapt to surrounding circumstances, and evidences the ever-changing character of design. As well as exploring the strategic role of designers within a view of design as transformative, there is an inclination within the recent literature to explore the emerging roles of designers as they pass from a prescriptive realm towards more inclusive, collaborative and social roles (imbued with the subjectivity of human relationships). Moving away from traditional consultancy roles towards a

networked and open-ended approach (Manzini 2013), designer's roles are including the facilitation and translation between the different players involved in a project, the change of mindsets and cultures by designer-educators that are surfacing in large organisations, and the production of social and organisational change by designer-entrepreneurs (Yee et al. 2013). This provides design education with a set of demands which the educational proposal put forward in this thesis intends to address.

The influence of a context of diversity

The emerging new roles of designers are heightened by a globalised world and changes in global demography. Design practices are developing across cultures, generations and disciplines. The rise of a “young boomers” generation from Asia and Africa balances an ageing Western world (UN 2015, World Bank Group 2016), and is impacting the social fabric worldwide with emigration and workforce outsourcing from Western countries. Asian and North American workplaces are increasingly marked by human diversity in gender, culture, and generations with different worldviews (INTEL 2012, UKCES 2014). In the context of this thesis, these changes are brought to the awareness of design educators through increasingly sophisticated algorithms that forecast and predict complex problems. This information allows design educators to take action and adapt their approaches to include the development of collaboration and cross-cultural skills in their programmes. Therefore, it is important for design educators to better understand the demographics and culture of their programmes.

Mapping subjective levels of practice

The changing roles of designers described above can be placed in the RW's deeper levels of practice, as highlighted in Figure 10. The RW model and the integral 'Big Three' domains of reality (Esbjörn-Hargens 2010) were used to frame contributions from the literature on this topic.

In Figure 10, the dimension “Ways of Seeing” represents an inter-subjective perspective referring to seeing and interacting with the world (McAra-McWilliam 2015). Contributions from the literature included in this quadrant reflect the designer's pluralistic approach which recognises the importance of collaboration between different disciplines, cultures and types of knowledge. Examples include a search for ways to create synergies (Wood 2010a), interdisciplinary collaborations (Murphy and Baldwin 2012), and networked modes of working (Imbesi 2011). Ways of Being covers an experiential perspective where designers reflect on themselves, their roles and their motivations in order to define their identity (McAra-McWilliam 2015). Examples include the notions of being a strategist (Murphy and Baldwin 2012), a facilitator (Burns et al. 2006), an integrator (Hobday et al. 2012) and a need to seed change (Yee et al. 2013). Expressing an amplification of designers' roles towards cultural and experiential domains, Figure 10 highlights design practices that are heavily centred on collaboration, and on the designer's identity. Krippendorff captures this in *The Semantic Turn* (2005), arguing that the collaborative work developed by human-centred designers that are part of the emerging humanistic design paradigm referred to in section 2.1 are showing an ability to redesign themselves:

[...] however, provided professionals are willing to apply their own competencies to themselves, redesign themselves, change their self-conception, and move to where others cannot go. The ability to redesign themselves as a profession distinguishes between human-centred designers in the postindustrial culture and designers of a bygone era. Krippendorff (2005: 74)

This aspect of developing and rethinking identity demands from designers a personal willingness (or a way of being) to develop new skills and improve their awareness and reflexive ability, which can be seeded by design education. This is an aspect that this thesis intends to explore in its proposal for an approach to design education (see sections 4.9 and 7.2).

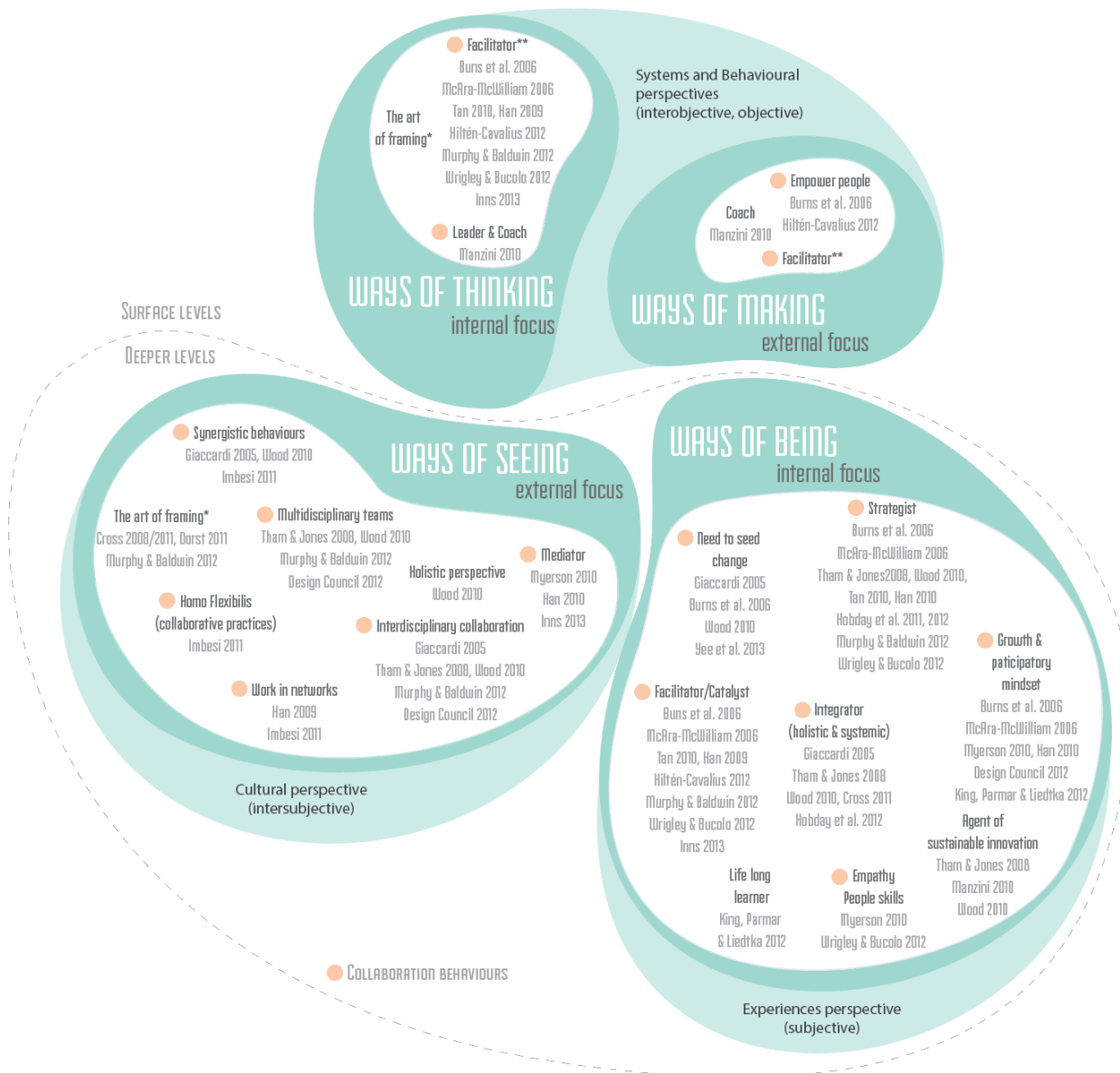


Figure 10 – Contemporary views of designer's roles using the Rose Window model (McAra-McWilliam 2008) and the Big Three dimensions of reality by Integral Theory (Esbjörn- Hargens 2010).

Sources used: Burns et al. 2006; Cross 2011; Design Council 2012; Giaccardi 2005; Han 2010; Hyltén-Cavalus 2012; Hobday et al. 2011, 2012; Imbesi 2011; Inns 2013; King et al. 2012; McAra-McWilliam 2008, 2015; Manzini 2010; Murphy and Baldwin 2012; Myerson 2010; Tham and Jones 2008; Wood 2010a, 2010b; Wrigley and Bucolo 2012, Yee et al. 2013

– ***Emerging specialisms***

Practical examples of the aforementioned amplification of design practices can be found in Metadesign (Giaccardi 2005, Wood 2008, Tham and Jones 2008) and Design Innovation (Cruickshank 2010, Lockwood et al. 2012, Manzini 2014, Wrigley and Bucolo 2012). In comparison with traditional design specialisms, metadesign and design innovation show a path of re-definition towards an amplified perspective that includes a disposition to reinvent their practices. This research used these examples and the content from previous sections to build a conceptual framework that crystallises this amplified perspective. Figure 13 depicts how the elements of these sections were used for such an endeavour.

Metadesign

Metadesign can be referred to as a practice that evolved from a technological focus in the 1980s, developing socio-technological concerns in the 90s and now experiencing an expansion that can be considered integral in the sense that it offers principles for practice to promote a more sustainable mode of living that goes beyond the discipline of design.

Technological roots

Elisa Giaccardi (2005) offers a relevant overview of the path of metadesign from the 1980s to the early 2000s. As a concept, metadesign focused on the possibilities that could derive from “designing the design”. The concept was initially explored during the advent of the WWW to create evolving technological structures that could produce a wide variety of options for users. The creation of reactive computational structures and the use of technological tools and parameters were intended to empower users to use technological tools to choose preferred final designs from an array of previously programmed or designed options (Giaccardi 2005, Kerckhove 1995). Although this concept of reactive computational structures explored possible new interactions with users, it was still based on pre-determined behaviours, and users maintained a passive role in product development.

A Socio-Technological Connect

In the same period Maturana (1997) argued for the importance of a living systems perspective in metadesign, opening up new relational dimensions and the need to consider the ethics of a socio-technological dialogue (Giaccardi 2005). Moving away from the notion of the user as passively receiving a wealth of options to choose from, Maturana (1997) argued for human agency regarding technological advancements, which he saw as hampering the potential for choice and development of a product. Aligned with Maturana’s view, Tacker (2002) conceptualised metadesign as a flexible social mode of existence based on mutual processes of influence between many parts in a system, and argued for abandoning the previously prescriptive (although interactive) practices of metadesign.

Later, Fisher and Giaccardi (2004) at The Centre for Lifelong Learning and Design (L3D) worked on the development of an inclusive metadesign process (beyond user-centred and participatory design approaches) where users engaged with open systems, modifying and advancing them, creating unanticipated results. Giaccardi (2005) argues that user involvement in the whole process of system development changes the process of systems development, and evidences the transformative potential of metadesign:

Metadesign represents a cultural shift from design as “planning” to design as “seeding”. By promoting collaborative and transformational practices of design that can support new modes of human interaction and sustain an expansion of the creative process, metadesign is developing toward new ways of understanding and planning with the goal of producing more open and evolving systems of interaction. Metadesign can be seen not only as a design approach informing a specific design methodology for the development of interactive media and environments but also as a form of cultural strategy informing and integrating different domains.
Giaccardi (2005: 348)

The above developments signaled the emergence of new forms of design and more open systems of interaction, which are currently seen in Wood’s contribution to metadesign, which focuses less on technology and more on principles for practice (Wood 2010a).

Beyond design: principles for practice

Informed by Maturana (1997), an emerging view of metadesign advocates for a holistic mindset (Wood 2007), and emerging non-hierarchical processes (Tham and Jones 2008, Wood 2010b) to create a more sustainable mode of living (see Lundebye & Tham, a creative design and research consultancy). Through interdisciplinary and multi-layered collaborations aimed at building “synergies of synergies” (Alexiou et al. 2010; Tham and Jones 2008; Wood 2008, 2010a), this approach is concerned with principles of practice (Wood 2010a).

Rather than artefacts or fixed content, metadesign solutions are presented as open-ended structures (Giaccardi 2005) that allow systems to evolve further (Fuad-Luke 2007; Giaccardi 2005; Wood 2008). This position opens up the possibilities for the use of metadesign in any field or confluence of fields generating distinctive solutions, specifically if dealing with complex systems (Alexiou et al. 2010). Complex systems can be said to be the domain of metadesign. Wood (2008) asserted that metadesign calls for an “augmented mode of practice” and later defined the term (2010a: 2-3) with the characteristics found in Figure 11, which can be used as guiding principles for metadesign approaches.

-
1. Metadesign is a superset of co-design methods adapted from anywhere.
 2. Metadesign seeks survival strategies via a radical and pragmatic approach.
 3. Metadesign resists entropy by emulating how living systems conserve energy.
 4. Metadesign is eco-mimetic in that it is inspired by how ecosystems work.
 5. Metadesign intervenes in many places at once – to seed new paradigms.
 6. Metadesign steers itself by using words to ‘re-language’ actions and meanings.
 7. Metadesign seeks, brokers, cultivates and orchestrates a synergy-of-synergies.
 8. Metadesign creates holarchies, in which their ‘parts’ maintain ‘wholes’.
 9. Metadesign synergises its own teamwork by orchestrating synergies within it.
 10. Metadesign seeks ‘ecologies-of-scale’ by ‘scaling-up’ in an organic way.
-

Figure 11 – Defining metadesign. (Wood 2010a)

The collaborative and transformative characteristics of metadesign exemplify the expanding borders of design and subjective levels of emerging design practices addressed in previous sections. This example from practice offers useful information to inform this thesis’ approach to design education for emerging design practices. It reinforces the need for design education to explore emergent and inclusive working processes, and collaborative practices at different levels (found in Goldsmiths, University of London), to equip future designers to work within global and disciplinary complexity.

With an initial path closer to the arts and technology, metadesign previously appeared to be more speculative and conceptual, with more recent manifestations concerned with principles of practice with a strategic intent. By contrast, design innovation had an initial path closer to industry, which then adopted a more collaborative and social mode, also with a strategic intent. This path will be explored next.

Design innovation

The different perspectives of design innovation found in the literature refer to: first, a manufacturing industry and technology perspective; second, a business and management perspective; and thirdly, a social and cultural perspective followed by this thesis. As with metadesign, this design specialism reinforces the historical amplification of design practices referred to in section 2.1, and adds to this thesis’ enquiry into an amplified perspective on design.

The way the word “innovation” is used in design varies, and it is subject to many debates (Cruickshank 2010). In line with the discussion on the plurality of design, there are several terms in the literature that have been used interchangeably to mean design innovation, such as design-inspired innovation (Utterback et al. 2006), design-led innovation (Wrigley and Bucolo 2012), design driven innovation (Martin 2011, Verganti 2009), and the term used in this research: design innovation (Cruickshank 2010, Lockwood et al. 2012, Wrigley and Bucolo 2012).

Design innovation: a manufacturing industry and technology perspective

In a seminal paper on the relation between design and innovation, Vivien Walsh (1996) presented a perspective closely connected with the manufacturing industry, where innovation was a synonym for technological innovation. Within this context, Walsh (1996) understood design as vital to corporate strategy, increasing production efficiency by giving form to products and communication marketing strategies. Design was seen as a gatekeeper for many types of connections – user and producer, technological possibilities and market demands, inside and outside the firm, networks of people, different knowledge, different skills and desires. However, design was still perceived as an add-on to management activities, and not as the strategic business resource later recognised by Wrigley and Bucolo (2012).

Design innovation: a strategic role in business and management

One decade after Walsh's contribution, design's potential was recognised beyond the innovation of product differentiation (Borja de Mozota 2002, Ramlau 2004, von Stamm 2004) and its strategic potential was explored. As depicted in Table 4, Borja de Mozota (2002), von Stamm (2004) and Ramlau (2004) referred to a path leading away from a traditional view of design as a differentiation tool through product styling (tangible outcome) towards the design of processes:

- to manage workflow, work processes and work relations between both stakeholders and sectors/disciplines (Ramlau 2004, Borja de Mozota 2002);
- as strategy for value creation and day-to-day business enhancement (Ramlau 2004); and;
- to manage change by creating scenarios, metaphors and discontinuities (Borja de Mozota 2002).

The strategic role of design can therefore be described as conscious decision-making (von Stamm 2004) with a focus on processes and knowledge, following the changes in the definition of innovation given by the OECD (2005) and the DTI (2005).

3 Levels of design strategy (Borja de Mozota 2002)	Design ladder (Ramlau 2004)	3 interpretations of design (von Stamm 2004)
	<i>no use of design</i>	
Design as differentiation	Design as styling	Design as tangible outcome
Design as coordinating position	Design as process	Design as a creative activity
Design as transforming position	Design as strategy	Design as the act of conscious decision-making

Table 4 – Comparing design innovation taxonomies of Borja de Mozota (2002), Ramlau (2004) and von Stamm (2004).

Still connected to a management approach to design and innovation, Wrigley and Bucolo (2012) add the need for a holistic perspective to understand changes in society, culture and technology, and a collaborative design approach to be

embedded in all aspects of a business. Although not clearly expressed, Wrigley and Bucolo (2012) mention a cultural aspect of innovation, further explored by Lockwood et al. (2012).

Innovation and design: emerging non-quantifiable aspects

As a result of the dissemination of design thinking in businesses, Cruickshank (2010) points out an emerging focus on non-quantifiable aspects of innovation and design in the literature. The notions of innovation as an abstract process for conceptual problem-solving (Cruickshank 2010), and innovation as “the introduction of something new that is put to widespread use” Carlgren et al. (2014: 407), align with definitions of design innovation as a practice of shaping thought that considers behavioural, cultural, environmental, organisational, political and social aspects in design interventions (AHRC-INDI 2014). This broad conceptual position opens the scope for multiple and diverse design interventions and can be considered a more systemic and holistic perspective (Cruickshank 2010, Carlgren et al. 2014) when compared with the previous business-centric strategic positions.

Design innovation: A cultural and social perspective

Lastly, aligning with a more holistic understanding of design innovation, Lockwood et al. (2012) offer a cultural and social perspective of design innovation, defining it as a social-cultural phenomenon and not necessarily linear. This view aligns with Michele Rusk’s (2011) strategic perspective of design for social and economic innovation. A recent and broader definition of design innovation from the design education literature shows the potential of a design practice that is open to change and adaptation:

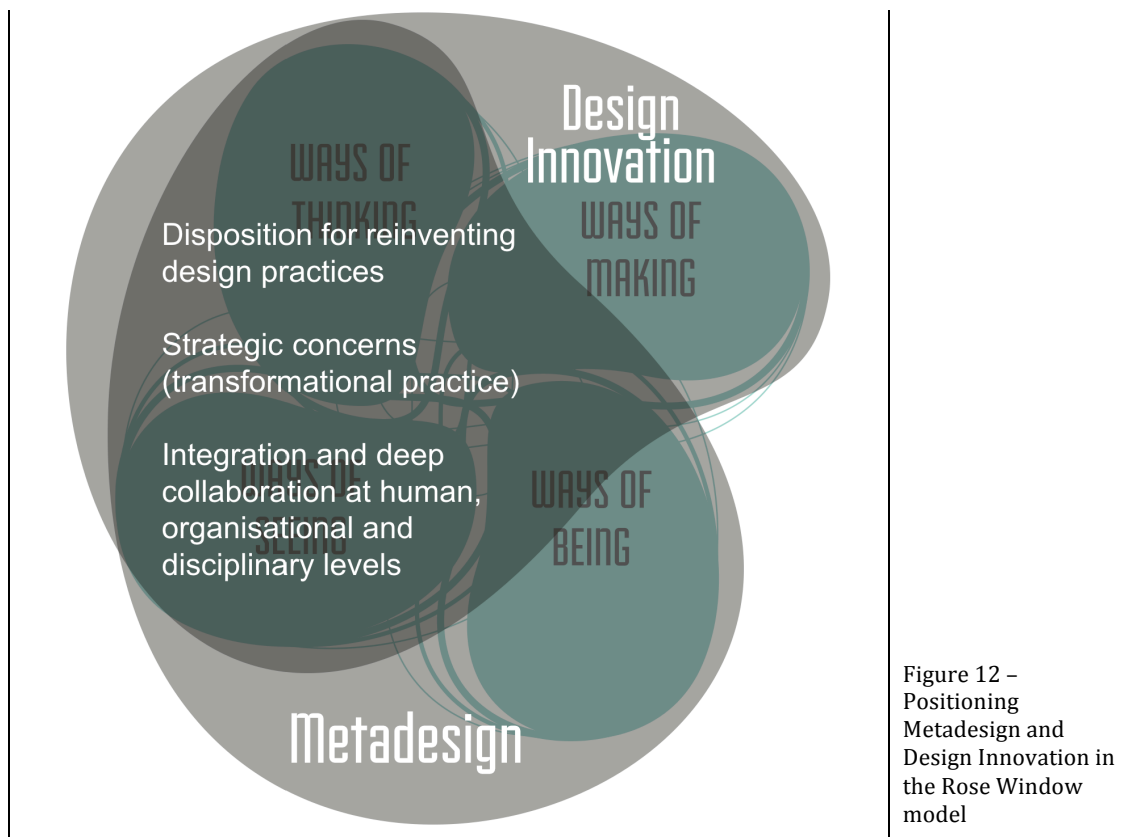
[A] design innovation approach is about developing agility and flexibility to be able to respond to any complex scenario where design could be employed or required.
Murphy and Dixon (2016: 1)

In Murphy and Dixon’s (2016) proposal of training areas in design innovation education there is a focus on “bringing form to the intangible complex”, as well as an identifiable focus on cultural and social concerns. This position on design innovation understands the designer as an element in the wider innovation network, not the gatekeeper of innovation (Cruickshank 2010). Therefore, design innovation can be characterised by its emphasis on strategic solutions (Manzini 2013, Teixeira 2013, Wrigley and Bucolo 2012) with a social and cultural focus (Lockwood et al. 2012, Margolin and Margolin 2002, Yee et al. 2013, Rusk 2011) which seeks to develop agency in its audiences (Manzini 2015, McAra-McWilliam 2015, Margolin and Margolin 2002). With a focus beyond end-artefacts, and including the design of processes (Manzini 2013, Siodmok 2013, Teixeira 2013), design innovation presents itself as a collaborative, dynamic, non-linear, complex, and networked practice (Cruickshank 2010, Lockwood et al. 2012, Manzini 2014, Wrigley and Bucolo 2012) that reinvents itself (Lockwood et al. 2012) to seed transformational change (McAra-McWilliam 2015). Here, design innovation exemplifies an amplified design specialism that encompasses deeper levels of practice (as found in the RW model) that are collaborative and adaptive with a

focus on effecting social change. Complementing the example of metadesign, the practice of this latest approach to design innovation reinforces the need for design education to focus on social, dynamic and adaptive design-led processes to equip future designers to work across sectors within global and disciplinary complexity.

Metadesign and design innovation

Both specialisms share a networked approach and collaborative qualities seeking integration at human, organisational and disciplinary levels, which is a complex task suitable for tackling the complexity of contemporary challenges. Their strategic and transformational concerns are not only oriented towards their audiences but are also reflected in a disposition to continuously reinvent their practices to adapt to the aforementioned complexity. However, a metadesign approach shows a focus on principles for practice and on processes, whereas design innovation (whilst sharing the same concerns) provides a more practical approach.



These complementary specialisms (positioned in the RW in Figure 12) reflect a path that emerging design practices are taking towards a broader role for design practice in non-traditional design territories, which can inform a distinct approach to design education. Table 5 closes this section with a synthesis that compares and contrasts both design specialisms.

	Metadesign	Design Innovation
General Characteristics	Seeks to redesign itself for every project situation	Reinvents itself to seed transformational change.
	Promotes a more sustainable mode of living.	Seeks to develop agency in its audiences
	Seeks interdisciplinary and multi-layered collaborations	Adaptive
	Systems integrator within complex systems	Collaborative
	Emergent, all-inclusive and non-hierarchical processes	Complex
	Focus on seeding processes Solutions are complex and open-ended	Non-linear
	Focus on the design of structures rather than artefacts or content	Networked
Common characteristics	<ul style="list-style-type: none"> - Disposition for reinventing design practices - Strategic concerns (transformational practice) - Integration and deep collaboration at human, organisational and disciplinary levels 	
Distinctive Characteristics	Principles for practice at a fundamental level	Application and practical outcomes
Examples of the relationship between education and industry	MA in Design: Expanded Design Practice, Goldsmiths University of London	MDes Design Innovation, The Glasgow School of Art
	Extended Study module: work placement, fieldwork in professional settings	2 long live projects in the technological sector, third sector, and public sector

Table 5 – Comparing and contrasting Design Innovation and Metadesign

This section provided an overview of a contemporary, broader perspective of design as integrative and transformative, and the emerging roles of designers exemplified by the latest strands of metadesign and design innovation. By bringing these concepts together this thesis used them to create a conceptual framework that crystallises an emerging *amplified practice for design*, which was later used as guiding principles to outline a proposal for how design education can develop designers to work in this way (see sections 4.9 and 7.2). Figure 13 describes how the key topics from the literature were organised to build the conceptual framework, highlighting the main influence of each topic in the creation of four thematic clusters. Although there were overlaps between the groups, this was perhaps to be expected within an interconnected system.

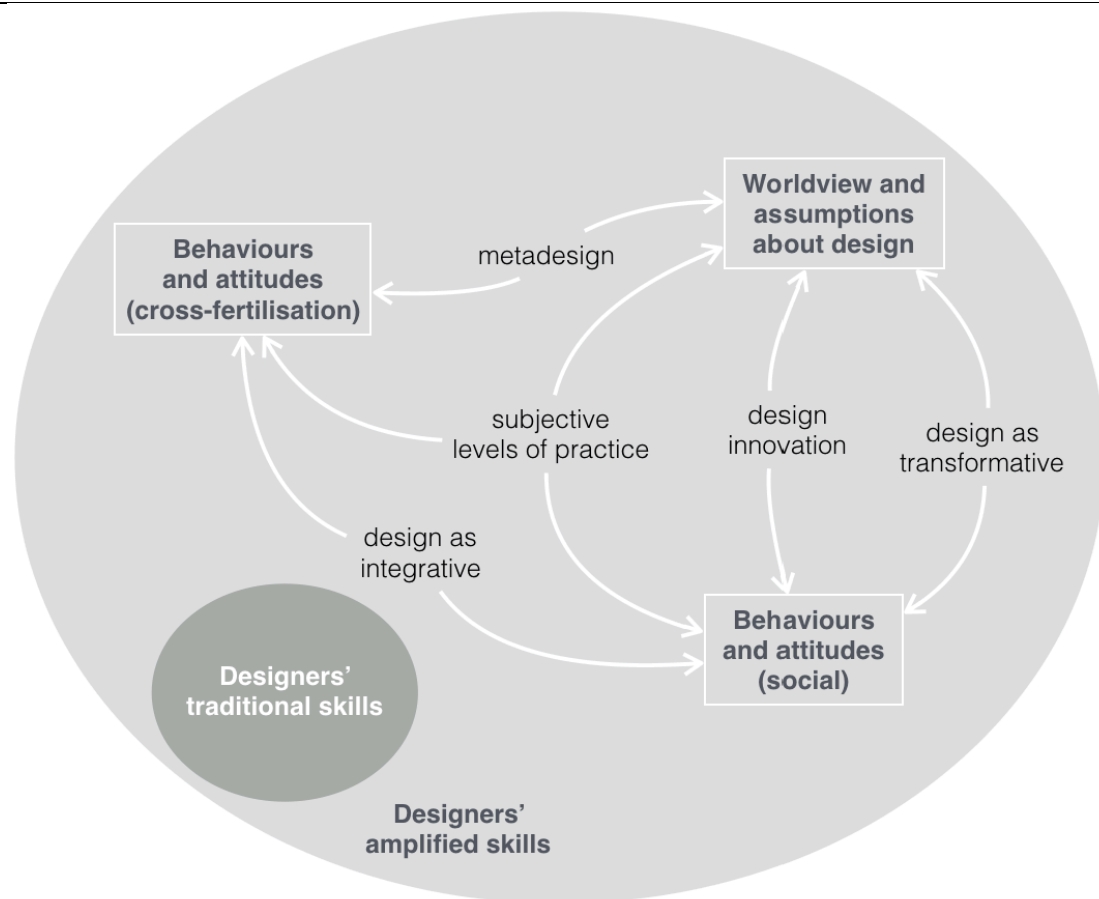


Figure 13 – Strategy to create the conceptual framework of an amplified practice of design.

2.4 – An emerging amplified practice of design: a conceptual framework

Given the recognition in the previous section regarding the complexity of how design is defined, this section articulates the conception of an *amplified practice of design* that emerges from insights into this context. The conceptual framework was further developed throughout this thesis (see section 4.8), and a final version is presented in section 7.1 as *amplified mindset of design* after justifying this shift in Chapter 6.

Synthesising a fragmented debate

The blurred disciplinary boundaries and the fragmented discourse on emerging design practices found in the literature ask for a sense-making intervention, which this thesis responds to by synthesising in-depth and crystallising the complex current disciplinary landscape. This resulted in a conceptual framework of an *amplified practice of design* which does not intend to show a uniform perspective, but rather to highlight diverse emerging elements that form an amplified perspective on design. As indicated in Figure 13, the conceptual framework of an *amplified practice of design* covers four patterns identified in the design literature which include traditional skills, behaviours and attitudes, and a worldview and assumptions about design as a practice that:

- has a strategic position that is human-centred and world-centred;
- shows integrative behaviours;
- seeks to master social skills;
- uses visualisation of the intangible for insight and communication.

Based on the literature it is possible at this stage to say that an amplified practice of design is a designer's position, not a new design specialism. It can be understood as an emerging concern about the designer's approach to the growing complexity of the world today. It is an integral position that is especially useful in complex design scenarios.

– ***Four tentative elements***

The initial definition of the elements that characterise an *amplified practice of design* informed this research's approach to the case studies. During fieldwork the conceptual framework was revisited (see section 4.8), and its final version can be found in section 7.1.

1. Visualisation of the intangible for insight and communication

The visualisation aspect of an *amplified practice of design* is the element of this framework that can be directly linked with the designer's core skills concerned with *making things*, which are increasingly being used beyond the creation of 2D and 3D end-artefacts. The visualisation of intangible aspects in a design process implies that designers consider the engagement and translation qualities of the visuals that they produce.

As Lawson and Dorst (2009) explain, designers are visually aware and visually sensitive people who master visual thinking by manipulating graphics and materials, utilising their mental imagery, and surrounding stimulus. Following Bertin (1983), the role of the aesthetic aspect of visualisation works as a tool to discover new insights and to communicate; furthermore, designers' visual skills are currently starting to be used to navigate complex problems and convey complex systems for diverse audiences, as they are flexible and do not rely on linear thought (Kolko 2015). To inform and support the social roles of designers and their integrative synergistic behaviours, Inns (2013) speaks of the use of visual design methods to think about the value of a project and its stakeholders, to highlight and attempt connections between ideas, and facilitate collaborative design systems, policies and strategies across different audiences. Additionally, Findeli (2001) characterises this as a different type of visualisation that highlights the content, dynamics, and structure of systems and the complexity of both inner/personal worlds such as thoughts, motivations and the surrounding wider world. Moreover, visualising can amplify integrative behaviours and social skills, explored in the following subsections, especially because of their subjective, non-linear and fluid nature.

2. Showing integrative behaviours

The synergistic view of the world discussed in point 4 below, informs this element of the conceptual framework, which is itself a reflection of the emergence of greater collaboration in design practices (Yee et al. 2013). Integrative behaviours refer to a networked way of working that sets the right conditions for synergies to occur.

The emerging role of designers from the perspective of an *amplified practice of design* can be said to be one of translation (Myerson 2010), and cross-fertilisation (Imbesi 2012, Giaccardi 2005) between different types of knowledge and people (Friedman et al. 2014, Young 2013). As co-design processes are becoming more complex, interconnected and capable of holding contradictory aspects, Manzini (2014: 61) speaks of an emerging design approach for social innovation as a process of creatively re-combining existing assets, such as products, services, knowledge, skills and traditions. This means considering different perspectives in design projects which are increasingly following open processes, and are complex because they follow principles of emergence, evolution and adaptation (Tham and Jones 2008).

This networked way of working asks for designers to develop a systems and holistic perspective to respond to what Wood (2010) describes as the current unsustainable state of the planet which has resulted from fragmented and unilateral solutions. Wood (2010) argues for the use of the all-inclusive concept of synergies for the emergence of novelty, which no isolated part in a collaborative system could produce (Tham and Jones 2008). This has the potential to generate a paradigm shift towards more sustainable solutions, which signals the overlap between this element of the framework and the element of “human-centred and world-centred strategic concerns”.

The topic of synergies leads to the issue of teamwork, with the increase of multidisciplinary teams in design (Murphy and Baldwin 2012) which co-owns the design solutions and which links this element with the following one focused on mastering social skills.

3. Focusing on mastering social skills

Social skills that are not just the preserve of designers are becoming more important in emerging design practices. Close work with communities and multidisciplinary teams can be said to result in the need for designers to foster shared motivation and cultural alignment between all project stakeholders.

The emerging social roles of designers include the mediation of project meetings and collective encounters (Myerson 2010), activities of translation and negotiation of value (Friedman et al. 2014, Inns 2013). From a service design perspective, later reinforced by Manzini (2014, 2015), Han (2009) refers to designers as facilitators in community-based projects, aiming to empower communities and other stakeholders with design knowledge to generate ownership over the projects in which they take part, and to develop them further in the future (Alexiou, Jeffrey, and Zamenopoulos 2010). As designers gradually abandon prescriptive roles in favour of working closely with people and communities, they form rich social networks (Han 2009) while (co)creating design solutions (Myerson 2010). This,

together with the social role of designers, supports the growing emphasis placed on empathy and people skills in the literature on emerging design practices (Han 2009, Michlewski 2015, Myerson 2010, Wrigley and Bucolo 2012). For Wood (2010), this demands an investment in emotional intelligence from designers.

4. *Human-centred and world-centred strategic concerns*

This element of an *amplified practice of design* refers to a set of concerns and beliefs about design and designers' roles that are informing emerging design practices. Due to their focus on principles for practice this element was mainly informed by views from metadesign, and views of design as transformative. The literature referred to below was used to synthesise an emerging synergistic view of the world in design, and a strategic intent imbued with social, ethical, and wide-ranging sustainability concerns. It identified an emerging strategic intention among designers taking place at social and environmental levels (Manzini 2013), focused on the survival of humankind and the planet (Tham and Jones 2008, Wood 2010a), which presents designers with a potential catalytic role in balancing the focus on economic growth with deeper ethical and environmental concerns. However, Findeli's (2001) position highlights other elements relevant to addressing the current complex globalised context in which designers act, referring to the need to correlate objective and subjective systems such as the technical, social, biophysical and symbolic world. Findeli (2001) suggests that while designers explore the interconnectivity of such systems, they must realise the ethical aspects of their projects and their potential impact in the world. Other positions (DeKay 2011, Fleming 2013) include and expand on the above, advocating for a design practice that is integral in character (from integral theory), bringing together different perspectives from a quadruple-bottom-line approach which informs design's transformational intention to build a more sustainable world. These views of design can be categorised as the strategic-based thinking type of design identified by Lawson and Dorst (2009), which informs a vision of designers as change agents or even as design activists (Manzini 2014).

– **Comparing the framework**

These four elements were compared in Table 6 with existing frameworks that might be argued to be similar, such as those put forward by Inns (2013) and Michlewski (2015). First, Inns (2013) referred to the extended roles of designers using design thinking in organisations. These roles show a primary emphasis on collaborative and networked skills that can be placed in the *ways of making* and *thinking* dimensions of the RW (McAra-McWilliam 2008) or the behavioural and systemic dimensions of the integral quadrants (Wilber 2006). Second, Michlewski's (2015) design attitude can be said to have a main focus on the *ways of being* and *making* aspects of the RW model and on the experiential and behavioural dimension of the integral quadrants. However there are also signs of a cultural dimension in Michlewski's notion of "deep empathy".

Amplified Practice of Design	Design Attitude (Michlewski 2015)	Design skills for an extended role of design (Inns 2013)
Human-centred and world-centred strategic concerns	-	-
Showing integrative behaviours	Embracing uncertainty and ambiguity Embracing the power of the five senses Creating new meanings from complexity	Value negotiation Navigation of complexity
Focusing on mastering social skills	Engaging deep empathy	Value negotiation Mediation among stakeholders Idea facilitation
Visualisation of the intangible for insight and communication	Embracing the power of the five senses Playfully bring things to life	Visualisation of the intangible

Table 6 – Comparing the Amplified Practice of Design with the Design Attitude (Michlewski 2015) and the Extended Role of Design (Inns 2013)

The frameworks offered by Inns (2013) and Michlewski (2015) can be said to correlate with an *amplified practice of design* but no characteristic of these frameworks fits the “human-centred and world-centred strategic concerns” element. The conceptual framework of an *amplified practice of design* goes beyond classifying design practices as behaviours or skills to include an emerging design concern with the creation of a more sustainable world; its character can be said to be visionary and future-oriented.

This chapter revealed the characteristics of an *amplified practice of design* as a framework that brings clarity to an ill-defined emerging approach to design. It also highlighted aspirations in design education literature for flexible models of education that are moving towards the development of an amplified practice of design. This conceptual framework encapsulates what this thesis considers to be the key elements that design education must consider in developing educational approaches for emerging design practices, for two reasons. First, by synthesising how designers have been operating, it can be used as guidelines to inform design educational programmes, creating a better alignment between the offer of design education and emerging design practices. Second, it is an open-ended framework with the potential to be adjusted to diverse educational methods.

Based on this chapter, this thesis looked for examples of design education programmes that showed signs of an amplified practice (see appendix 1), two of which were investigated following a qualitative case study approach. Results from the cases informed the further development of the conceptual framework and the creation of educational work packages for an amplified practice of design. Later in the research, this intention developed into the creation of an outline for a Masters programme as a result of changes in the conceptual framework (discussed in section 6.1).

CHAPTER 3 - QUALITATIVE CASE STUDY METHODOLOGY

This chapter introduces the qualitative case study methodology used in this research to gain in-depth knowledge of two Master programmes in design as show signs of an amplified perspective on design. This methodology was designed to answer the main research question of this thesis: How can distinct approaches to postgraduate design education help future designers develop an amplified practice? The sub-research question that directly informs this methodology is concerned with understanding how teaching happens in these postgraduate design programmes. Here, it is relevant to call attention to a shift in the conceptual framework of an amplified practice of design that led to adjustments to the research questions and in the educational outcome of this research. This happens further along this thesis, being introduced in Chapter 4 and further explored in Chapter 6. However it had no impact on the following methodology.

This chapter will firstly look at a social constructionist approach that was followed in this research as one that aligns with design's increasingly collaborative ways of working and its growing social concerns. Second, qualitative case studies are introduced and the suitability of this method is discussed. Additionally, the triangulation of methods in this thesis, comprising interviews, observations and documentary research, will be introduced. Figure 14, below, gives an overview of the research methods applied in the case studies, anticipating the weight these had in the field (for example, CS1 used more interviews, and CS2 resorted more to observations), and the intended use of their findings: to inform the creation of educational work packages. Finally, thematic analysis will be explored as a flexible method of analysis, which fits the exploratory character of this research.

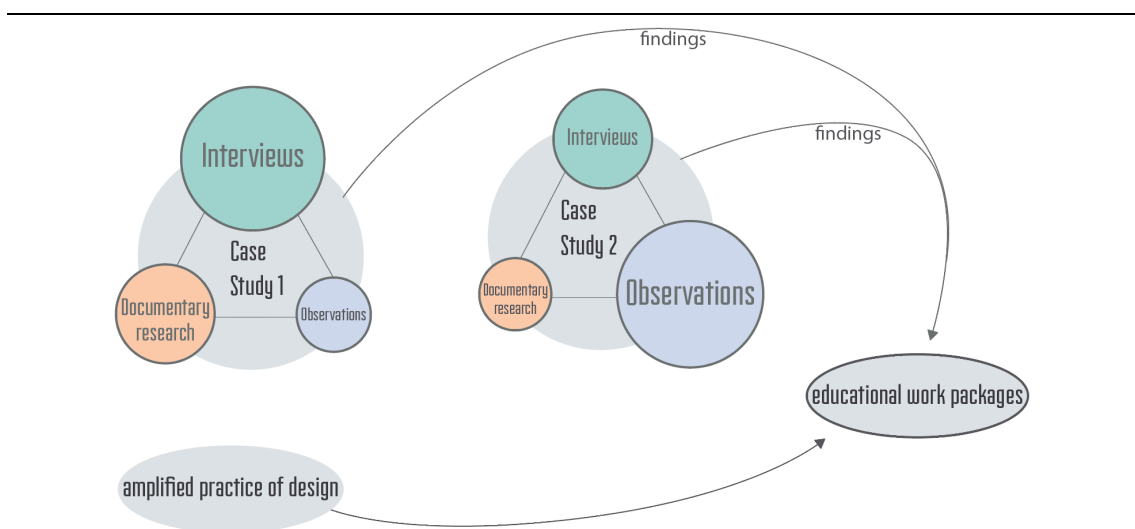


Figure 14 – Overview of research methods, and their intended use

3.1 – Epistemology: social constructionism

A social constructionist position supports this research's intent to follow the underexplored sociological approach to learning (Trowler 2005) referred to in section 2.1, in which learning takes place in the students mind *and* in social participation. In this section, social constructionism will be defined, its limitations discussed, and its usefulness to this research will be presented based on its focus on collectives and the potential to generate change.

– Defining social constructionism

Meaning socially constructed in the mind

In a paradigm where social and cultural meet (Burr 2003, Creswell 2014), social constructionism contends that reality is not something waiting to be discovered by the mind (Burr 2003, Gergen 1985, Patton 2002, Walker 2015). It focuses not on defining reality itself (Burr 2003, Patton 2002), but on meaning-making about something existing in the surrounding environment (Burr 2003, Shadish 1995). Meaning is understood as being socially constructed in the mind (Andre 2000 in Walker 2015, Burr 2003, Crotty 1998, Gergen 2001) through the influence that context and culture have on individual views (Burr 2003, Crotty 1998). This definition resists claims that social constructionism is fundamentally anti-realist in nature (see volume 11, issue 3 from the Theory & Psychology Journal).

As Crotty (1998: 42) puts it “all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context.” Thus, social constructionism lacks a recognition of innate knowledge in (Peterson 2012), and it could be argued that a bridge linking cognitive and cross-cultural psychology could enrich social constructionism by acknowledging the existence of innate knowledge, which is not an object of social influence.

Focus on the collective

The use of social constructionism in this thesis rests on the focus on design as a collaborative and social mode of working (Manzini 2015), and as socially and strategically transformative (Manzini 2015, Mendoza and Matyók 2013, Teixeira 2013), which informed the investigation into two Masters programmes (case studies) as social structures (Kazakçi 2013). The holistic account of the case study approach, as opposed to a survey approach, enabled a high level of proximity with the nuances and complexities of relationships and social processes (Denscombe 2007). Here, different players interact and influence each other, having different and equally valid perceptions (Burr 2003, Crotty 1998, Kazakçi 2013, Patton 2002) about their programme and their roles within it, which raises criticisms of social constructionism's relativism (Maze 2001). To address such a limitation and recognising the interference of internal fabrications and memory reconstructions in the report of events, this research used a triangulation of methods and data, reflective remarks found throughout Chapter 4 of fieldwork, checked the credibility of the findings with participants (Flick, von Kardorff and Steinke 2004),

and followed Gergen's (1985: 73) position where not every construct is accepted without questions (see section 4.3 on the relevance of different participants) because of the academic and scientific norms that rule research.

– ***The potential for change***

Social constructionism suggests a critical and reflexive position on norms, rules and taken-for-granted knowledge (Burr 2003) opening up possibilities for the creation of alternative meanings, and, thus, the possibility for change to occur (Gergen 1985, 2001). In this exploratory research a new interpretation of each programme was thus used to develop education work packages for an *amplified practice of design*. (Later, the focus on work packages turned into a proposal for a Masters programme centred on developing an *amplified mindset of design*. For a review of the amplified practice of design, see sections 4.8 and 6.1.)

3.2 – Qualitative Case Study

Frequently used in education (Bogdan and Biklen 2007, Merriam 1997), case study approaches offer an in-depth analysis for investigating one particular unit (Masters programme) that is bounded in a context (Creswell 2005, Merriam 1998, Muratovski 2016, Stake 1994, Yin 1989). To justify the suitability of a qualitative case study approach in this research, Table 7 below offers a comparison of methodological approaches, and uses the research questions of this thesis as a filter.

What this research takes as an *amplified practice of design* is still ill-defined in the literature as well as in educational approaches to this type of practice. A case study approach is especially well suited to exploring such ill-defined issues (Muratovski 2016). Thus, an empirical in-depth investigation on two design Masters programmes was followed to gain further knowledge and rich insights (Denscombe 2007, Creswell 2014, Farquhar 2012).

Furthermore, aligned with social constructionism, the Masters programmes are argued in this thesis to be social structures, and teaching a social activity (Wenger 1998) that involves interactions between academic staff and students, peer work, and in the case studies of this research, work between students and external audiences. Therefore, the case study approach of this research was informed by ethnography (Hammersley and Atkinson 1995). This approach was deemed appropriate not only because of the small number of cases (two) in this research, but also because of the need to build relationships with participants in order to gain in-depth knowledge, by sharing space and activities (see section 4.2), and resorting to participant observation and interviews (see sections 4.5 and 4.6).

Finally, phenomenography (Marton 1986) and grounded theory (Charmaz 2006, Glasser 1992, Strauss and Corbin 1998) were also considered to answer this thesis' research questions. First, phenomenography aims to identify and map the qualitative variations in the ways people experience and understand phenomena (Marton 1986; Richardson 1999; Yates, Partridge and Bruce 2012). Based on this

definition it was found unsuitable for this research because this thesis does not intend to determine or map the diverse ways in which a Masters programme is experienced or how emerging design practices are understood. It will seek to explore the essence of two Design Masters programmes and the characteristics of emerging design practices to gain further insight on an emerging amplified mindset of design. Nevertheless, it will be possible to identify in this research the different ways in which design educators conceptualise design (see section starting in page 129).

Second, grounded theory aims to gather and interpret rich data to develop new theory on particular areas that have not been studied in great depth before or do not have significant related theories (Muratovski, 2016, Charmaz 2006). This could have been an approach suited to the research question of this thesis, and there will be places where the reader will find some of its characteristics, for example:

- a constant comparative data analysis (Creswell 2012, Suddaby 2006) found throughout chapter 5;
- characteristics of open coding (Strauss and Corbin 1998) found in phase 2 of the analysis (see page 148);
- a degree of theoretical sampling (Creswell 2012) in the triangulation of methods (see section 3.3).

- the gathering beliefs, views and assumptions (Charmaz 2006) about emerging design practices and design education for those practices during data collection.

However, this research does not incorporate aspects of grounded theory that include, for example, a systematic research design as found in Strauss and Corbin (1998), an emerging research design (Creswell 2012) with a series of iterations between collecting and analysing data (Charmaz 2006), or an exhaustive use of memos (Charmaz 2006). A further detachment from grounded theory is evidenced by this research's extensive literature review conducted before data collection. The literature review led to an initial theorisation of emerging design practices that was always in the background of data collection and analysis, although not in a prescriptive manner.

Main research question: How can distinct approaches to postgraduate design education help future designers develop an amplified practice?		
Sub-research question: How does teaching happen in these postgraduate design programmes?		
CHARACTERISTICS OF THE METHODOLOGICAL APPROACHES CONSIDERED		SUITABILITY FOR THIS RESEARCH
Case Study		
Aims to understand the dynamics of the participants' context (Creswell 2014, Eisenhardt 1989, Farquhar 2012).		x
Focuses on ill-defined issues or situations (Muratovski, 2016).		x
In-depth investigation for a defined period of time and within a bounded context (Muratovski 2016, Stake 1994).		x
Main methods (Gray 2014)	archival sources	x
	observations	x
	interviews	x
Ethnography		

Aims to build an in-depth holistic and systematic study of people's lives (their views and actions), taken as social and cultural phenomena, in their environment – i.e. sensations, sights, smells, sounds, spaces (Hammersley and Atkinson 1995, Gray 2014, Muratovski, 2016).		X
Uses a small number of cases (Hammersley and Atkinson 1995).		X
Long periods in the field observing and participating (Gray 2014).		
Rich descriptive and interpretative narratives (Hammersley 1990, in Gray 2014; Gray 2014).		
Main methods (Gray 2014, Muratovski 2016)	detailed and participant observation	
	interviews	X
	documents	X
Phenomenography		
Aims to identify and map the qualitative variations in the ways people experience and understand phenomena (Marton 1986; Richardson 1999; Yates, Partridge and Bruce 2012).		
Oriented to answering questions about thinking and learning (Marton 1986).		X
Focus on the “relations that exist between human beings and the world around them.” (Marton 1986: 31).		
Main method: face-to-face interview (Yates, Partridge and Bruce 2012).		X
Grounded theory		
Aims to gather and interpret rich data to develop new theory on particular areas that have not been studied in great depth before or do not have significant related theories (Muratovski, 2016, Charmaz 2006).		
Theory emerge, or is built from empirical data (Gray 2014).		x
Data collection and analysis happen in an iterative process to produce theory (Strauss and Corbin 1994).		
Methods: systematic and flexible guidelines for collecting data (Charmaz 2014).		

Table 7 – Suitability of different methodological approaches to this research

Additionally, this research followed a holistic approach to case studies by capturing objective and subjective aspects of two postgraduate design programmes and their contexts (Baxter and Jack 2008, Eisenhardt 1989, Farquhar 2012) from the voices of the participants (Creswell 2014), and of those who wrote institutional documents. The focus of these case studies was not to explore sense-making through social interactions, but to look at the methods (which included social interactions) and, to some extent, the content of each Masters programme to find what characterised these cases as having an amplified perspective on design. The studies also investigated the student participants' educational experience to understand their views of design, and the design educators' views of design education for emerging practices of design. However, the analysis (see Chapter 5) revealed more than structural aspects, including the vision, goals and aspirations of the Masters programmes.

– **Introducing the cases**

The typology of the two case studies in this research reveals characteristics of different types of cases (Stake 1995): instrumental and intrinsic.

- CS1 was the MDes in Design Innovation run in my department, in which I had chosen to conduct this PhD research due to its culture and alignment with the emerging views of social design innovation that were explored in the literature review. Moreover, this department applied the highly holistic RW model (in section 2.2) to its research projects, which increased my interest in exploring how design education happened in a department that was showing signs of an amplified approach.
- CS2 was the MA in Ecological Design Thinking, which was found through a brief survey (found in appendix 1) conducted on thirteen Masters programmes. This programme stood out from the remaining programmes, by:
 - Arguing a transdisciplinary orientation that signalled an integral/amplified approach to design;
 - Being the strongest advocate for an ecological and holistic (integral) approach to design and sustainability;
 - Showing explicit signs of developing the student as a whole person in alignment with the four ways of the RW model (see appendix 1).

At this stage, CS2 was identified as an “extreme instance” case (Denscombe 2007) because of its distinct learning environment, the type of teaching, and the emerging design practices that were encouraged.

Although the research protocol for both cases shared the same guidelines in order to facilitate the analysis, it was not my intention to conduct a collective case study (Yin 2003) methodology and compare both cases—which did however happen to some extent in the course of the analysis. The analysis of both cases was intended primarily to generate a broader understanding of emerging themes and categories across both case studies to inform the creation of an educational approach.

Therefore, both cases had very different configurations (a more traditional art school setting in CS1 versus a residential learning community in CS2), providing a wide-ranging sample, key to gaining rich insights into the emerging issue of design education for an amplified mindset of design. The contrasting settings furthermore justify the two and a half years of involvement in CS1 versus one week of immersive involvement in CS2. Due to its residential context it was possible in the one week of CS2 to engage with two cohorts and effectively observe the effects of the Masters programme on its students.

Initially, the two selected case studies can be classified as *intrinsic* (Stake 1995) as this research found them to have the potential to bring forward design education by showing signs of an amplified practice of design. However, both case studies were primarily *instrumental* due to the pragmatic intention in this research of developing a distinct approach to design education informed by results of the

cases. This research sought to go further than understanding and exemplifying the uniqueness of each case's educational approach. Results from the case studies were intended to inform the development of educational work packages (later a Masters programme) that could inspire design educators interested in pursuing an amplified approach to design. Moreover, the cases were intended to provide insights to improve and review the conceptual framework of an amplified practice of design. Baxter and Jack (2008) offer a useful synthesis of this type of case, as explained by Stake (1995):

[an instrumental case study] is used to accomplish something other than understanding a particular situation. It provides insight into an issue or helps to refine a theory. The case is of secondary interest; it plays a supportive role, facilitating our understanding of something else. The case is often looked at in depth, its contexts scrutinized, its ordinary activities detailed, and because it helps the researcher pursue the external interest. The case may or may not be seen as typical of other cases.
Baxter and Jack (2008: 549), after (Stake 1995)

– ***Seeking proximity with participants***

Informed by ethnography, the close proximity between me and the participants served to generate a deeper understanding of the context and the complexity of multiple views of reality (Crotty 1998, Hammersley and Atkinson 1995, Lather 1992). This approach gave me a good grasp of the participants' routines, through interviews, observations (Travers 2001), documents produced by students to capture *emic* knowledge, and institutional documents to capture *etic* knowledge (Fetterman 2008).

Moreover, in comparison with a quantitative approach, the involvement of the researcher with the participants and their context had the potential to be interpreted by participants as more appealing, leading to a higher involvement in this research (Blomberg and Karasti 2012). This was identified in the field when participants showed an interest in this research, and took the initiative to approach me outside formal moments of data collection. However, the reciprocity and real-time interactions (Creswell 2014), which included non-recorded social interactions in each case, and the concept of participants as persons rather than specimens (Creswell 2014), raised ethical concerns (addressed in Chapter 4).

– ***Building research quality***

Aiming for quality, this research was concerned with its validity and reliability, rather than generalisation and transferability, for two important reasons. Firstly, the literature often refers to qualitative case study approaches as lacking the potential for scientific generalisation (Creswell 2014, Farquhar 2012, Yin 2009) and forecasting (Merriam 1997), due to the biases of researchers (Creswell 2014). However, a qualitative study such as this one was focused on building a rich understanding (Gray 2014) of two Masters programmes, making it irrelevant for this thesis to seek generalisations (Farquhar 2012, Guba 1985) in a hard to replicate contextual methodology (Denscombe 2014, Flyvberg 2006). Here, my possible biases were mitigated by validity and reliability procedures.

Secondly, at the end of this thesis, the revised conceptual framework of an *amplified practice of design*, under the name *amplified mindset of design*, is argued to be transferable to other disciplines. However, it was not this research's intent to analyse such a framework and related educational approaches for replicability. In subsequent research, the findings of this thesis can be used to generate hypothetical principles, which may be applicable to other contexts.

Validity and reliability

From a qualitative research point of view, findings from both case studies can only rely on being plausible on the basis of the arguments provided in this research (Walker 2015). The generalisation aspect of research addressed above can be understood, by contrast, to represent the external validity of research (Gray 2014). However, the validity of this research was sought internally through the use of a triangulation of methods (see section 3.3) and of data sources (Baxter and Jack 2008) (see sections 4.2, 4.5, and 4.6). Additionally, this was done through 'member checking' or 'respondent validation', acknowledging my own perspective as the researcher, and by using detailed descriptions (Gray 2014, Denscombe 2014). Sections 4.5 and 4.6 cover the latter, and include:

- Sending interview transcripts to participants for accuracy confirmation and amendments;
- Discussing CS1 with the supervisors of this research due to their close involvement in the case. The description of the case, fieldwork, process of analysis, findings and conclusions were discussed;
- Sending the report of CS2 to its programmer leader;
- My reflections on fieldwork (found throughout Chapter 4).

Also, another activity that contributed to the validity of this research includes a validation focus group (Gray 2014) to validate the Masters programme developed by this research (see sections, 4.8).

The reliability (Gray 2014) of this research was pursued through:

- The use of triangulation;
- Discussions with the supervisors of this research on the research process as a whole, and detailed discussions on the analysis process and findings;
- Involving design educators and experts in design education in the process of developing the Masters programme (see section 4.9).

Moreover, my own perspective in this thesis is in itself a construct (Hammond and Wellington 2013, Walker 2015), and a critical reflection on the ethical aspects and challenges of this research was sought after to maintain overall consistency and research quality.

3.3 – Research methods

The triangulation of methods (Denzin 1970) used in this research combined semi-structured interviews (Powney and Watts 1987), observations (Hammersley and Atkinson 1995), and documentary research (Bowen 2009). Figure 15 depicts how

this triangulation of methods contributed to a holistic understanding of the two Masters programmes studied, providing complementary information. These methods helped unpick the characteristics and ways of teaching in each case study, which were later combined with the conceptual framework of an *amplified mindset of design* in search for points of contact or contrast.

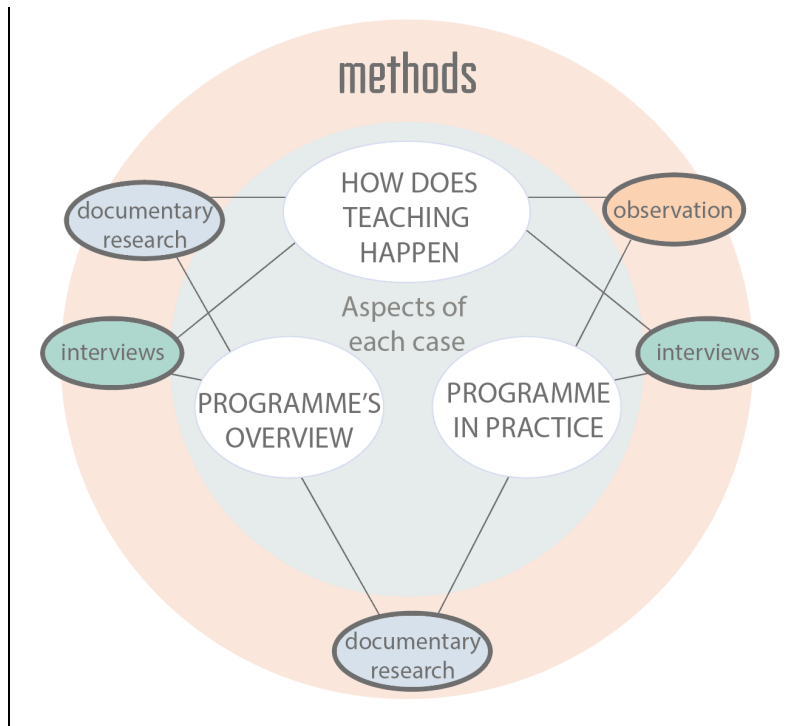


Figure 15 – Triangulation of methods

Using Denscombe's (2014) explanation of qualitative research methods, first, the use of interviews allowed me to study each Masters programme from the students' and tutors' perspectives; secondly, documentary research provided background information with a distance from the day-to-day run of each Masters programme, and; thirdly, the observations allowed me to immerse myself in the teaching activities and their surrounding environment. Both *emic* and *etic* knowledge were gained with different types of documents, interviews with a diverse sample of participants (see section 4.3), and by observing specific curricular activities and the environment of each programme.

– ***Semi-structured interviews***

The use of individual semi-structured interviews (Creswell 2014) was intended to gather the different and in-depth perspectives of the participants regarding the day-to-day activities (Travers 2001, Crang and Cook 2007) of their Masters programmes and gaining an insider's perspective (Fetterman 2008). Although these interviews aimed to let interviewees explore the topics of the questions freely, with space for other issues they saw relevant, a sequence of questions (Patton 2002) was followed to gain knowledge on:

- Individual perspectives of each programme's functioning, structure and methods;

- Distinctive aspects of each programme, its rationale and origins, allowing academic staff to offer historical information;
- Different views of roles, attitudes and behaviours of designers in relation to the specialism(s) of each Masters programme;
- Views of student development;
- Perceived areas for improvement to gauge the future of the programme in relation to an amplified practice of design;
- Aspirations for the Masters programme, from academic staff;
- Perceived correlations between the Masters programme and the conceptual framework of an amplified practice of design, from academic staff.

Section 4.4 details the preparation of formal interviews, and appendix 3 shows how these topics relate to the script of the interviews. The use of a script facilitated the analysis process (Patton 2002).

Both case studies had different contexts that made possible the use of certain methods over others. For example, the interviews in CS1 served to balance the smaller number of observation activities in comparison with CS2, and were enriched with documents produced by students that were not part of CS2. Also, from an ethnographic perspective that sees interviews as participant observation (Hammersley and Atkinson 1995), opportunities to learn through conversations (Crang and Cook 2007), the informal conversations that happened in the convivial areas of CS1 and CS2 between myself and the participants can be regarded as informal interviews (Fetterman 2008). These informal conversations were mainly recorded through field notes and are described, for example, in section 4.2 referring to the engagement with a second cohort of students from CS1, and in section 4.6 referring to participant observation activities in CS2.

– Documentary research

As a common method in case study methodologies, documentary research provided empirical data from a variety of sources providing information on the context of the participants and the background (Bowen 2009) of each Masters programme, making it possible to track historical changes in both cases. The official documents, and internal and public documents that were gathered offered an *etic* and strategic perspective on each case study, which had to be interpreted alongside the insider voices of the participants (*emic* knowledge) because these were generated for purposes other than this research. These documents were created initially for academic approval committees or marketing purposes, and were interpreted to answer the objectives of this research (Denscombe 2014, Creswell 2014). The background information provided insights into the histories of the two cases, helping me to follow any discussions about past events or established assumptions in each Masters programme. This contextual information also assisted me in preparing the interview scripts and observations. For example, in CS1 it was possible to track changes from one initial award to six current awards in the Masters programme, and in CS2 it was possible to learn about the ideology behind the Masters programme, which helped to familiarise me with each context, and informed my interpretation of each case.

Furthermore, documentary research helped this thesis support other research methods and corroborate evidence found in other sources (Denscombe 2014). Sharing the same objectives as the interviews highlighted above, the documents used in this research added a focus on learning about the students' expectations at the beginning of the programme and what was experienced in reality (particularly in CS1). In CS1 this research also used documents produced by the students that were interviewed such as their Project Process Journals and Research Reports to counterweight the reduced number of observation activities. Similarly to the interviews and observation methods used, the documentary research was both planned and open to the emergence unexpected data (Stake 1995). Finally, the interview transcripts and field notes from observations constituted documents that provided diverse perspectives of participants contributing to a rich body of data for analysis.

– **Observations**

This research used overt observation to place myself in the complex and intricate contexts of two Masters programmes for a relevant period of time (Denscombe 2014). The observations focused on teaching methods and on grasping the context of each programme in order to capture its characteristics (Nova 2014). Field notes and a few photos resulted from this research method which was mainly characterised by non-participant observation in CS1 and participant observation in CS2. CS1 lasted for two and a half years of proximity with formal observations spread in time. CS2 consisted of one immersive week of observations.

Overt observation

In both cases the observation was overt, and my role as a researcher was openly communicated to the participants (Hammersley and Atkinson 1995). By communicating my role and research intentions my goal was to minimise any tensions resulting from my presence in the participants' environment. To become an insider in the context (Hammersley and Atkinson 2007) I showed the more sociable and reflective side of myself (Crang and Cook 2007), and presented myself as open to informal conversations, and truly interested in hearing the participants' views of their programme. This allowed for conversations to happen in the communal areas of both cases (see section 4.3 for CS1 and section 4.6 referring to participant observation for CS2).

As an observer I attempted to make my presence as neutral and unobtrusive as possible, listening and watching events as they unfolded (Hammersley and Atkinson 2007), discreetly taking notes and rarely taking photos. The participant-observer role of CS2 also included conversations between myself and the participants (Crang and Cook 2007, Hammersley and Atkinson 2007), exploring topics sometimes initiated by myself in order to find out more about a specific aspect of the Masters programme. In this case, no notes were taken during participant observations so that I could be fully immersed in the context (Fetterman 2008) and maintain the *naturalness* of the setting (Denscombe 2014).

Unlike the majority of the observations, the observation of the Design Theory Course in CS1 was covert because the course included students from other design programmes. Here I used my role as visiting lecturer to gather contextual information about the department of CS1. Teaching methods were also observed, including the short course “*Ways of Seeing*” in CS1, and the observation of classes in CS2. Furthermore, observations aimed at grasping the context for each Masters programme included: in CS1, the observation of a Design Theory course (see section 4.5); and in CS2, the observation of daily general meetings (see section 4.6).

Tensions between outsider and insider roles

Although my role was overtly communicated in both cases, the type of observations (Crang and Cook 2007) differed. CS1 was mainly characterised by non-participant observation or observer-only observation, and CS2 was mainly characterised by participant observation. It was pivotal that I acknowledged from the start of fieldwork the tensions between my attempts to become an insider in a planned social contact, and my role as an outsider (Crang and Cook 2007) with a worldview and beliefs about design education that could differ from the participants’. This impacted the level of identification with participants, and impacted me personally as discussed in section 4.1 (see also sections 4.5 and 4.6 for notes regarding dual relationships). These tensions revealed how nuanced researcher-participant relationships are, and highlighted the need to recognise these tensions and address their impact on the validity of this research.

Finally, the weight of the different research methods in each case study is reviewed in Figure 16 which also highlights a change in the conceptual framework of an amplified practice of design, and the main findings produced from a thematic analysis process. These findings and the Conceptual Framework informed the development of a Masters programme.

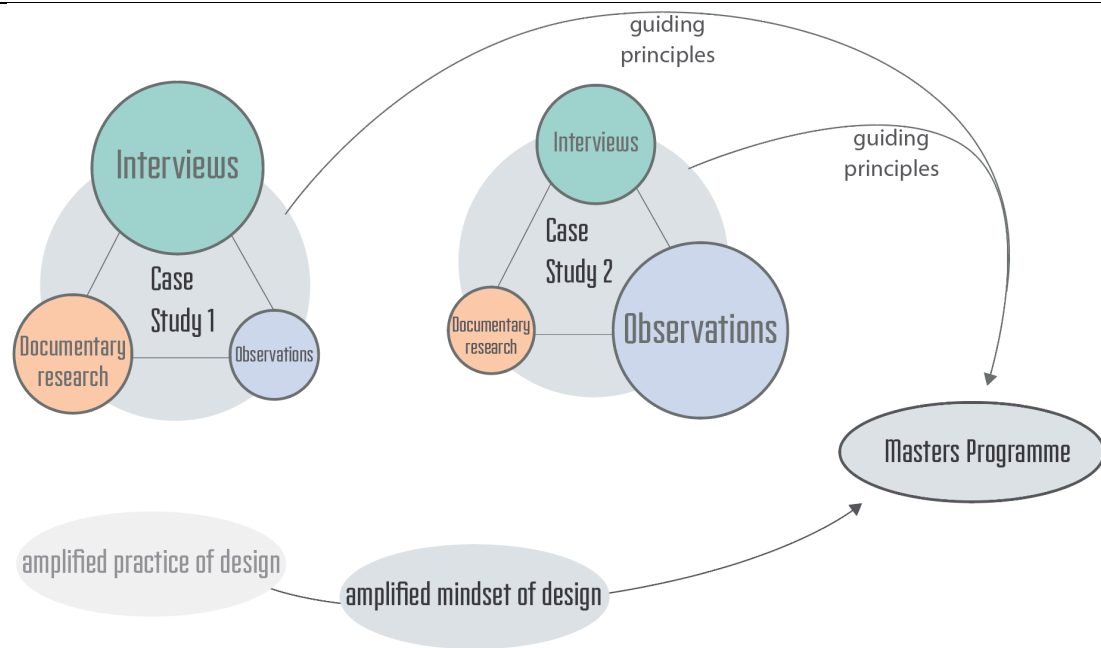


Figure 16 – Review of research methods and the use of main findings

3.4 – Method of analysis

This section offers the rationale for the use of thematic analysis in this research, characterises its process, and details aspects that shaped the analysis for this specific research.

– *Choosing thematic analysis*

This research used thematic analysis (Boyatzis 1998, Braun and Clarke 2006) as a method aligned with the social constructionist position (Vaismoradi, Turunen, and Bondas 2013) of this research, and the holistic character of the qualitative case studies.

Defined as “a method for identifying, analysing and reporting patterns (themes) within data” (Braun and Clarke, 2006: 79), this method was found suitable for the exploratory character of this research due to its flexibility (see section 5.1), and its potential to extract novel information from the data set to generate unanticipated insights (Braun and Clarke 2006). Results from the analysis provided the characteristics of each case, but most importantly revealed the guiding principles for each Masters programme and key notions about their design specialisms. These were valuable to explore educational approaches for amplified design practices, and informed the intended development of educational work packages (which later changed into a Masters programme) for such an amplified position.

Qualitative Content Analysis versus Thematic Analysis

In pursuit of a better aligned method of analysis, qualitative content analysis (CA) (Mayring 2000) was also considered in this thesis. Although from the field of Nursing and Health Sciences, Vaismoradi et al. (2013) offer a comprehensive comparative overview of both qualitative approaches (see Figure 17), highlighting

the fact that CA can miss the context of the data, while thematic analysis (TA) emphasises the context, which is an important aspect for this research.

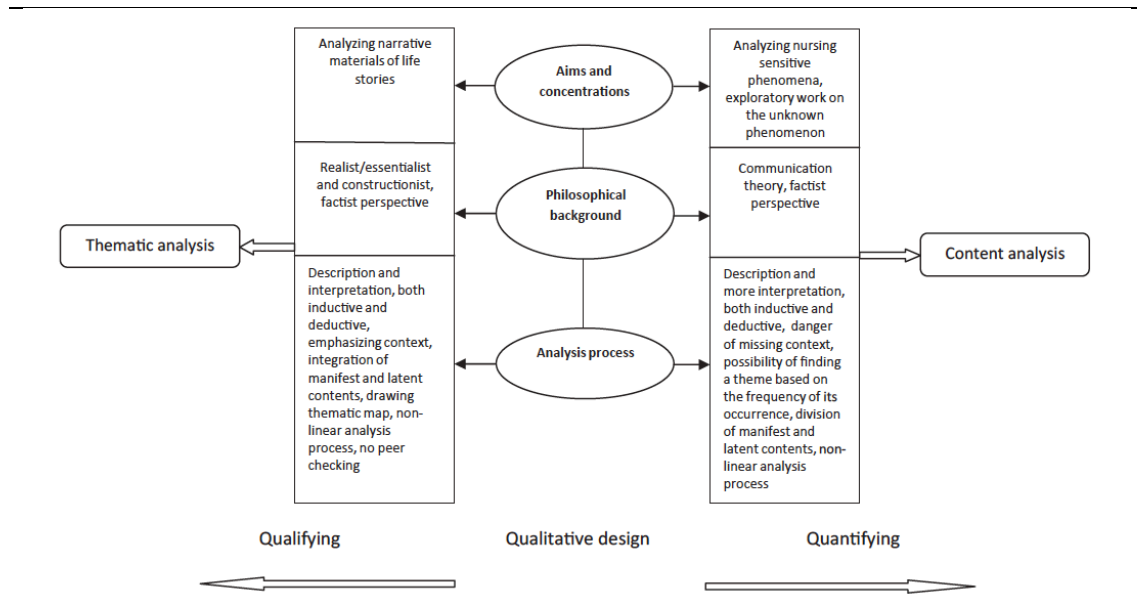


Figure 17- Characteristics of thematic analysis and qualitative content analysis. (Vaismoradi et al. 2013)

CA was discarded in favour of TA, due to CA's initial quantitative orientation which is then transferred to qualitative research (Krippendorff 2013) which focuses on measuring the frequency of different categories (Morgan 1993, Vaismoradi et al. 2013 referring to Downe-Wamboldt 1992) rather than, as TA does, focusing on nuances in data and on extracting meanings, experiences and latent themes (Braun and Clarke 2006). The use of TA enabled the recognition of patterns in the large body of data which accumulated (Braun and Clarke 2006) in this research, and its transformation into themes (Fereday and Muir-Cochrane, 2006), by following an initial holistic (Dey 1993, Saldaña 2009) and simultaneous coding (Miles, Huberman and Saldaña 2014) approach.

– ***The planned process***

Similarly to document analysis, because this thematic analysis was conducted using relevant documents, interview transcripts and field notes regarding each case, the process was not reduced to cluster excerpts from texts from different sources, but aimed instead to deepen the understanding of each case study (Bowen 2009). Following the analytic phases proposed by Braun and Clarke (2006) shown in Table 8, this research followed an iterative process (Vaismoradi et al. 2013), which included revisiting codes and themes, sorting relevant from irrelevant data within the codes, and moving data between codes to reveal the relevant themes of each case (Bowen 2009). Section 5.1 covers the analytical process used in this research.

Phases of thematic analysis
1. Familiarising with data: Transcribing data, reading and rereading the data, noting down initial ideas.
2. Generating initial codes: Coding interesting features of the data systematically across the entire data set, collating data relevant to each code.
3. Searching for themes: Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes: Checking if the themes work in relation to the coded extracts and the entire data set, generating a thematic map.
5. Defining and naming themes: Ongoing analysis for refining the specifics of each theme and the overall story that the analysis tells, generating clear definitions and names for each theme.
6. Producing the report: The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating the analysis back to the research question and literature, producing a report of the analysis.

Table 8 – Phases of thematic analysis (Braun and Clarke 2006: 87)

Regarding phase six, the production of the analytical report, as this study is a PhD thesis it was not relevant to produce a separate report. Instead, this is covered in chapter 5. Results from the analysis constituted interim findings to inform the final research outcomes: the conceptual framework of an amplified mindset of design, and the layout of a Masters programme informed by this framework (see Chapter 7).

Generating initial codes

To approach the diverse body of data accumulated in this research and generate initial codes during phase 2 of the analysis, simultaneous coding (Miles, Huberman and Saldaña 2014, Saldaña 2009) and holistic coding (Dey 1993, Saldaña 2009) were used, using NVivo to assist in these initial phases. Firstly, simultaneous coding involved applying two or more codes to a passage (Miles et al. 2014) from which I took descriptions and multiple meanings. The use of simultaneous coding helped to address the variety of different perspectives from the different sources of data (interview transcripts, field notes, documents), and the complex structure of overlapping issues provided by the different perspectives. Secondly, based on the same premise of overlapping perspectives and complexity, the analysis was conducted across the whole data set through holistic coding. In holistic coding the same codes were used in different data sources (Saldaña 2009), providing a first glance at the sort of codes that the data could allow to infer. Later on, this type of coding provided a deeper look into the initial codes to start extracting its characteristics and meaning.

Using NVivo

As a software tool for organising and analysing data (Bassett 2010), NVivo was found suitable for this research, mainly in first phases of TA. It was found to be more effective than manual coding for three reasons. Firstly, NVivo enabled easy navigation across data and throughout the different codes, helping me to quickly track the number of references (passages of data) in a code, the number of data sources associated with a code or theme, and the density of codes assigned to data segments through the visualisation of *coding stripes* (Bassett 2010). This gave me a general sense of the codes being generated, which were later printed and analysed manually as the data set was transformed and reduced to findings. Secondly, with the upload of interview transcripts, relevant documents and field notes into the software, it was possible to conduct the analysis using the exact language of participants (Saldaña 2009) and thus maintain contextual elements useful to better identifying patterns and building relevant themes. Thirdly, NVivo's interface provided the possibility to visualise the data in different configurations such as: codes bounded to a specific data source, sources bounded to a specific code or event, or codes assigned to one section of data. The software's visualisations also supported and enabled the holistic and simultaneous coding performed, and the overlaps in data resulting from such coding helped to organise the inferences made during the analysis process (Miles and Huberman 1994: 66).

This chapter explained the qualitative methodology used in this research, which followed an instrumental case study approach with ethnographic characteristics, informed by social constructionism. This chapter also presented and discussed the triangulation of methods that was formed in this research by semi-structured interviews, observations, and documentary research to explore the ill-defined phenomenon of design education for emerging design practices. Finally, a thematic analysis approach was discussed, and this approach was shown to generate this research's interim findings, and inform the development of an educational approach for an *amplified mindset of design*. The following chapter will focus on the implementation of this methodology, covering fieldwork activities, the changes made to the conceptual framework, and fieldwork activities which led to developing the Masters programme (previously intended as educational work packages).

CHAPTER 4 – FIELDWORK

This chapter covers fieldwork activities in CS1 and CS2, as well as preceding activities such as ethics, sampling and engaging with participants, and piloting the approach. Both cases were initially identified as potentially following an amplified approach to design, and were investigated in depth using documentary research, interviews, and observation methods to identify its distinctive characteristics. These were later used to inspire this study's development of an approach to postgraduate design education for an amplified mindset of design. Relationships between the findings from the case studies (discussed in Chapter 5) and an amplified mindset of design were also identified, substantiating the early assumptions regarding the amplified character of the two cases. This chapter intends to start answering the research sub-question concerned with characterising both case studies by covering fieldwork activities, followed by refining the conceptual framework of an amplified mindset of design (in section 4.8), and developing a Masters programme dedicated to this framework (in section 4.9).

Section 4.8 of this chapter covers developments in the conceptual framework of this study, and was used to refine the answer to the first sub-research question concerned with defining the conceptual framework. Between CS1 and CS2 the framework changed from an amplified *practice* of design to an amplified *mindset* of design (section 6.1 explores and justifies this change), which informed the activities of CS2. This change led to a redefinition of finalised research questions and objectives, impacting the outcomes of this study. Additionally, this shift in the research stimulated the development from a focus on the design of educational work packages into the outlining of a Masters programme to help future designers develop an *amplified mindset of design*, and answer the final research sub-question: How can these approaches to design education [CS1 and CS2] be developed further into a new Masters programme?

– **Introduction to fieldwork on Case Study 1**

CS1 was conducted over a period of approximately two and a half years, and included the active participation of ten students and three members of academic staff.

This was a Masters programme of Design Innovation (MDes), based in the north of the UK in an over 150-year-old public art school with approximately 2,000 students per year (HESA 2016). Targeting national and international students from all academic disciplines, the MDes in Design Innovation addressed a need for innovation in industry and the public sector through design. It followed an “interdisciplinary approach to strategic design practice” that encourages the co-creation of “positive change” (Study Guide: Design Innovation, n.d.). This case study was more abstract when compared with CS2, which can be attributed to the:

- exploratory character of this case conducted in initial phases of the research;
- reliance on documents and interview methods over observations;

- lengthy period of this case study;
- diverse roles of the researcher within the case (peer, researcher, visiting lecturer), which made it more challenging to corroborate my interpretations of the case with participants.

– ***Introduction to fieldwork on Case Study 2***

CS2 resulted from one week of immersion in the chosen context to conduct a micro-ethnography investigation, which was preceded by the collection of official documentation, and contact with academic staff over a number of months to gain access. It included the active participation of six students and three members of academic staff.

Based in the south of the UK, this case study was a Masters programme in Ecological Design Thinking (MA) ran by a trust funded College (Institutional website, n.d.) established 25 years ago, with approximately 60 students per year. The MA describes itself as transdisciplinary, merging an ecological approach with design, design thinking methods, and knowledge from anthropology, psychology and socio-political economics, forming a basis to generate “transition to sustainable societies” (Institutional website, n.d.).

CS2 resulted in a more engaged experience, where my role was clearer than in CS1, which made it easier to corroborate my interpretations with those of the participants. However, being immersed and living in a learning community had its challenges mainly regarding the intensity of the experience, and the short period of time devoted to fieldwork which intensified the tensions between being an outsider to the residential learning community, and an insider in the Masters programme.

In both cases, the data collection during fieldwork aimed to gather wide and diverse accounts to generate a rich data set that could enable the identification of distinct elements that characterise each case.

4.1 – Preparation and ethics

Before beginning the fieldwork and engaging with participants, this research went through an ethics clearance process at my institution. Ethics procedures in this research were cognisant of BERA (Scottish Educational Research Association Ethical Guidelines 2011), SERA (Association Ethical Guidelines for Educational Research 2005) and IDEO 2015. Other sources that informed the development of the ethics protocol in this thesis included BSA (2002), Denscombe (2014), Dowling and Brown (2010), Gray (2014) and Palys (2008). Key ethical concerns in this research included the recruitment of participants and their informed consent, and anonymity. These ethical procedures will be summarised here, and more detail can be found in Appendix 2.

Additionally, there was an awareness of dual relationships in this research, which did not pose any risks to the participants as these were addressed and clarified to the participants before and during the running of the research methods.

Firstly, the recruitment of participants was done directly for CS1, and via email in CS2. The purposive sample of participants (Palys 2008) presented in Table 9 shows the aspired sample of participants, which was set up as a strategy to gather richer data by covering a wider spectrum of perspectives on each Masters programme.

CS1 – MDes Design Innovation	CS2 – MA Ecological Design Thinking
Students [5] – interviews	
Management team and teaching staff [3-4] – interviews	
Whole class or cohort of students – observation	

Table 9 – Intended sample of participants for each case study

Secondly, all potential participants for this research were adults and were not part of vulnerable groups that needed further ethical clearance procedures (BERA 2011). Written consent was the preferred method used in this research. However, oral consent and voice recorded consent was given by non-student participants at relevant opportunities during this research (see Moreira 2015c, 2015d, 2016). Thirdly, all participants were anonymised in this research, and unless stated otherwise in their consent forms this research used contextual, cultural and demographic references to better characterise the social fabric of each case study. Following consent permissions, behaviours and opinions were described to convey points of view pertinent to this research.

– ***Dual relationships***

This study identified the nuances of fieldwork relationships which highlight the limitations of the ethical procedures, as these procedures could not anticipate in full what happened in the field once participants had consented to be part of this research. As noted in section 3.3 there were tensions between the researcher's role as insider and outsider.

Case study 1

In this research, a dual relationship emerged between myself (the researcher) and the postgraduate student participants (BERA 2011, Israel and Hay 2008), as my role could be perceived both as that of a peer (PhD student) and as that of a lecturer and tutor. Firstly, these participants and I were both students, which improved the engagement levels in this research and was reflected in more informal contacts and informal language used by the students. Secondly, during the academic years of 2014-15 and 2015-16, I was a visiting lecturer with regular contact with students, but without any assessment involved. To minimise any foreseeable tensions, at the start of these activities as visiting lecturer, I clarified to the students that the classroom interactions would not be recorded or used for the purposes of this research. Thirdly, there was proximity between the working

spaces of CS1's studio space and my workspace; we shared a communal kitchen and printing space. This setting contributed to a tension between my roles as an outsider (visiting lecturer) and an insider (fellow student doing a PhD) from the students' perspectives.

As for the academic staff participating in this research, my previous experience as a lecturer also promoted proximity and closer identification with the participants. However, an ambiguity of roles was also present, as I represented both an insider (as a colleague educator) and outsider investigating their programme. For instance, I attribute the lack of observation opportunities in CS1 to tensions with one participant in CS1, with whom I had different views of design education. Also, the low number of observations could be attributed to the length of CS1, the initial phases of the research where observation goals were still in definition, and my proximity to the setting for CS1 (the same department).

Additionally, at the end of the second academic year in this case study, one of the supervisors of this project became Programme Leader of CS1. This had minimum impact on this research because it happened after the majority of documents were collected and interviews conducted, and observation activities were in the final stages. When it was necessary to approach my supervisor, to collect relevant documents or ask questions, it was made explicit that I was doing so as a member of CS1. The supervisor was aware of this potential conflict, and the feedback offered on fieldwork and its findings was always conscious of avoiding persuading comments.

Case study 2

In CS2, the boundaries between insider and outsider roles had to be closely managed. I was immersed in a context, living for a short period of time on the same campus as the students. However, I was placed in a building reserved for guests, and chose not to take part in community activities, which conferred an outsider label from the outset. In hindsight, the immersion and the need to blend into the context did lead to looking at some aspects of the context from the perspectives of a few participants, which could be pointed out as one limitation of attempting to gain an insider account of the case. Nonetheless, these conditions served to improve the level of engagement with students, and better grasp and experience their context. A triangulation of methods, and member-checking *in situ* to corroborate my perceptions, were used to minimise the referred influence.

Developing the Masters programme

This study pursued the development of a Masters programme (see section 4.9) to begin to tackle the changes in the conceptual framework of an amplified practice of design. A validation focus group for this programme also revealed dual relationships: the participants had multiple roles (students, educators, practitioners), and the majority of them knew the researcher as a lecturer or as a colleague. The tensions of these relationships were intensified by differences in participant's views of [design] education, resulting from personal experiences and feelings regarding education activities and specific institutions, which were

brought to the discussion and interfered in the validation activities. These tensions were also observed in the interviews with design educators in this process, contributing to diverse levels of identification among the participants with the proposals of this research.

4.2 – Sampling participants

This section outlines the recruitment criteria used to build a sample of participants and addresses their relevance for this research, and presents the final sample of participants for CS1 and CS2.

Having a research design that included documentary research, observations and individual semi-structured interviews, the main focus in building a sample of participants was on the individual interviews. For both cases, in-depth individual interviews were a significant method of learning about the interviewees' perspectives on their Masters programme. Additionally, another type of sampling occurred in the choice of observation moments that were planned in advance according to their relevance (Hammersley and Atkinson 1995) to this study (see section 4.4 referring to the planning of observations).

Relevance of different participants

It was anticipated that the different participants in each case study would offer information from different perspectives, not only as students versus academic staff, but also as different people with different backgrounds and interests (as described in Table 10), resulting in rich in-depth knowledge of the two Masters programmes. For example, to gain knowledge on the rationale, goals and vision of each programme, contributions from the managing staff were more heavily weighted than those of students or tutors. Students' contributions allowed corroborating, challenging or bring new information to the views of the managing staff. To grasp the everyday life of the programme, the students' and tutors' contributions were more heavily weighted than those of managing staff because they were directly involved in the learning and teaching of the Masters programmes. This is illustrated in the diagram in Figure 18.

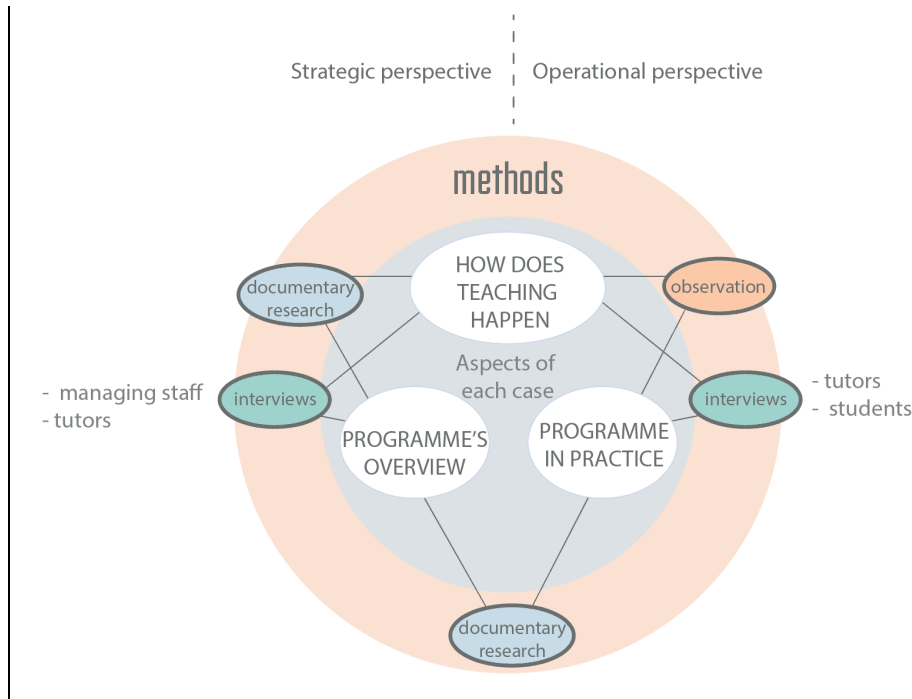


Figure 18 –
Relevance of
different
participants
in the case
studies

Recruitment Criteria

As outlined above, diversity was one of the recruitment criteria applied when building the sample of participants. However, other criteria were identified that would help ensure that the participants were motivated to discuss the topics relevant to this research. Opportunistic recruitment also occurred, mainly in CS2.

Recruited participants showed an interest in exploring:

1. Their learning journeys (students), and the exploration of the dynamics of learning and teaching (academic staff);
2. Their roles as designers (students), and debating contemporary roles of designers and of design education (academic staff);
3. Ways of enhancing their learning that would make them more job-market ready (students), and ways to enhance the development of future designers (academic staff).

The aim behind the first of these recruitment criteria was to obtain data on the functioning and guiding principles of each Masters programme, with a focus on its methods and content. With the second recruitment criteria, the aim was to gather data that would help identify the characteristics of the type of designer that was developed within each Masters programme, to later see if these matched the emerging characteristics identified in the literature review of this thesis. Finally, the third recruitment criteria aimed to collect data on the programme's aspirations, key concerns about the development of future designers, and new methods for teaching that could inspire this study's development of an educational approach informed by an amplified mindset of design.

The above were set as the desired recruitment criteria, but facing difficulties in accessing students in CS2, opportunistic recruitment also occurred. Here,

recruitment was limited to the core faculty of the programme and the limited number of students still on campus, as a new academic year had begun and the contributions of finalists and graduates were preferred due to their prolonged engagement with their programme. Participants from CS1, on the other hand, were recruited directly based on conversations with academic staff, especially in regard to the profile of potential student-participants. Nonetheless, the resulting sample presented in Table 10 was varied enough to gather an ample understanding on each Masters programme.

Sample of participants

After recruitment, the sample of participants to be interviewed for both cases highlighted diverse academic backgrounds, different roles and levels of involvement with their respective programmes (see Table 10), which enabled a comprehensive view of the case studies (Hammersley and Atkinson 1995). To achieve a multilevel perspective on each programme, the choice of which academic staff members to interview was related to their roles, level of proximity with students, professional background, and levels of involvement with the programme's strategic or operational aspects. In the student sample, the diversity of the sample (in professional experience, cultural and academic background) was aimed at building a richer and more layered view of the programme.

The resulting sample aimed to focus on the actors in the study, their social processes (mainly in the students) and constructs (Burr 2003). The intention was to highlight not only what was happening but also explore what was first identified by this research as potential examples of education for an amplified practice of design, and thus examining and elaborating on this concept.

Case Study 1: sample of interviewed participants		Case Study 2: sample of interviewed participants	
Students (5 + 5) (whole class at times)	Academic staff (3)	Students** (4) (whole class/community at times)	Academic staff (3)
<p>Diverse nationalities: South of Europe, North of Europe, North America, and Asia,</p> <p>Predominant academic background: design</p> <p>From all of the programme's specialisms*</p> <p><i>*During this investigation, the Masters programme specialisms were: Citizenship, Environmental Design and Service Design. Three more specialisms were added after this case study was conducted.</i></p>	<p>Diverse roles:</p> <p>Programme director</p> <p>Programme coordinator and specialism leader</p> <p>Tutor/lecturer</p>	<p>Diverse academic backgrounds: design, education, law, neuroscience and digital media.</p> <p><i>**For reasons associated with participant consent restrictions, the above is the only information that it is possible to share about the participants from CS2.</i></p>	<p>Diverse roles:</p> <p>Programme director and lecturer</p> <p>Two senior lecturers with management responsibilities</p>

Table 10 – Sample of participants

4.3 – Engagement activities

Due to the ethnographic characteristics of the case studies in this research, engagement with the participants and their contexts was key. This section explores the variety of engagement activities in CS1 prior and parallel to the collection of data, and the overlap with engagement and data collection activities in CS2. This engagement created an opportunity to build a relationship with the participants, and observe as much as possible their natural behaviours, providing an insider's perspective of each case (Hammersley and Atkinson 1995), and producing 'reliable and insightful' data (Fetterman 2008). However, due to the subjectivity of human relationships, the naturalness of behaviours is always difficult to determine, and I could only attempt to be sociable and non-obstructive to make the participants comfortable and more open to share their experiences. As noted in section 3.3, my role as researcher was overt (Gray 2014) and the type of engagement in both cases differed due to the time devoted to field activities in each case.

Comparing the engagement in both cases

Anticipating the next few sections, CS1 engaged with three different cohorts of students with initial and continuing live engagement activities spread over time and differing from cohort to cohort, depending on opportunities. The access to CS2 was initiated by email correspondence with the programme leader, followed by a detailed exchange of emails with one programme manager to prepare the

research visit to campus, and later an email sent to recruit student participants. These stages preceded the live engagement with two cohorts of students while I lived on the campus of CS2.

– ***Case study 1 – variety of engagement activities***

CS1 included three cohorts of students with different levels of engagement owing to differences in physical proximity and the frequency of data collection activities. The engagement with the participants, especially the students, presented a challenge as the process was initiated three times. There was a lower engagement with the first cohort resulting from the lack of research clarity in the early stages of this project, and with the third cohort as data was reaching saturation. The second cohort of students was very much involved and aware of the researcher's study and it was with them that the majority of data was collected for this case. The success of informal conversations in engaging students in this research was taken as good practice for the fieldwork in CS2.

The proximity between the my office space and the studio space of CS1 is illustrated in the green shapes of Figure 20. The figure depicts not only the proximity and the sharing of facilities (mainly with students from the first and second cohorts), but also moments of gathering data through formal interactions with students. My workspace and the studio space of CS1 were close to each other in an open plan setting in the same building, allowing the observation of the programme's functioning. This proximity was also present with the second cohort of students with whom the researcher had closer and more prolonged contact. Regarding the third cohort of students, both my workspace and CS1's studio space moved to other locations, leading the engagement to be done through more formal interactions, not directly linked with this research.

First cohort of students (2013-14) – exploring ways to engage

With the first cohort of students, the research process and ways to engage were still being explored. The studio leader facilitated an informal introduction to the project and I presented myself and my interest in learning about the dynamics of the Masters programme.

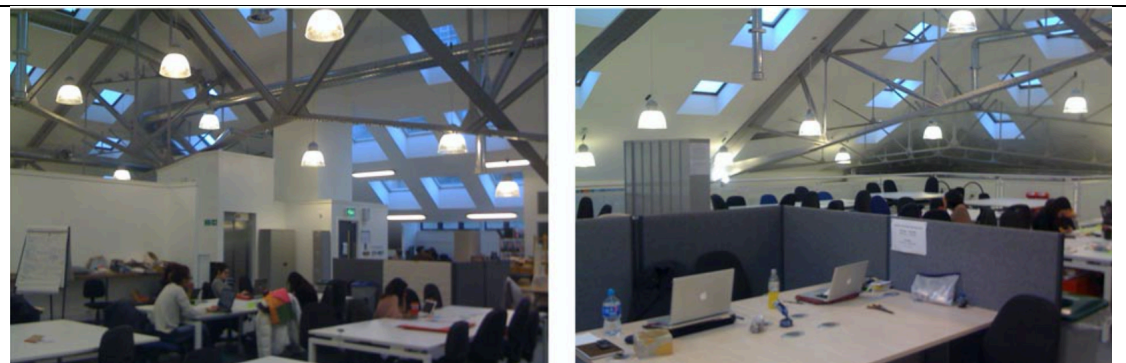


Figure 19 – Proximity of CS1 Studio space (left) and my workspace (right).

This first contact was brief. As it was the third academic term, students were focusing on their individual research projects and were not as frequently in their studio space (see Figure 19) as in the previous terms. The engagement did not result in a close relationship with the students, mainly due to the time of the year and the early stages of this research. Nonetheless, a few months after the first contact with this cohort a group of students were recruited to take part in a pilot focus group (described in section 4.4), where the relationship that developed resembled a student-tutor relationship.

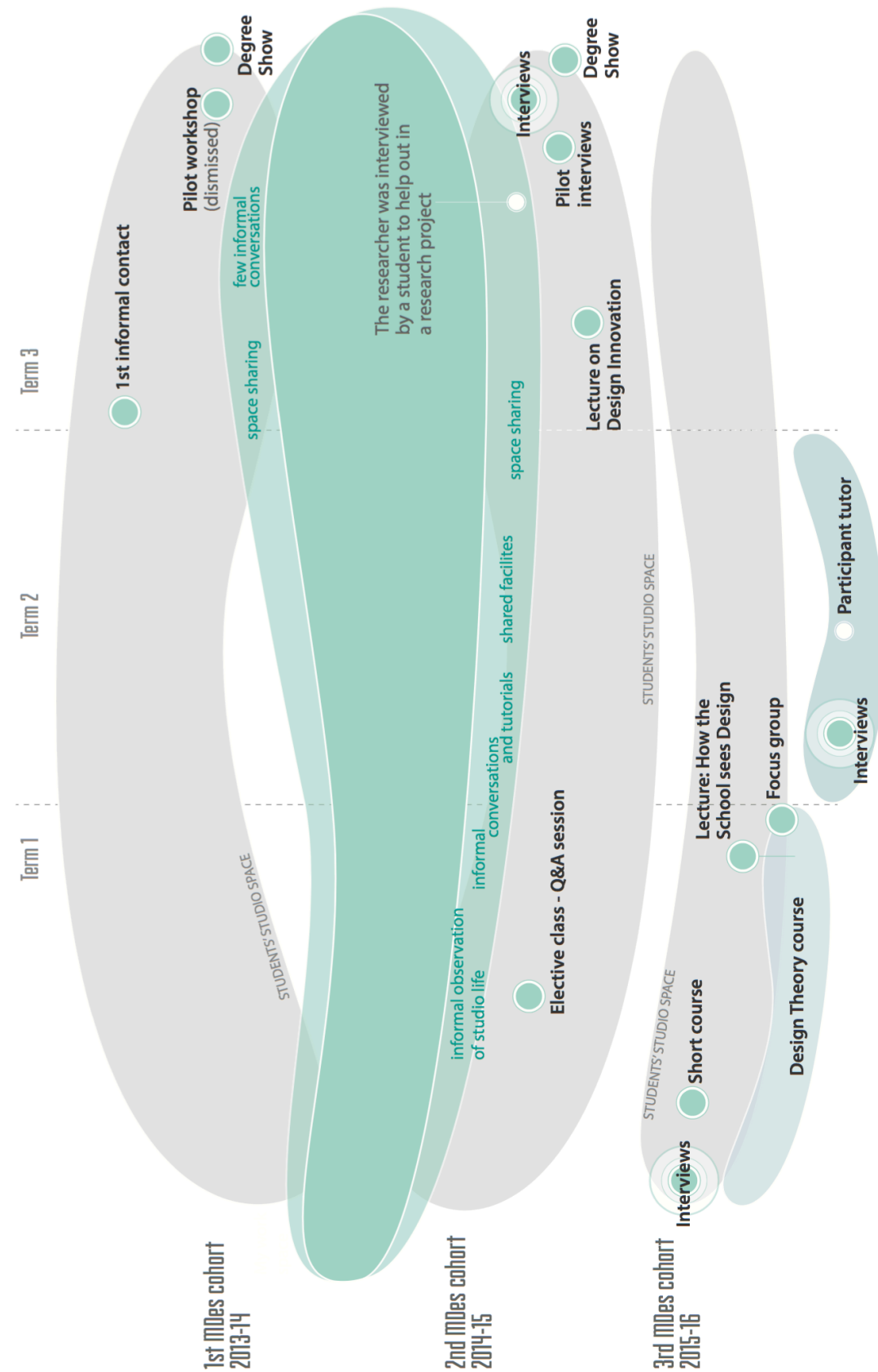


Figure 20 – The proximity of the project workspace with each cohort in green, and field activities of CS1

Second cohort of students (2014-15) – deep engagement

The relationship with this cohort of students was open and mutually fruitful not only from a research perspective, but also from a personal/professional perspective where peer relationships were created. It was with this cohort of students that interviews were piloted and conducted. Engagement with the second cohort of students started when a group of other PhD students and I were invited to talk about our doctoral journeys in a Q&A session mediated by a lecturer in a conversational style. From this session a dialogue was started, and the foundation for a closer relationship with potential participants was laid (Crang and Cook 2007). What followed were frequent informal interactions in a communal kitchen and printing space (see Figure 21), off-the-record peer (PhD student to Masters student) conversations about the students' views on their programme and about the struggles and issues of PhD study, and informal tutoring instances where students asked for advice regarding their studio projects and research.



Figure 21 – Communal kitchen and printing space in CS1

There was also a formal instance of engagement where I was interviewed by one of the students for an individual research project. Adding to the often random and self-initiated contacts, more formal contact with the students took place when I was invited to give a lecture on the concept of design innovation and its historical development (see Figure 22), which was followed by a Q&A session which allowed me to further develop my relationship with the students. At this moment the students were eager to know more about the concept of design innovation, so the sharing of common interests acted in favour of this research.



Figure 22 – Design innovation lecture delivered to the students from CS1

Third cohort of students (2015-16) – formal engagement

The relationship with this cohort was more distant; here, my role was explicitly that of an outsider (visiting lecturer and researcher) and the proximity level with these students was roughly the same as with the first cohort. As the third cohort of students worked in another studio space the engagement occurred informally. My first engagement with this cohort was in my role as visiting lecturer for a course in Design Theory (see Figure 27) which was mandatory for all design Masters programmes in the art school. In this role I delivered content relevant for CS1's students (on design innovation), and facilitated group discussions on the set class topics, which helped engage with the students and gain a sense of the design school's environment and culture. Based on this interaction, I recruited a group of students from CS1 to form a focus group that enable a better understanding of the context of the programme and relevant teaching methods for the students (expanded in section 4.5). After this, contact with students was informal, with random encounters and short conversations. The amount of data already gathered by this point was reaching saturation (Saumure and Given 2008), and I was therefore not actively seeking to gather more.

Engagement with academic staff

The engagement with members of academic staff from CS1 followed the same pattern as with the students, with the second year of engagement being the year in which I managed to build a closer relationship around informal conversations on design innovation and design education. Other engagement activities were tangential to this case study and included conversations with lecturers from other design courses and departments of the art school, and my role as lead PhD representative at the art school. These activities enabled a fuller understanding and experience of the context that surrounded the Masters programme, leading to a better judgment of data during the thematic analysis phase of this case (Braun and Clarke 2006).

– Case study 2 – overlapping engagement and fieldwork

Because fieldwork in CS2 was condensed into a short time due to costs and geographic distance, there was an overlap of the interactions that build the relationship with participants and the fieldwork data collection activities (further explored in section 4.6). During this time, I resided on campus with the college community as a participant observer, and my role was openly communicated (Denscombe 2014) to clarify that my objective was to learn about the Masters programme and the unique context in which it operated. Because the Masters programme in Ecological Design Thinking had a symbiotic relationship with the residential community in which it functioned, and due to time constraints, I had to position myself differently in the two contexts (CS2 and its community) to ensure the collected data would be relevant to this research. Firstly, as an outsider, I was learning about the culture and language of this context (Crang and Cook 2007), attempting to build an insider perspective to be completed by the participants' perspectives. A tension of roles was intensified by the short time-frame of this case, and by a separation of my roles within the general learning community (outsider) and within the Masters programme (insider). I was living in the community and taking part in their activities, but maintaining a marginal position (Hammersley and Atkinson 1995) by opting-out from taking part in community activities that involved all college students and some staff. Secondly, this marginal role allowed more time for engagement with CS2 and its learning and teaching activities, in which I took part and formed a closer relationship with the participants, enhanced by the fact that I was a designer looking at a design programme, which helped me to form an insider account.

4.4 – Piloting the approach

Prior to fieldwork it was crucial to pilot the methods to check if the planned activities—focus group and interviews—were appropriate to the participants, and to meet the objectives of this research (Denscombe 2014, Crang and Cook 2007, Powney and Watts 1987). These pilots were opportunities to make the necessary adjustments to improve the 'live' activity and minimise the occurrence of surprises (Denscombe 2014). Aspects of piloting ethnographic interviews (Crang and Cook 2007) were used in this research, providing an opportunity to learn what motivated participants to take part in this research and check the type of responses prompted by the research activities.

For practical reasons relating to time and access, the focus group and student interviews were piloted with students from CS1. The interviews with academic staff were piloted with academics connected with learning and teaching in HE in arts and design. The pilot interviews served to test and consolidate the research approach to be used in CS1 and CS2.

Piloting a focus group

The focus group described in this section was not introduced in section 3.3 on research methods because it proved inadequate for this research. The pilot is presented below, followed by the reasons for its dismissal.

In the early stages of this research a focus group approach (Crang and Cook 2007) was designed to learn about the students' experiences and thoughts on the question 'What is a designer?' and on defining design. It was intended as an exploratory method of helping to further refine this research by gathering the collective views of students (Gray 2014). A draft structure of the session was discussed with one studio tutor and one design researcher experienced in creating workshops and focus groups; both were from the researcher's department, with distinct backgrounds and professional experience. These conversations helped to construct the final approach, which was a three hour session (illustrated in Table 11) with the following agenda:

1. Welcome and introduction
2. What is the designer's mindset?
3. What are the activities of a designer?
4. What are the different contexts of the designer?
5. Create a definition for their design specialism
6. Show and tell between groups
7. Feedback on the session's structure and content

This pilot focus group ran on the 1st of September 2014, with eight students from the first cohort of CS1 (2014/15) as shown in Figure 23, and was intended to be adapted to the context of each case study in this research.

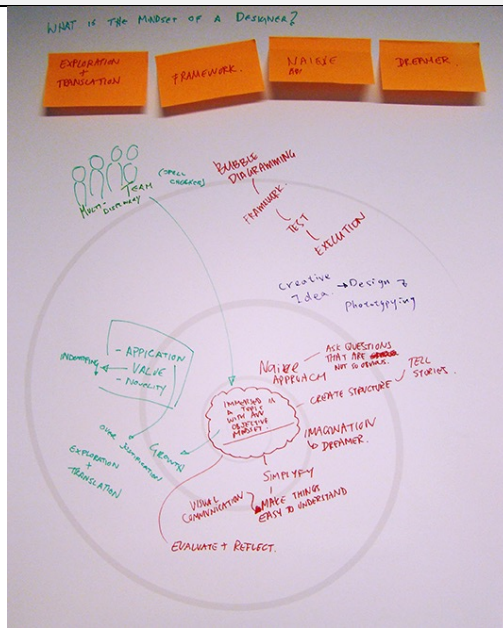


Figure 23 – Pilot focus group with students from CS1

The focus group's final moment of discussion was the one that the students found the most engaging. What was developed in the session was discussed and consolidated. The structure of the session itself was also addressed so that further improvements could be made. The students reported that they were tired of using

tools and exercises like the ones used in the focus group to discuss issues that in their opinion could be done through conversations alone. All of them were familiar with the theme of *design* and did not feel the need for prompts. This feedback led to the consideration that using interviews could result in a deeper understanding of each participant's views, preferable to a diluted group opinion (Gray 2014).

1 - Welcome and introduction



2 - Activity: What is the designer's mindset?

Students used a spiral diagram to place their ideas on different points ranging from an internal/personal focus (inside of the spiral) to an external focus.



3 - Activity: What are the activities of a designer?

Students used a long working page as a vertical scale to place their ideas on post-its along the scale ranging from material to immaterial tools/activities designers use/do.


	<p>4 - Activity: What are the different contexts of the designer?</p> <p>Students used graph paper to draw diagrams</p>
<p>5 - Define Design Innovation/Ecological Design Thinking Based on the activities above the students were asked to create a definition for their design specialism</p>	
<p>6 - Show and tell the results of the activities to other groups</p>	
<p>7 - Final discussion to reflect on the results of the focus group and gain feedback on the structure and content of the session.</p>	

Table 11 – Pilot focus group: sequence of activities

Dismissing this focus group approach

Upon reflection, it was decided that the method and structure of the pilot focus group were not suitable for the purposes of this research, and the approach was dismissed before being formally analysed. This decision was taken because:

- In a focus group setting, students' individual perspectives could perhaps be pushed towards a group vision (Gray 2014) of their Masters programme, silencing the variety of perspectives needed to understand each case study.
- It was too early in the research to have conducted this focus group. The researcher recognised that the aim of the focus group was too broad and ambitious by addressing two big questions on the definition of design and of designers.
- The response from the students was engaging; however, the tools didn't generate new information. The outcomes of the workshop and the final discussion stayed at an abstract level, lacking synthesis and contextualisation.
- The timing was problematic as the focus group was conducted during the last days of the academic year after the students had set up their degree show. It was a busy time of the year, the students were tired, and consequently the level of discussion was affected.

Therefore, the use of interviews was taken as a more suitable approach in that it would enable exploratory/reflective moments better able to uncover in-depth individual perspectives (Powney and Watts 1987) on both Masters programmes.

Piloting individual interviews

To summarise what was highlighted in section 3.3 and explored in more detail in section 4.2 (see recruitment criteria), the individual semi-structured interviews to students and academic staff in each case aimed to gather data regarding:

- Historical and contextual information on the rationale and functioning of each programme;
- The programme's structure including its methods and content;
- The profile of the designer developed in each programme;
- Areas of improvement and aspirations for each programme;
- Points of contact between each case, and the conceptual framework of an amplified practice of design (by academic staff).

The choice of semi-structured interviews allowed the interviewees to add information they thought relevant to complete my knowledge of the programme (Creswell 2014). In August 2015, semi-structured interviews were designed to be conducted with students and academic staff of each programme. To ensure the quality of the interviews, the following guidelines for piloting the interviews, informed by Powney and Watts (1987: 127), were used as good practices:

- Check if the structure of the interview provides valuable information to answer the research questions of the thesis;
- Check if the questions are clear to the audience;
- Test the practical logistics of the interview (introducing the researcher and the research, the interview's purpose, and ethical protocols);
- Practice of the appropriate social interactive skills that include active listening, the used of non-aggressive language and tone, and avoiding influencing the answers.

As I am very experienced in interacting with interviewees in one-to-one sessions, the focus of these pilot interviews was less on replicating the real interview setting, and more on the sequence and the type of answers that the questions could generate.

Pilot: Student interviews

Rather than a formal interview, this pilot was intended as an exploratory conversation that developed around the diagram shown in Figure 24. This section outlines the setting, method, and outcome of this pilot.

Three students from CS1 were informally asked to answer a first set of questions, and offer their feedback on the clarity and sequence of the script. Two pilot conversations happened: one with one student, and another with two students. From these three students one agreed to be part of this study's interviews.

The pilot was then conducted with the help of hand-made diagrams as graphic visualisations to facilitate the conversation (Sibbett 2010) and introduce this

research, its objectives, the purpose of the interviews and the questions to be asked. The hand-made diagram in Figure 24 was used as a visual cue to assist the discussion, and as a low-tech device to be drawn on: dark green shows the original information used in the pilots; purple indicates the students' input; and light green signals reflections that emerged from the discussion. This approach generated more participation from the pilot-interviewees, and can be taken as an example of how the design practice of generating visuals can enrich qualitative methods. The questions and answers were debated in order to check the quality and relevance of the questions, and to explore if other questions would work better for the purpose of these interviews.

Finally, this pilot offered a valuable sample of answers pointing out topics that could emerge during the interviews, especially in CS1. Examples of such topics included students' Project Process Journals, communication with tutors and group dynamics, the last two of which also emerged from the interviews in CS2.

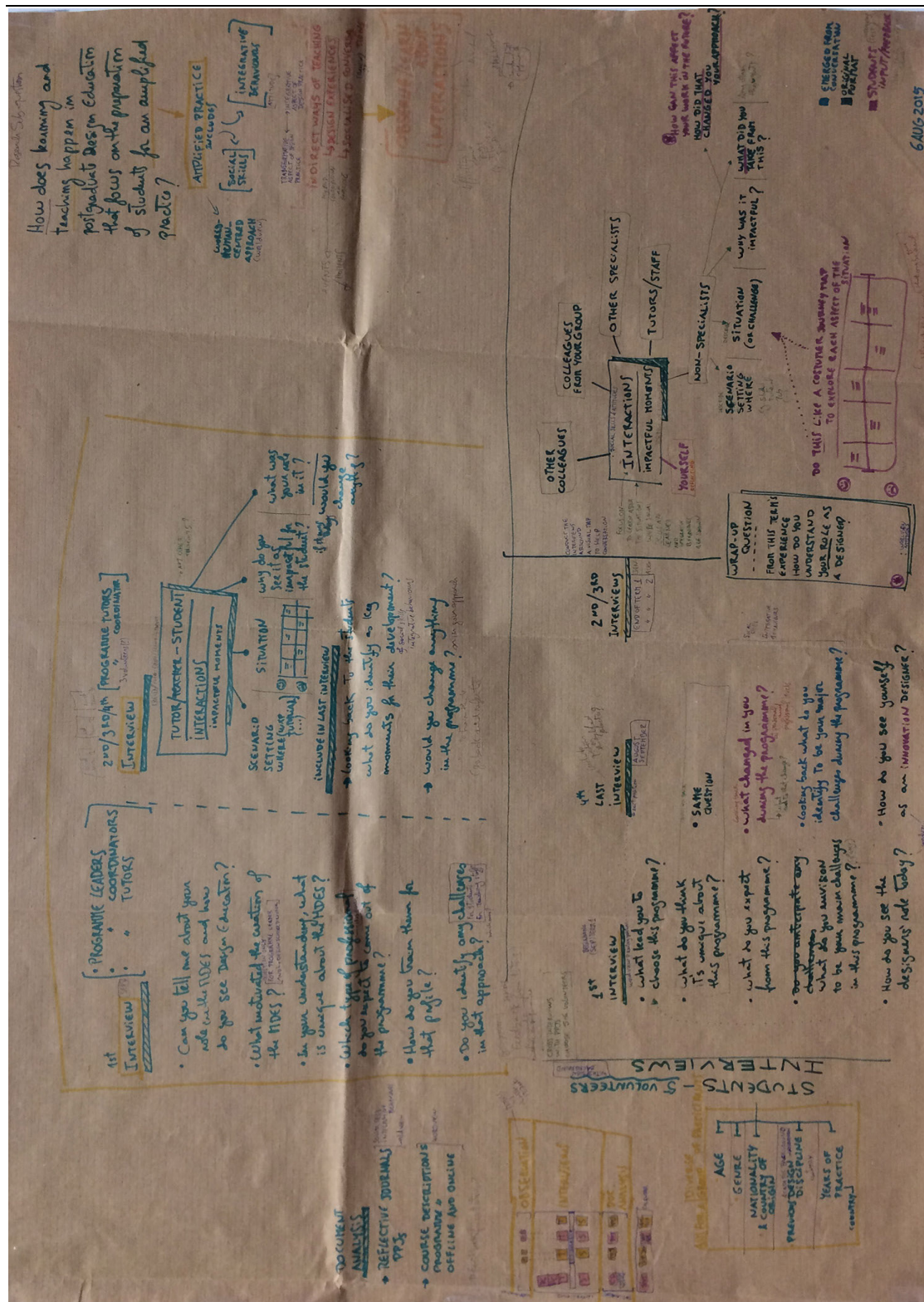


Figure 24 – Diagram used to conduct the discussion with students on the interview's questions

Pilot: academic staff's interviews

The pilot interview here was with a scholar with extensive learning and teaching experience in HE in arts and design education (Moreira 2015c). Like the pilot with the students, this was an exploratory conversation around the interview's script that allowed for a better alignment of the questions. This provided a clearer notion of the type of answers that could result from the script.

Preparing formal interviews

As a result of the pilot interviews, a final diagram (see Figure 25) was produced highlighting the script of the interviews in relation to the three stages of one academic year, covering the key academic moments of each case. The diagram is divided into questions for students (green) and questions for academic staff (pink). There were two versions of questions for the academic staff interviewees: one for programme leaders, and one for tutors with less knowledge of strategic aspects of the programme. This diagram informed a final script of questions for CS1 and CS2 (see appendix 3, which includes the objectives behind each question).

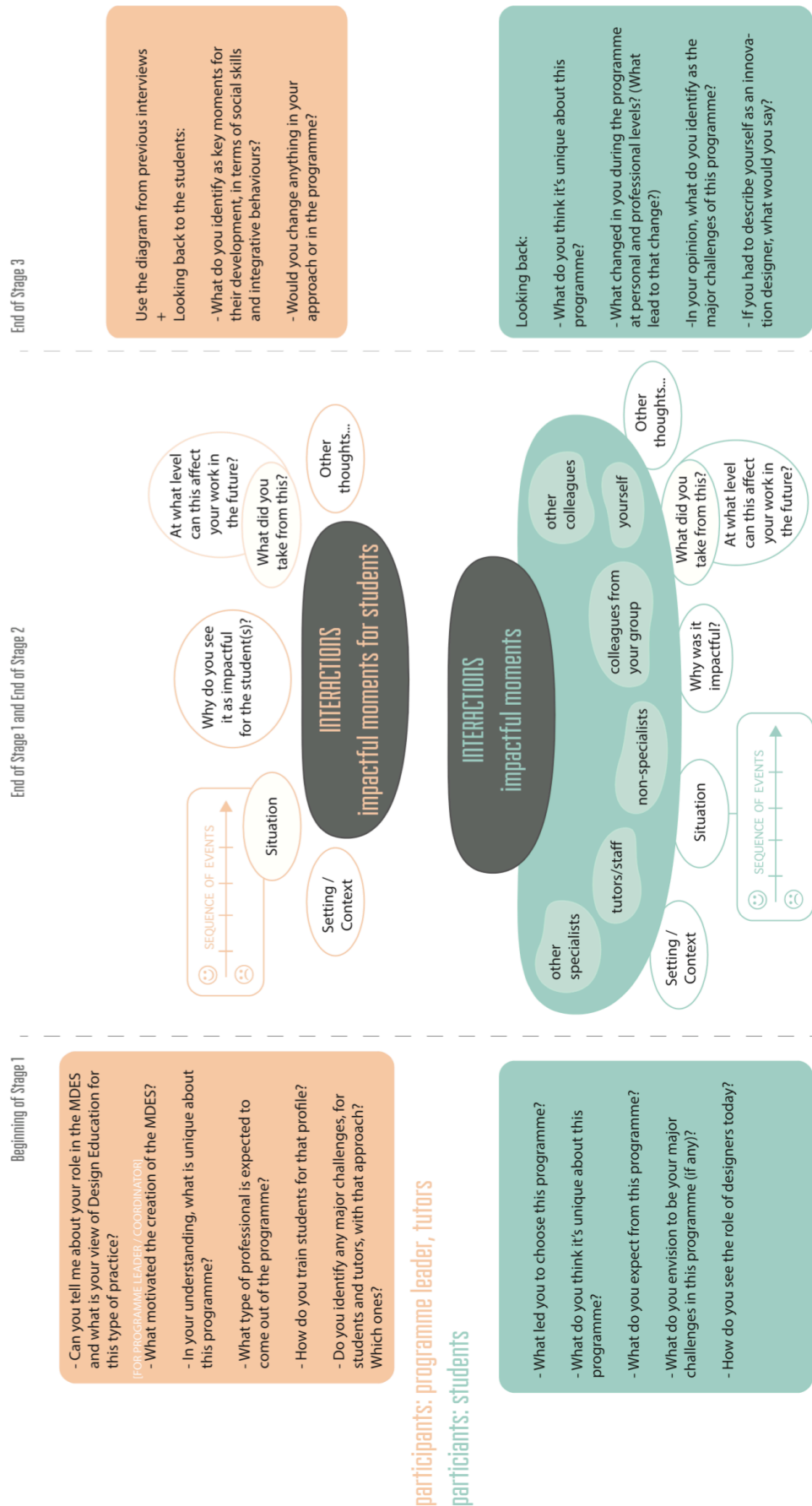


Figure 25 – Script of the interviews from the pilot interviews

Preparing the observations

Having produced a conceptual framework of an amplified practice of design and structured the interviews, the next step of this project was preparing the observations. The observations were to be mainly whole class observations (participant and non-participant) to gain knowledge about teaching methods, and in CS2 they would include observations of life in the learning community.

Initially, aspects of the conceptual framework were considered as a guide for observation, but this approach was later deemed better suited for a study with quantitative characteristics (Gray 2014). For example, how could the mastering of social skills or a synergistic worldview be observed? Adding to this, the main purpose of these case studies was not to evidence the framework of an amplified practice of design, but to understand each programme from the different perspectives of the participants, from my role as an observer, and from documentation. As noted in section 3.3, the aim of the observations in this research was to gather data referring to the context and teaching methods of each programme. Therefore, relevant sources of data (Gray 2014) for this research method were the Masters programmes' teaching activities and events. The approach would involve being immersed in teaching activities, and being open to new information gathered during these observations (Crang and Cook 2007, Hammersley and Atkinson 1995).

Informal conversations with one subject leader and one tutor for CS1 provided insights into the type and format of teaching activities. The academic staff were also helpful in identifying relevant activities to observe for this research, including one short course, and studio sessions (see section 4.5). In CS2, the observations were planned cooperatively with the programme leader and it was agreed that I would conduct one week of immersion in the programme to experience and observe a wide variety of teaching methods.

4.5 – Case Study 1: MDes Design Innovation

The case study methodology used in this research aimed to uncover the characteristics of the MDes Design Innovation programme. As an instrumental case study (Stake 1995), findings were considered to be of an interim nature and aimed at informing an educational approach to help future designers develop an amplified *mindset* of design (a refinement of the initial conceptual framework of an amplified *practice* of design).

This section covers fieldwork activities conducted to gather data about the MDes Design Innovation, over the course of more than two years of involvement across three cohorts of students. The data was extracted from relevant documents, interviews, observations, and other relevant activities summarised in Table 12. The additional activities noted at the end of this section consisted of opportunistic moments that were used to enrich this research.

Documents (all cohorts)	Documents from students (2 nd cohort)	Interviews (2 nd cohort)	Observations (all cohorts)	Other (3 rd cohort)
Programme specifications	3 Personal process journals (PPJ)	5 Students	Non-participant: Studio space	Focus Group
Study guide	3 Project reports	3 Academic Staff members	Non-participant: Short course	Personal project outside CS1:
Degree Show Booklet '14-15	4 Statements of Intent		Ways of seeing (3 rd cohort)	PhD Behind the Scenes
Stage 1 Briefs			Participant: Design Theory course (3 rd cohort)	
Timetable '15-16				
Website text				

Table 12 – Summary of fieldwork activities in CS1

This Masters programme was a one-year taught postgraduate programme formed by six separate awards in Design Innovation: Citizenship, Collaborative Creativity, Environmental Design, Interaction Design, Service Design, and Transformation Design (Institutional website, n.d.). The awards of Collaborative Creativity, Interaction Design and Transformation Design (see Figure 26) were established after this case study was conducted, and therefore were not included in this study.



Figure 26 – Summary of CS1 specialisms. (Institutional website, n.d.)

– **CS1: Relevant documents**

The documents collected for this case were both public and internal, providing *etic* and *emic* knowledge on the context (Bowen 2009) of the MDes Design Innovation, and supporting fieldwork. As noted in section 3.3, the documents used were not generated for research analysis, but for marketing and academic approval purposes, therefore they provided a bias and partial perspective in a specific language that had to be interpreted from the lens of the objectives of this research.

First, the public documents offered information on the Masters programme's strategic, structural and operational perspectives, which contributed to gaining knowledge on the programme's view of design, and its teaching activities. The documents included:

- Study Guide;
- Programme Specifications;
- Institution's web pages for each specialism;
- 2014/15 Degree Show Booklet (complemented internal documents shared by student interviewees, and introduced the programme's approach and its materialisation in the students' final projects).

Secondly, internal documents that complemented the previous ones included archived Programme Specifications from the first year of this programme in 2009, and the Programme Specifications from 2014, which was replaced recently for the 2016/17 academic year, after the opening of three more specialisms within the programme. These offered a historical and a contemporary contextualisation of the MDes. Other internal documents shared by the interviewed students provided *emic* knowledge on the MDes, and complemented the students' perspectives on the Programme. These included:

- Statements of Intent (for the application to this programme);
- Stage 3 Project Process Journals;
- Research Reports.

The students' statements of intent signalled the profiles of future designers, and revealed the students' aspirations, which matured during the academic year and were evidenced in the project process journals and reports. The process journals and reports, on the other hand, provided more concrete information regarding the students' reflections on their experiences and knowledge.

Thirdly, documents regarding the daily running of the Masters for the session 2015/16 were collected and which provided information about the main content delivered:

- Stage 1 Studio Project Briefs;
- Year Timetable;
- Programme Structure (below), which reveals a one-year programme divided in three terms).

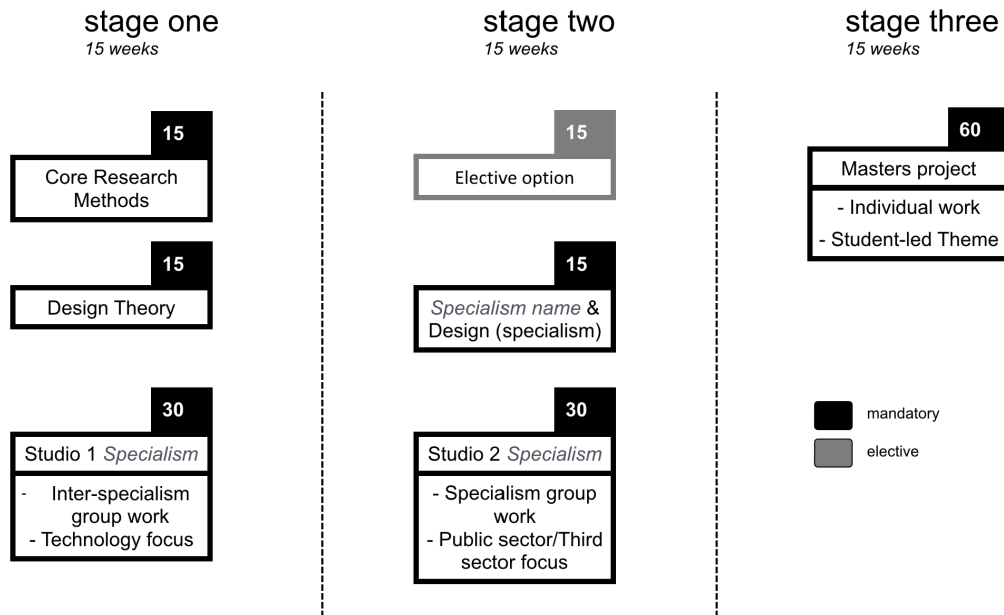


Figure 27 – Programme structure for the MDes Design Innovation & Environmental Design / Service Design / Citizenship. Source: Internal document distributed to the students

The choice of this type of documents related to the type of teaching preferred at this art school, that is, studio-based and aimed at encouraging: “inter-disciplinarity, peer learning, critical enquiry, experimentation and prototyping, helping to address many of the grand challenges confronting society and contemporary business” (institutional website, n.d.). Therefore, learning about this programme’s approach from these documents regarding studio work became a significant aim. The documents were also instrumental to the development of an educational approach from this research, as discussed in section 7.2.

Other documents – slideshows from workshops and presentations of the Masters programme specialisms – were collected but not analysed further because they were subject-specific. These documents did, however, familiarise me with the type of content discussed in the programme, helping me to engage formally and informally with the students. This familiarisation with documents to support fieldwork was part of Phase 1 of analysis in this research (see section 5.1).

– **CS1: Individual interviews**

Between August and September 2015, semi-structured individual interviews lasting between 45 minutes to one hour were conducted with five students in the final stages of their studies, and three members of the programme’s academic staff. This section will explain the use of supporting materials during the interviews, the focus on creating a safe environment for the participants, and anonymity and validity activities.

To optimise the interview process, supporting materials were designed (see Figure 28) which included:

- Question cards as reminders of the questions (Powney and Watts 1987);
- A diagram of the conceptual framework of an amplified practice of design (for academic staff only), and;

- A worksheet for one question on game-changing moments in the Masters programme.



Figure 28 – Supporting materials for the interviews

The question cards were laid on the table when each question was asked. As my confidence increased, these cards gradually lost their importance, and were eventually only used if an interviewee needed a reminder or clarification of the question, or if the conversation diverged from the topic. Inspired by Sibbett's (2010) graphic visualisations and Crang and Cook's table (2007: 79), the worksheet was intended to prompt explanations by the interviewees, assisting them in building their narrative. However, after the first few interviews it became apparent that the worksheet was not relevant because the students did not refer to specific events, and when they did, they did not want to follow the predefined worksheet, choosing instead a personal description of events. Looking back, this worksheet imposed more structure on interviews than intended, and limited the interviewees' freedom to answer the question. The worksheet was therefore simplified by adding into the question card a few indicators relating to these impactful moments in the programme.

There was an emphasis on creating a welcoming and safe environment (SERA 2005) for the interviewees, especially the students due to the dual relationships discussed earlier in this text. Drawing on Creswell (2012), the interviews were conducted in a quiet meeting room with minimum interruptions, creating a comfortable environment for the interviewee to explore the questions, and ensuring the clarity of the audio recordings. Tea, coffee or water and snacks were offered to the participants as part of good practice. Moreover, while not dismissing the script, making sure to maintain consistency in all interviews (Patton 2002), I adapted my approach to a more conversational manner towards the final interviews, which made the situation less staged and more welcoming to the interviewees.

Finally, informed by ethnographic interviewing procedures (Crang and Cook 2007), and to ensure the anonymity of the participants (BSA 2002), the audio

recordings of the interviews were edited for transcription. Before sending the transcripts to the interviewees to obtain respondent validation (Denscombe 2014, Gray 2014), the researcher read and corrected the scripts against the audio recordings. This was part of the first phase of analysis, becoming familiar with the data (Braun and Clarke 2006). When interviewees were sent the transcriptions, they were asked to feel free to make amendments so that their opinion was reflected accurately. From all the interviewees, two of them returned amended transcripts.

– **CS1: Observations**

Observations were planned to focus on the MDes context and teaching activities relevant to this research, contributing to the holistic character of this research by joining my voice to the voices of the participants and those found in the documents. These observations were mainly non-participant in CS1 (Crang and Cook 2007). However, one participant-observation activity occurred (when I was visiting lecturer for the Design Theory course), which, while tangential to this case study, was valuable in three ways: firstly, in contextualising the Masters programme within its school more broadly, as this was a mandatory course for all design specialisms in the art school; secondly, in enabling engagement with the students from the third cohort of CS1, and; thirdly, because it provided the opportunity to run a focus group to gain further insight into the programme's view of design and its teaching methods.

Non-participant observation: Studio sessions

Observing the studio sessions offered an opportunity to witness the immersive context of the studio and the students' activities and interactions with academic staff. This research argues that the intense appropriation of the studio space by the students promotes a sense of belonging and community of practice (Wenger 1998), which fosters personal and professional development. With the observations, it was also possible to identify the potential of this signature pedagogy of design (Sims and Shreeve 2012) to be adapted for teaching the social skills and integrative behaviours of an amplified mindset of design. Observation was done informally as the researcher shared an open-plan space with the students and was naturally aware of their studio activities. The studio was the students' main workspace (see Figure 19 and Figure 29) during the whole programme. There was an intense use of the space during terms 1 and 2 where student work was also mixed with their social activities, and with regular visits from tutors and guest experts to comment on the students' projects. The tables were usually arranged in islands, and re-arranged by the students according to their project needs (see Figure 19 and Figure 30). During term 3 the studio space was less busy because by then they had begun working on their individual research projects (see Figure 27 regarding the programme's structure).

As the main interest in this study was not student group dynamics or their design processes, it was a conscious choice to not make formal observation logs apart from relevant field notes which were considered enough to grasp the studio space of the programme (Denscombe 2014). However, looking back and given the early nature of this experience, the observations are considered the weakness

of this case study. The boundaries between the recording of the observations, their interpretation and validation with participants were not controlled because I was working in the same environment as the students, absorbing/observing and not really documenting because of that proximity. Given more time, it would have been possible, and potentially better, to go back to the studio and make formal observations to record modes of working, academic and social interactions. The lower number of observations in relation to interviews resulted in more abstract findings in comparison with CS2 where observations were at the core of the case study. The abstract character of this case reflects the limitations of educational research which is mainly based on interviews. Educators usually assume an outsider role, using interviews as the main research method, which generates abstract findings (see for example Belenky et al. 1997, Hofer and Pintrich 2002, and Perry 1999). A design approach can enrich this typical approach in educational research by using the designers' capacity to immerse themselves in contexts to generate empathy with the context and people (Michlewski 2015).



Figure 29 – Surrounding areas of MDes studio space (1st and 2nd cohorts of students)

Non-participant observation: Course “Ways of Seeing”

These sessions were observed (see Figure 30) because of their potential to yield a method that could lead to the development of an amplified view of design. The

observation was non-participant (Crang and Cook 2007); I did not take part in the discussions, in order to absorb all that was said and done without interfering. The sessions of this course lasted between 45 minutes to one hour, happening fortnightly during Term 1 (2015/16- third cohort of students). They aimed to develop the students' critical thinking skills, and a pluralistic perspective, through reflection and dialogue on themes that could generate controversial or difficult discussions.



Figure 30 – Studio space of CS1 during the short course “Ways of Seeing”

With one key participant having to withdraw from this study, only the first session on the 1st of October 2015 was observed. Nonetheless, this first session gave foundational information about the Masters programme's approach to design, the session's objectives and method: a topic was launched, followed by individual reflective writing, and the presentation of the students' different views. The lecturer of this course stated in the session that subsequent sessions would follow the same method. This was the first time this course was being run and, therefore, there was a high potential for the method to change and adapt to the students' reactions. However, this session was nonetheless interpreted as pointing to the development of an amplified perspective by introducing topics unrelated to design, and by focusing on multi-perspective conversations.

Participant observation: Design Theory course (1st term)

While conducting this case study, I was visiting lecturer for the Design Theory course (see Figure 27), which was mandatory for all design masters programmes in the art school in question. This was a parallel activity, not directly aimed at contributing to this case study, but was used nonetheless as an opportunity to engage with the third cohort of students, to learn about the teaching methods used on this course that were relevant to the development of dialogical and critical thinking skills, and other ways of knowing through the embodiment of abstract concepts, for example using artefacts. For this course, I delivered content and helped the students with their group debates in class. The topics covered in these

sessions included: overview of design theory, ethics in design, reflexivity in design, material culture, and the concept of innovation (Timetable and Overview of Design Theory 2015). My role was covert in this activity because of the broad audience of this course (from other design Masters programmes), and because my focus was on teaching methods which were similar in every session.

The teaching methods used in this course proved relevant for this research, and included short group discussions followed by a plenary discussion on the topic of the session, and the use of artefacts as starting points to explore the students' research interests for their final reports. These artefacts were used to prompt mediated group discussions about the students' intentions for their design theory report. This course was also useful in that it enabled the recruitment of students from the MDes Design Innovation programme to take part in a focus group (see details in the next section), which offered the possibility to obtain another layer of understanding of CS1.

– **CS1: Other opportunities**

The activities described below and summarised in Table 12 proved to be opportunities to collect data to enrich both this case study and the educational approach envisaged in this project.

Focus group

Derived from my activities as visiting lecturer in the Design Theory course, this focus group was conducted in the later stages of this research with five students from the third cohort of CS1. It lasted for one hour during a light lunch so that students could have time to eat while taking part in this research before returning to their work (it was a busy time of the year for them). The sample of students was rich due their diverse nationalities and cultures: Asian and Central and Southern European.

The focus group sought to identify the group's collective view (Gray 2014) on the Design Theory course in relation to their Masters programme, which helped to build a holistic account of this qualitative case study (Stake 1994). It was however clear that the views of five students from a cohort of approximately 30 students could not reflect the whole cohort, and that this method had the potential to silence individual voices. These effects were minimised by the fact that the information gathered was not new as data was reaching a saturation point (noted in section 4.3 in the discussion of engagement with the third cohort of students). The focus group results were recorded through the creation of collective mind-maps that included the students' opinions regarding:

- The Design Theory course, including thoughts on strong and less strong aspects regarding course content and teaching methods.
- The relationship between the Design Theory course and their specialism within the MDes in Design Innovation.

The mind-maps were later transcribed and relevant aspects included the students' appreciation of learning theory through discussions and through linking theory with their design projects, and the opportunity to be in a place where different

views of design were exchanged. The students also referred to their ways of working, tutorials and workshops in their Masters programme.

Curating a reflective project: PhD Behind the Scenes

The first engagement activity with the second cohort of students, in which design PhD students including myself were invited to talk with the students about our doctoral journeys, triggered the beginning of an empirical cross-school project entitled 'PhD Behind the Scenes' led by myself and other PhD students.

At the end of this project, I reflected on the value of the method followed in this project, and decided to make use of it in my educational approach to an amplified practice of design. Indeed, the project itself was both a collective and individual reflective tool. Firstly, it contributed to the wellbeing of the participants, bringing them closer through a common objective. Secondly, it provided a way of looking at the PhD experience as a merger of three integral aspects: a process or way of thinking and making; a collective of people or ways of seeing, and as an individual experience of a way of being. During this project each participant built a personal archive of artefacts (words, images, sounds, drawings) as distinctive individual self-reflective reactions to the PhD experience. This project ended with an exhibition that included an open discussion about the exhibited works and the personal impact of the PhD journey on each author (Moreira 2015e). This methodology was well received by its participants, but as a qualitative approach it could have a different impact on a different group, indicating that changes may need to be made.

As a case study informed by ethnographic techniques, reflection occurred constantly (Hammersley and Atkinson 1995), particularly regarding the challenge of engaging with three different cohorts of students, and the tensions between the insider and outsider roles I assumed for this project. Although the approach had been planned and revised several times, the long duration of this case resulted in the fieldwork feeling fluid, almost unstructured at times, which could be attributed to this case being investigated at my host institution. Researching within the host institution interfered with the observation activities in this research; however, this was not an issue as I had no previous relationships with the institution, having chosen to conduct my PhD research at this institution due to their distinct approach to design.

– CS1: Summary of findings

The analysis conducted after the fieldwork (see section 5.1) identified distinctive characteristics pertaining to the MDes Design Innovation (summarised in Table 13). These included the programme's guiding principles and key notions about design innovation, which this research found to be the basis for the work developed in this Masters programme. Additionally, another type of finding identified aspects relevant to this research's development of the layout for a Masters programme on the development of an amplified mindset of design, which will be explored in section 4.9.

Guiding principles	Key notions about design innovation	To inspire a Masters programme
Adept to work collaboratively	Design Innovation as strategic, dynamic and cross-disciplinary	Main challenges:
Informed by Social Sciences	Designer as a facilitator that operates between disciplines reinventing its practices	<ul style="list-style-type: none"> – Reflective journals – Collaborative work
Developing the students' identity	Outcomes beyond the visual that reflect an adaptation to context and people	Teaching methods

Table 13 – Summary of findings from CS1

4.6 – Case Study 2: MA Ecological Design Thinking

This section will outline the research methods used to collect data from the Masters programme in Ecological Design Thinking, which included documentary research, interviews and observations. The findings from this case will be anticipated, and later fully explored in Chapter 5. Similarly to CS1, this instrumental case study (Stake 1995) aimed to uncover the defining characteristics and teaching process of the Masters programme in Ecological Design Thinking. Its findings were considered interim and informed the development of an educational approach to help future designers develop an amplified mindset of design.

Case study 2 is based on a one-year taught postgraduate course with an ecological and holistic worldview in a college that functions as a community where students live, work and learn together. Their approach to learning is described as “interactive, experiential and participatory” to encourage the creation of “positive change in the world” (Institutional website, n.d.). The college targets students from around the world, from areas such as architecture, education, policy and political engagement with profiles that range from community practitioners to activists and planners (Institutional website, n.d.).

Because of geographical distance and cost constraints, fieldwork was condensed into one week of immersive involvement and included engagement with two cohorts of students and with students and academic staff from other programmes in the college. The fieldwork had characteristics of micro-ethnography (Creswell 2014) suitable for the short-term nature of observations and for the character of the context—a learning community where students live and learn together. To become familiarised with this community-based type of learning, immersion in the context was appropriate and provided an insider’s view of the MA.

Overview of fieldwork activities

Table 14 offers a summary of data sources and activities conducted in February 2016, which are chronologically detailed in Figure 31. The majority of the interviews were planned before the fieldwork, while the remaining activities illustrated in Figure 31 resulted from my adaptation to the context and life in the

college. In comparison with CS1, the short time span of this case, and the intense and rich agenda of activities recorded through photography, field notes and audio recordings, resulted in a more structured approach.

Documents	Interviews	Observations
Programme overview	4 Students	Life in the college (participant)
Teaching, Learning and Assessment Handbook 2016	3 Academic staff members	Daily routine of CS2 (participant)
Module handbook		Activities related to educational views (participant)
Website texts		Community working groups (non-participant)

Table 14 – Summary of data sources and fieldwork activities in CS2.

With this intense array of fieldwork activities, it was hoped that a level of involvement could be achieved that would be equivalent to what was achieved during the longer duration of CS1. For one residential week, I experienced the community life and the academic activities of CS2, while engaging with academic staff, students who had finished or were finalising their studies, and students starting their studies. The intensity of fieldwork in CS2 and the management of tensions between my social participation and my marginal position echo the common ethnographic fieldwork challenges noted by Hammersley and Atkinson (1995). The high levels of involvement in a new community in such a short period of time was overwhelming at times. The limited time available for lone reflection, managing boundaries between personal space and community involvement, ensuring enough resting time to embrace another day of productive participant-observations and interviews, and a personal pressure to register accurate observations whenever possible, all resulted in a tiring but rewarding week. The intensive collective experience of CS2 arguably influenced my perception, and can be recognised as one limit of a social constructionist methodology. However, immersion was required to grasp this case study, and an awareness of, and critical reflection on, the tensions between the roles of insider/outsider during fieldwork and data collection served to counterweight such an influence.

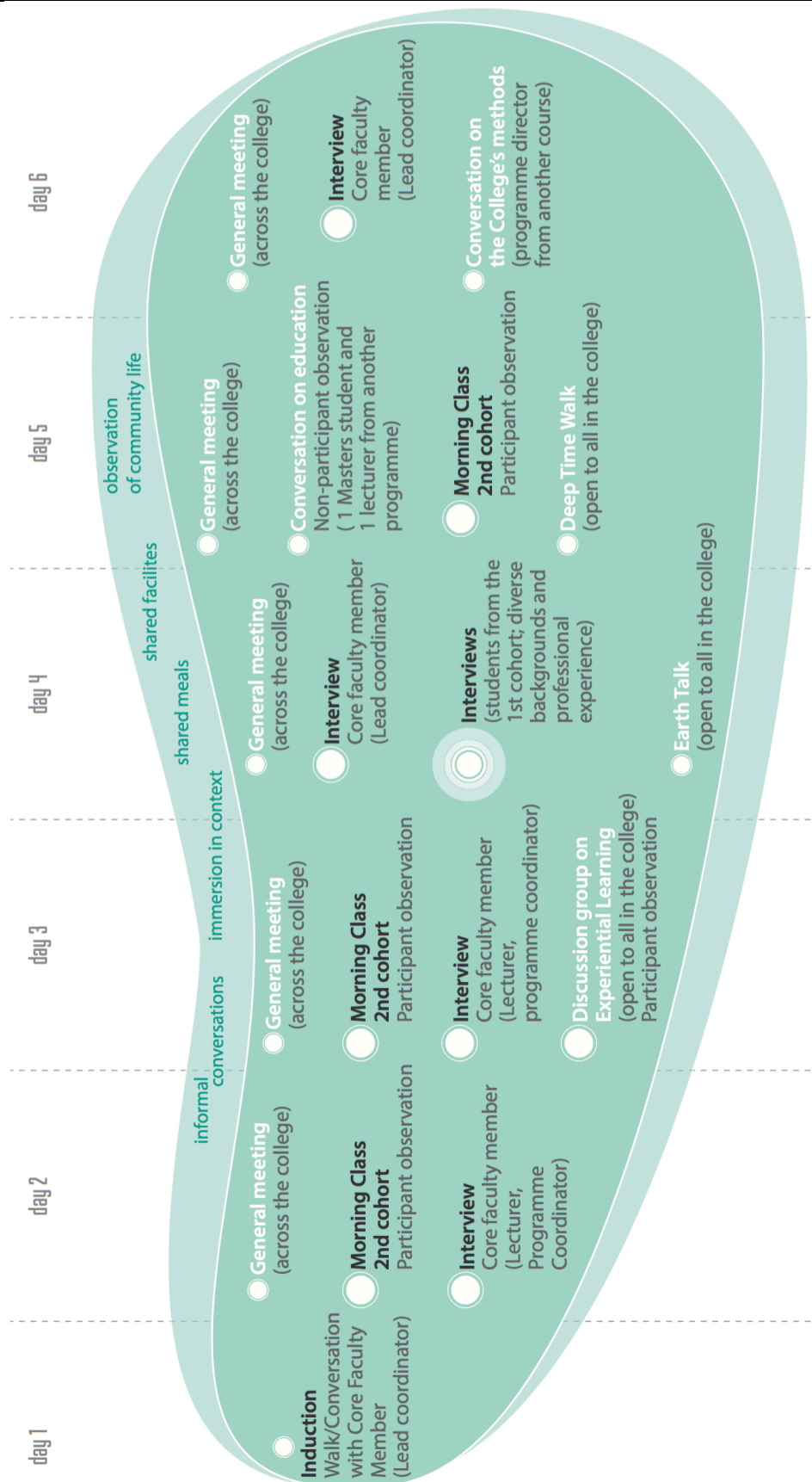


Figure 31 – Chronological summary of fieldwork in CS2.

– CS2: Relevant documents

As noted in CS1 and in section 3.3 regarding documentary research, the documents included in these case studies emphasise aspects that do not necessarily correspond to what happens in the daily run of the Masters programme as they were created for marketing and academic approval purposes, and thus were used in this research beyond their initial purpose (Denscombe 2014). Therefore, a triangulation of methods was used to ensure the documents were critically interpreted. By offering historical and contextual information, the documents supported the preparation stage of the fieldwork by providing information about the main topics of the course and helping me anticipate potential interactions, which were expected to be less formal than the ones in CS1 due to the context of the community. This initial engagement with the documents was considered part of Phase 1 of analysis in this research (see section 5.1), the phase concerned with a familiarisation with data (Braun and Clarke 2006). The majority of documents collected for this case were accessible from the webpage of the Masters programme, and included:

- Texts from the programme's webpage with general information;
- Programme overview document;
- Teaching, Learning and Assessment Handbook 2015/16, which provided information about the curricular structure of the MA (see Figure 32), the content of core modules, assessment and teaching methods.

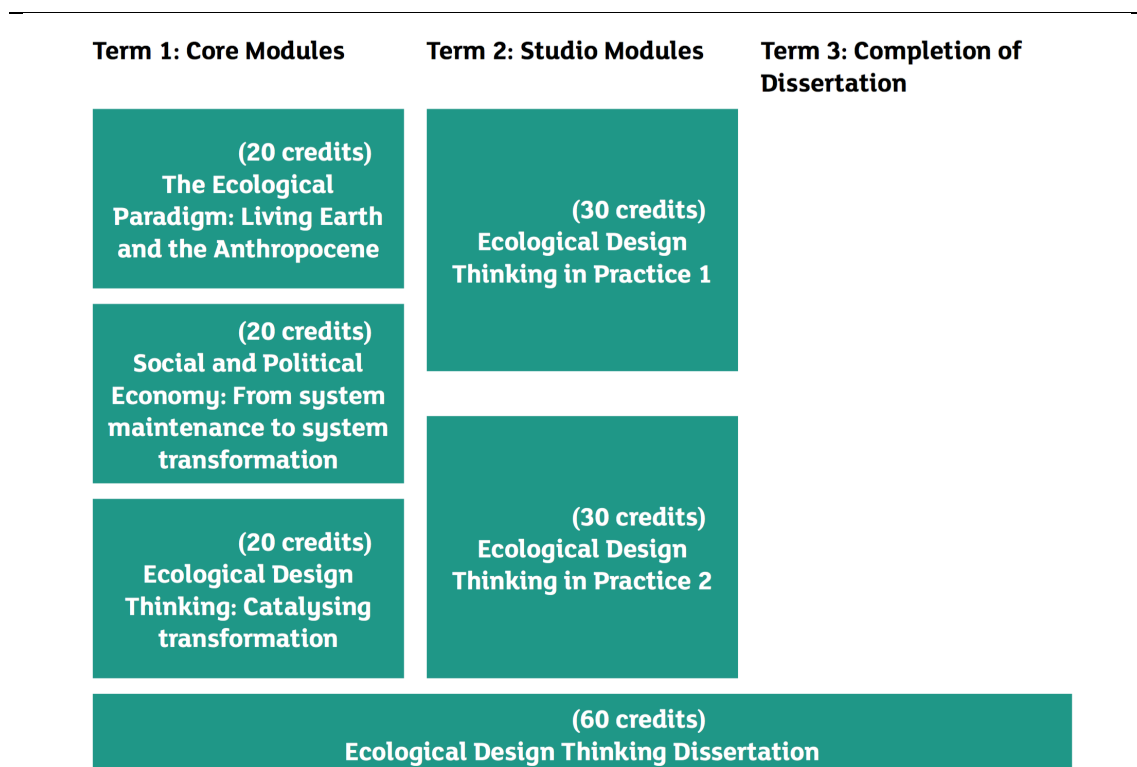


Figure 32 – Programme structure of CS2. (Learning Teaching and Assessment Handbook 2015/16)

These detailed documents provided an *etic* perspective covering institutional, managerial and strategic issues (see Figure 15 in Chapter 3). They covered historical information (Bowen 2009) about the college's origins, its philosophy, views of education, and an overview of their postgraduate programmes and the daily life in community. These documents also presented the aims and rationale of the MA in Ecological Design Thinking. Additionally, the module handbook "The Ecological Paradigm: Living Earth and Anthropocene" served to contextualise the field notes taken for this case study. This was the module being taught during the fieldwork, and covered the overarching eco-centred position of the Masters programme. Unlike in CS1, in this case there was no opportunity to gather documents produced by students.

– **CS2: Individual interviews**

Individual semi-structured interviews offered *emic* knowledge (Fetterman 2008) on this case through the views of four students from the programme's first cohort, and three members of the core academic staff. These were triangulated with the institutional perspective offered in the documents, and the researcher's field notes resulting from participant observations. In these interviews the participants shared their views on their programme's functioning and methods, and the profile of an ecological design thinker.

The students who were interviewed had finished or were finishing their studies, and the remaining students were consciously not interviewed due to their recent involvement in the programme. The academic staff members who were interviewed dealt both with administrative and operational issues, and were involved in lecturing and supervising students' work. The academic staff's interviews were spread through the week in moments that did not interfere with the running of the programme. I did not to engage with visiting lectures, as they were not on campus during fieldwork.

Participants shared their personal reflections regarding areas of improvement and aspirations for the MA. As this was a programme that showed markers of an amplified approach to design, such reflections were useful for identifying features that could enrich this project's development of a Masters programme for an amplified mindset of design. The academic staff also discussed the conceptual framework of this project regarding points of contact or contrast with their programme to identify the extent to which their programme's approach was amplified in the sense laid out in this thesis.

Format

The interviews lasted between 45 minutes and one hour and were conducted across the college campus in quiet rooms (see Figure 33 for an example) to ensure that a safe environment was created. Additionally, and contrasting with CS1, the community environment acted as an engagement facilitator, and there was no need from the researcher to bring food or drinks to the interviews. These were freely available to everyone on campus (see Figure 34).



Figure 33 – Computer room where some interviews took place



Figure 34 – Snack and meals area

Regarding the use of supporting materials, which were used in CS1, the question cards and the worksheet for one question were not used due to my familiarity with the questions by this point, and the conversational style in which these interviews occurred. The use of the diagram illustrating the conceptual framework of an amplified practice of design was helpful in explaining this research to academic staff. With the students in particular, I followed my notes regarding the sequence of questions (see appendix 3) and gave cues regarding topics to explore. The students were very engaged, and when appropriate, with the intention to create a higher level of engagement, I shared my academic and professional experiences with the interviewees (Fieldnote 1). Reflecting on these instances later, I recognised these deviations from the interview script, as resulting from a high level of identification with the interviewees' views, their age and years of professional experiences, and the influence of the "community-effect" in seeking to form closer relationships. This behaviour signalled that I was becoming an

insider and absorbing community patterns of behaviour (audio records of these interviews were then edited to keep the transcripts closer to this research's objectives). By contrast, the interviews with academic staff (not living in the community and more detached from its effects) were more formal, with a similar approach to CS1.

Post-interview procedures were similar to CS1 (see section 4.5 regarding interviews) concerning participant anonymity (BSA 2002), respondent validation (Gray 2014), and preparation for Phase 1 of analysis (see section 5.1) while editing and reviewing interview transcripts to become familiar with their content.

– **CS2: Participant and non-participant observations**

To gain in-deep knowledge of the MA in Ecological Design Thinking, I used daily field notes (Creswell 2014) as rich data that triangulated with the institutional views offered in the external documents, and the participants' views gathered through the interviews.

The participant observations, summarised in Table 14 and detailed in Figure 31, provided me with the experience of a residential learning community and of teaching methods that could inform the creation of a Masters programme for an amplified mindset of design. Experiencing the community life by living in the college (Fetterman 2008) while investigating the MA in Ecological Design Thinking was highly relevant as the two contexts were interwoven and learning from the programmes and courses were often discussed in the community and during social activities (Fieldnote 2).

Secondly, a field notes strategy was set up to record detailed descriptions and reflections (Crang and Cook 2007) of the daily observations. Field notes were created during the day if possible or after dinner in a quiet space. To minimise the possibility of memory reconstruction after the events (Brady et al. 2013, Sims et al. 2012), it was important to write the field notes as soon as possible and in private (Denscombe 2014) while the memory was fresh.

Participant observations: life in college

Field notes regarding life in the college reflect my account of the architecture, physical and social environment encountered upon arrival and during the period of fieldwork. They include an introductory conversation with the programme leader, reflections on mealtimes and snack breaks, the daily general meetings, a nature walk, and an evening talk. These last three events were opportunities to gain a deeper knowledge about the college's underpinning ideas and teaching methods.

Upon my arrival to the college on a Sunday afternoon I found a home-like environment as depicted in Figure 35. What followed was a walking meeting with the programme leader of CS2, which set out the norms and boundaries of how this fieldwork would be conducted. I was shown around the estate while listening to a historical introduction to the college, the daily life in the community, its dynamics, routines, and particularities.



Figure 35 – Entrance of the main building in CS2

The programme leader would be the point of liaison between myself and the college, and was available to explore any (challenging) questions that I may have had during fieldwork. This was mainly to avoid disrupting the community's daily routines, and to prevent potential differences between my opinions and the dominant worldview and attitude in the college that could create a resistance to my engagement with the community. This resistance was experienced to a slight degree in the community, but not in the students or academic staff of the MA Ecological Design Thinking.

Mealtimes and snack breaks were documented as the type of conversations happening during these times offered an insight into the different perspectives of students on the educational experience at the college, its people, and the dominant worldview and lifestyle encountered in the college. Some experiences during mealtimes were impactful for both myself and the community mainly as these occasions made everyone interact using senses other than hearing (speech) or sight. These included a blindfolded dinner (on the arrival day) and a silent lunch, and were arguably activities that brought the researcher and community closer together because all participants had to interact in order to eat.

Furthermore, during the weekly working days, there were daily general meetings which took place in the main building at 8:30am after breakfast. Taking part in these meetings provided me with a grasp of the wider context of the college and was a source of information about activities relevant to observe for this research. Such activities included a nature walk, an evening talk, and a discussion about experiential learning in the college. These meetings were short and structured in three parts:

1. Opening reading or song brought by anyone;

2. 'Housekeeping' announcements such as the activities of each programme for that day, the distribution of community tasks for the working groups, and if needed the introduction of newcomers such as myself and others attending the college's short courses;
3. Closing activity suggested by anyone, which could be a song, a reading for reflection or a physical exercise to start the day.

Additionally, the walk in nature, which was themed around the history of the planet (see Figure 36), and the introductory moment of the evening talk, were recorded as teaching methods with the potential to inspire the development of a Masters programme.



Figure 36 – Walk in nature, open to all courses in the College

Non-participant observations: community working groups

In order to investigate the Ecological Design Thinking programme and identify characteristics that could be harnessed to construct a Masters programme focussing on an amplified mindset of design, there was a need to set boundaries in terms of my participation in the community life. A key example of this was the need for me to maintain a marginal position (Hammersley and Atkinson 1995) regarding the community working groups. Although the community life was a key aspect of all the programmes in the college, I had to limit my involvement, focus mainly on CS2 and filter the aspects and activities of the wider community that were relevant for this research.

After my arrival one of the college's volunteers provided a brief introduction to the college's life and invited me to take part in the working groups that maintain the college's estate. It was expected that guests would embrace the community experience in full, as this was a distinctive characteristic of this college; all residents shared the workload. However, I had not planned to participate in these activities due to the short duration of this fieldwork. After discussing this matter with the programme leader of CS2, I decided not to take part in these working groups in order to be fully focused on collecting data from the programme under study (Field note 3). The coming week was expected to be demanding and further work would not be beneficial to successful data collection. When reasonable, I

would take the initiative to do minor tasks such as helping a working group clear the tables after a meal, fetching specialised equipment needed for any activity in which the researcher was taking part, and cleaning the used equipment. Although not taking part in full, I attempted to show appreciation for the hosting community with these small gestures and build rapport (Crang and Cook 2007).

The choice of not taking part in the working groups did not go without silent questioning by a few members of the community, and for them I was definitely an outsider. In hindsight, this choice may have hindered opportunities to experience the community life in full, and by consequence, ignored potentially relevant voices. This was especially the case as, in addition to not taking part in the working groups, I was staying in guest accommodations in the college's main building and not in the student halls, which was a further boundary preventing full participation. It was only when I approached new people, mainly during mealtimes and snack breaks, that conversation was fruitful. Longer immersion time would thus have been beneficial to study the community.

Participant observations: the daily routine

I took part in the programme's classes (see teaching space in Figure 37) and was invited to take part in the discussions to generate richer debate due to the small cohort of two students in this edition of the MA. By taking part I was bringing in my own views on the discussion topics, but I was mindful that very active participation could interfere with the naturalness of the events and tried to control my levels of participation. I took notes on the layout of the space, the type of content discussed and available in the library, and on teaching activities relevant to this research.



Figure 37 – Teaching space and library of CS2

Firstly, the space had an atmosphere of a domestic office or studio. No shoes were used in this space, there were cushions in the chairs, and students seemed to

work comfortably in their own appropriated space. This research argues that a space with these characteristics has the potential to create a welcoming environment that motivates students to engage more deeply with the work they develop.

Secondly, regarding the content of CS2, Ethics and Zoocentrism were discussed during that week and provided foundational information about CS2. Also, the classes with a specific lecturer opened with a reading from the book “The Earth Has a Soul” by Carl Jung which was being read by the students and that lecturer. The type of books in the teaching space’s library ranged from scientific topics, research methods to alternative therapies. These were indicators of the holistic approach of this Masters programme.

Thirdly, the classes observed followed the traditional structure of a conversation assisted by digital slideshows or overhead transparencies, but one teaching activity was noted as particularly relevant for this research. It was an exercise called “Walking and talking with the dead” which was an experiential form of essay that covered writing skills, imagination, and literature reviewing (Field note 4). This was an embodied activity, a method which is argued in this research to have the potential to enhance learning by contributing to the holistic approach of diverse ways of knowing (Forgasz 2015) which brings together theory (intellectual and objective reasoning) and practice (experiences, emotions, aesthetics).

Moreover, being part of the programme’s snack breaks allowed me to experience the social side of the programme and witness the close relationship between students (from both cohorts at times) and academic staff. They would discuss the class topics but bring in their personal experiences in relation to it. There were also moments where the educational approach of the college would come up. This was a central talking point across the college during my visit, and the main question was regarding the definition of the college’s experiential teaching (covered next).

Participant observations: activities related to educational views

I took part in conversations with students and academic staff that debated the college’s educational approach. These took place during mealtimes, morning breaks and in random encounters around the college, and served to provide a grasp of what experiential learning meant in the college, and an opportunity to learn about the very close and informal relationships that existed between all members of the community.

From the observations and the students’ and volunteers’ reflections, I learned that for them the experiential learning in this college was focused on the senses and emotions associated with academic content. For some students it was a form of personal development through the exploration of deep emotions and personal history. For a few community members their residential experience also functioned as a retreat. This study argues that this view of experiential learning seemed to tend more towards prioritising subjective aspects over intellectual

reasoning. However, the students from CS2 had a more pragmatic view of the college life, and although deeply involved, I sensed a more critical view regarding community life. This recognition of the value of a community, but with critical distance, was seen as useful to the development of a Masters programme informed by an amplified mindset of design as it is a position that integrates diverse and opposing perspectives.

– **CS2: Summary of findings**

Findings from the analysis presented in Chapter 5, identified a series of distinctive characteristics of the MA in Ecological Design Thinking (summarised in Table 15). As with CS1, these were translated into a set of guiding principles and notions about the ecological design thinker (design innovation designer in CS1), which were found to be foundational for the work developed by students in CS2. Another type of finding sought to identify teaching methods and approaches seen by this research as suitable to teach an amplified mindset of design. Part of these findings (interim for this research) informed the development of the layout of a Masters programme for the development of an amplified mindset of design (see section 4.9).

Guiding principles	Notions about the ecological design thinker	Teaching methods
Follow a holistic approach to learning and teaching		
Adept at interdisciplinary work	Agent of change and transformation	Living and working in community
Produce transformation strategically	Pluralistic perspective	Dialogic teaching
Seed and/or develop an ecological worldview	Processes as main outcomes	Live projects
Pursue qualities of flexibility and resilience		Embodiment methods

Table 15 – Summary of the findings from CS2

4.7 – Comparing approaches to fieldwork

Differences in the two cases produced very different experiences. CS1 was a more established programme with six specialisms, and resulted in a non-intensive and more abstract experience. CS2 was a programme in its early stages offering a single award, and resulted in a more engaged and immersive experience. The very different educational contexts of both cases impacted my levels of immersion in both cases. On the one hand, students from CS1 worked mainly in collaboration and in groups, but did not live together and could decide on their level of social engagement with their peers. On the other hand, CS2 was a living-and-working academic community, with a sense of retreat and closeness between students and staff. Similarities, however, included rich samples of interviewees due to the diversity of roles and backgrounds represented in both cases. Although with

different weights, the triangulation of methods in both cases also generated rich sets of data to be analysed.

The research methods used in the two cases reflect the two types of cases under examination; CS1 was a long-term case with activities distributed over approximately two years of direct and indirect involvement, while CS2 was a short-term case with activities condensed into one week of intense involvement. Firstly, the interviews in CS1 assumed an important role in gaining in-depth knowledge of the Masters programme from the participants' inside perspectives, while in CS2 participant-observations had more relevance due to the context which demanded my immersion in the environment. Secondly, the quantity of documents in CS1 was higher and more diverse than in CS2 to compensate for the lower number of observations. CS2's smaller sample of documents, which provided mainly an institutional perspective, was balanced with interviews and observations that captured diverse individual perspectives. Thirdly, the observation activities in this research focused on teaching activities and on understanding the context of each case. CS1 had a low number of mainly non-participant observations, while CS2 had a high number of participant observations due to the short duration and educational context of the case. Tensions between my roles as insider and outsider were present in both cases, but these were heightened by the short duration of fieldwork and community environment in CS2.

Although the two cases shared the characteristics of an interdisciplinary orientation, international cohorts and collaborative ways of working, at the end of the fieldwork this research identified the studio and the concept of community as aspects suitable to be adapted for the development of an educational approach informed by an amplified mindset of design. This research argues that the central role of the studio projects in CS1 allowed for higher levels of collaborative work and integration of knowledge from surrounding academic activities and sources into the studio projects, contributing to the generation of innovative outcomes. Regarding CS2, the residential context is seen by this research as allowing for a holistic immersion that merged the social and academic aspects of student life, increasing the level of student engagement and critique of academic content.

4.8 – Amplified Practice of Design: changes in the conceptual framework

This section explains the (mainly visual) changes that the conceptual framework of an amplified practice of design underwent from the early stages of this research towards a renamed framework before the fieldwork for CS2. This impacted the research objectives, questions and outcomes of this research (see chapter 6 for a detailed account). It is relevant to anticipate that the shift from an amplified *practice* of design to an amplified *mindset* of design (AMD) between CS1 and CS2 reflected with more accuracy the type of framework this research was building. Consequently, there was a change from the intended creation of educational work packages to the design of a Masters programme that could fully explore a mindset. Although the conceptual framework changed in this way between cases, an

account of these changes is offered now so that it does not interfere with the fieldwork narrative, and in order to make the transition to the next section of this chapter (fieldwork for the development of a Masters programme), where the use of visualisations assume a significant role.

The visualisation offered in Figure 38, represents the conceptual framework of an amplified practice of design that informed the writing of section 2.4. Here, the visuals were used for sense-making purposes (Kolko 2010) by visually shaping my thoughts and views of the literature as a form of understanding, discovery and critique (Lawson and Dorst 2009). This visualisation was part of a larger diagram used to draft the literature review chapter. Below in Figure 38, it is possible to see an overlay with the Rose Window model as an attempt to find the comprehensive character of this research's framework and main points of connection between both. This overlay was influenced by the use of the Rose Window model in this research as a lens for looking at literature. For example, the green shape dedicated to social skills was placed primarily between the quadrants Ways of Being and Ways of Seeing while covering aspects of Ways of Thinking and Ways of Making.

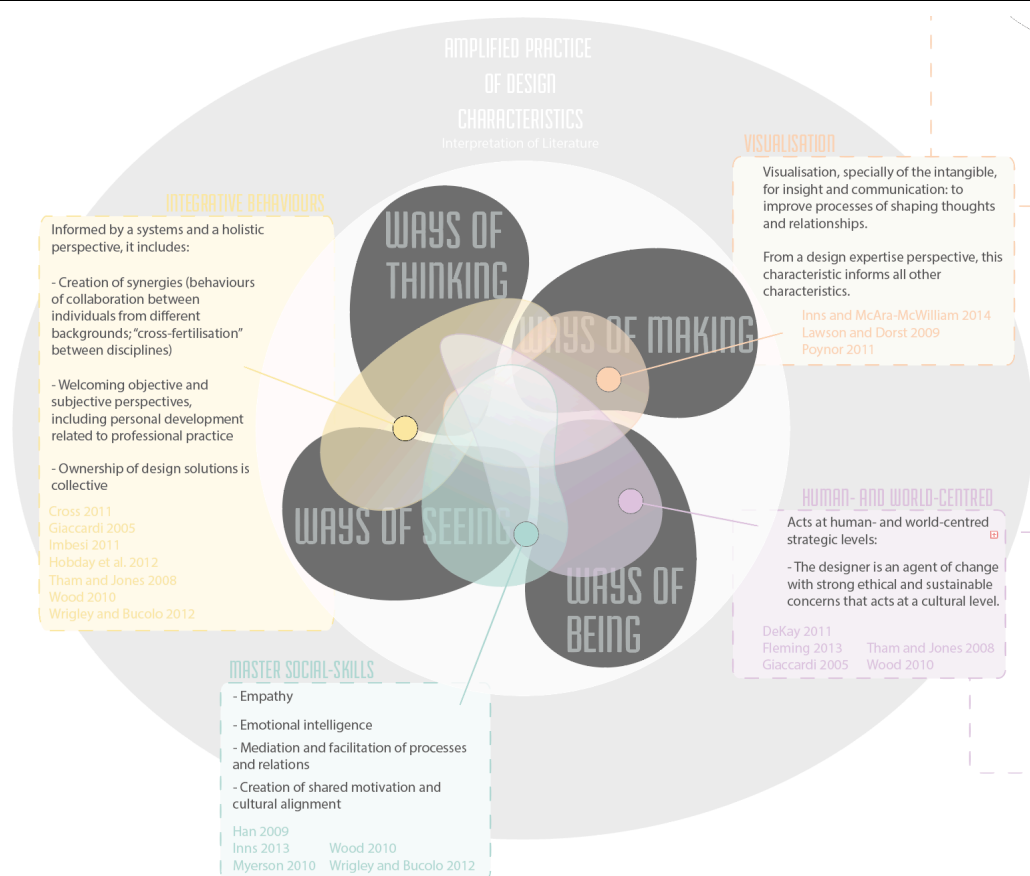


Figure 38 – Visualisation of the conceptual framework overlaying the Rose Window model

A reflection on the relevance/ use of the Rose Window Model

However, the initial relevance attributed to the RW as an integral lens to explore the emerging holistic and humanistic paradigm in design changed throughout this research, as explained next.

At first, the Rose Window Model was a dominant lens through which to look at the literature and to underpin certain aspects of this thesis. However, as the research progressed, the Rose Window became less of a central focus. This will now be explained.

Initially, the Rose Window model was found to be a useful model to deal with the complexities of emerging design practices. When compared with other design models (see section 2.2, pages 21-25) the RW showed a unique holistic character that surpassed a traditional view of design as a profession or a process to include a way of being in the world through design. The model was a starting point that influenced the first version of the conceptual framework found in Figure 38 above.

Second, the RW was key as a lens to look at the literature and its use surfaced specific aspects and detail of design practices that demanded to be shaped into a distinct model such as this thesis' amplified mindset of design (see Figure 93, page 256). Figure 39 to Figure 42 are examples of this detachment.

However, as an abstract model, the RW lacks detail on what it means to pursue an integral or holistic approach to design. Consequently, this research distanced itself from the RW to deepen the investigation on emerging design practices and to offer elements or guidelines (in the form of a conceptual framework) to be appropriated and implemented in practical and educational design contexts.

Finally, although providing an apt and relevant account, the RW lacks validation and peer reviews which is expressed in a limited amount of publications (see page 13) and in its tacit use found in CS1's department informing their (educational) practices. By contrast, during the course of this research, the conceptual framework of an amplified mindset of design went through formal and informal peer reviews such as: a published paper (Moreira et. al 2016), conference presentations, posters and workshops (examples include: NORDES Conference 2015, iJADE conference 2015, Design PhD Conference at Lancaster University 2015, GDEN Conference 2016), and conversations with design educators and practitioners throughout this research's fieldwork activities.

Returning to the visualisations of the conceptual framework Figure 39 was designed to conduct pilot interviews, and focused on highlighting in light green the amplified aspects of design explored in this research. Here, the visuals served to communicate (Inns 2013), and translate (Kolko 2010) this thesis' concepts to the participants. Although there was no specific feedback on the visual representation of the conceptual framework, the diagram used in the pilot interviews (Figure 39) went through another iteration to improve its communication.

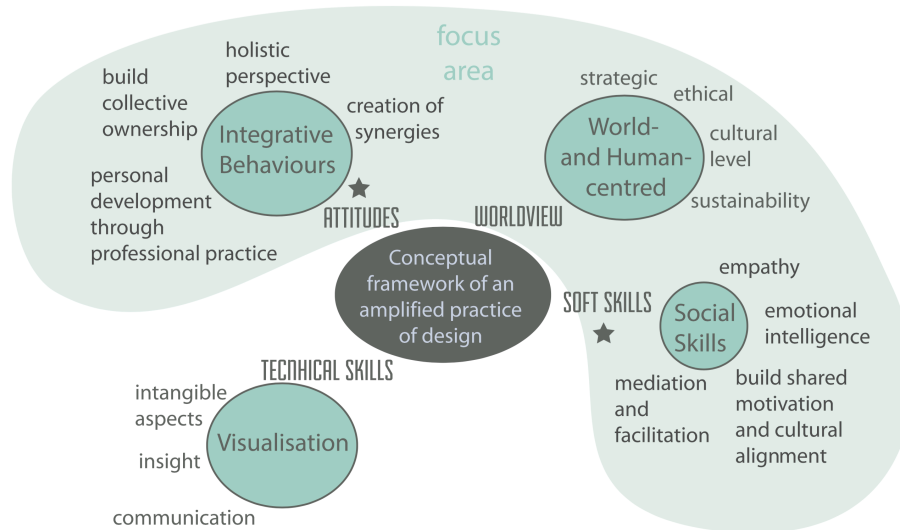


Figure 39 – Conceptual Framework used in pilot interviews

Figure 40, below, illustrates a diagram used as a boundary object (Eckert and Boujut 2003) during the interviews in CS1, and to mediate my conversations with HE learning and teaching professionals (Moreira 2015c, 2015d). Firstly, the design innovation staff from CS1 were familiar with the majority of the terms, but this diagram was to be used with people from other disciplines and design specialisms. In the diagram I changed the position of two clusters (Social Skills and World-centred and Human-centred), and offered a clarification of terms so that interviewees could better answer the questions. In this diagram, curves formed a ripple starting purposefully from the Visualisation cluster, illustrating an amplification of this traditional characteristic of design. These curves were intended to translate the expansion of design practices (explored in Chapter 2) whose investigation led to the development of the conceptual framework for an amplified practice of design. Secondly, as a boundary object this visualisation served to mediate and translate (Eckert and Boujut 2003) the interdisciplinary conversations between myself and HE learning and teaching professionals (Moreira 2015c, 2015d), as different ways of disciplinary thinking led to different interpretations of the conceptual framework. These conversations formed the start of an educational approach informed by the conceptual framework.

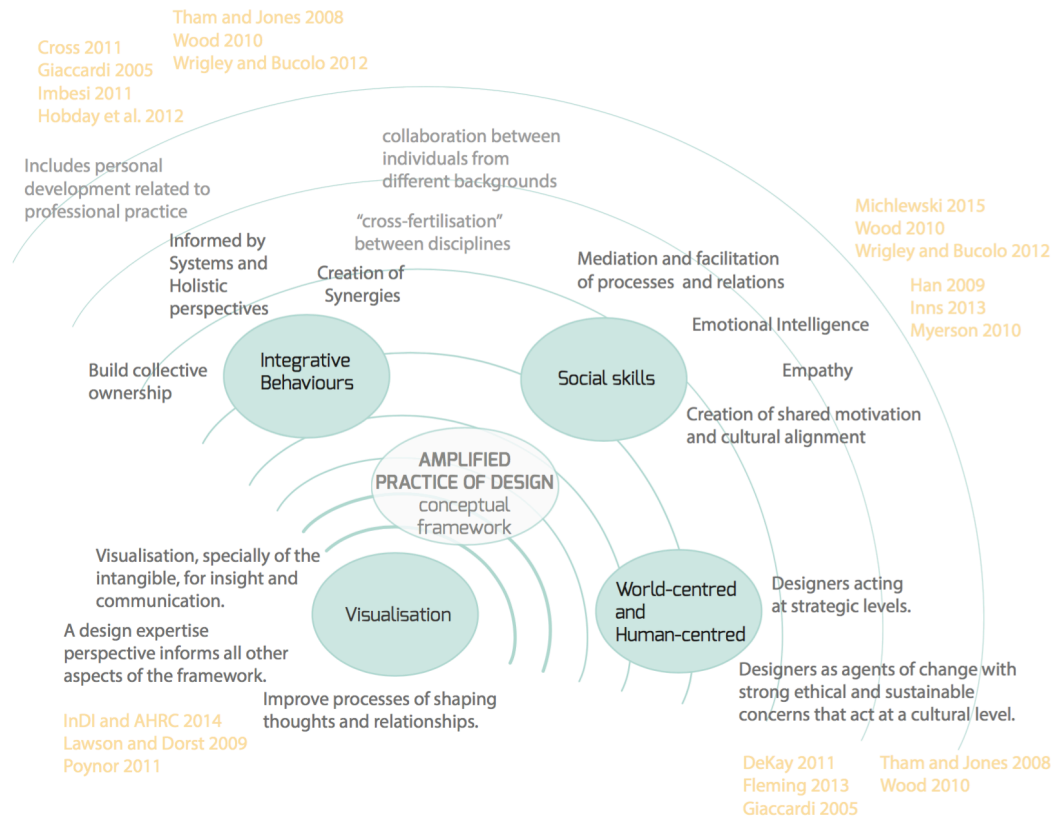


Figure 40 – Conceptual framework used in interviews of CS1, and in conversations with HE Learning and Teaching Professionals

The next attempt to communicate visually the conceptual framework for an amplified practice of design resulted in Table 16, developed for a short conference paper (Moreira 2015b). This representation served to display information and lacked the visual quality that expressed the amplification of the emerging practices of design explored in this thesis.

<p>Acts at Human-centred and world-centred strategic levels (<i>DeKay 2011, Fleming 2013, Giaccardi 2005, Lawson and Dorst 2009, Tham and Jones 2008, Wood 2010</i>)</p> <ul style="list-style-type: none"> - Designer as an agent of change with strong ethical and sustainable concerns, acting at a cultural level.
<p>Shows integrative behaviours informed by a systems perspective and a holistic perspective (<i>Cross 2011, Giaccardi 2005, Imbesi 2011, Hobday et al. 2012, Tham and Jones 2008, Wood 2010, Wrigley and Bucolo 2012</i>)</p> <ul style="list-style-type: none"> - Creation of synergies - Welcoming objective and subjective perspectives - Ownership of design solutions is collective
<p>Focus on mastering social skills (<i>Han 2009, Inns 2013, Michlewski 2015, Myerson 2010, Wood 2010, Wrigley and Bucolo 2012</i>)</p> <ul style="list-style-type: none"> - Empathy - Emotional intelligence - Mediation and facilitation of processes and relations - Creation of shared motivation and cultural alignment
<p>Visualisation of the intangible for insight and communication (<i>Inns 2013, Lawson and Dorst 2009, Poyner 2011</i>)</p> <ul style="list-style-type: none"> - The aesthetic aspect of visualisation works here as a tool to discover new insights and to communicate.

Table 16 – Representation of the conceptual framework for a conference short paper. (Moreira 2015b)

At this stage, after conducting the interviews with academic staff from CS1, further reflection led to changes in the framework and its visual representation. Its name changed to amplified mindset of design, impacting this research (see chapter 6). The diagram in Figure 41 was used for purposes beyond the mediation of different ways of interpreting the conceptual framework for an amplified mindset of design. It aimed to stimulate a series of conversations with design educators from diverse specialisms, and negotiate and translate the meaning of such a diagram (Carlile 2004, Eckert and Boujut 2003) for the future development (Stevens 2013) of a Master programme informed by the amplified mindset of design. Following Kolko's (2010) sense-making concept, the visual language of Figure 41 was explored to improve the explanation and understanding of the conceptual framework through the use of colour, hierarchy, scale, and shape of the visual elements. It reinforced visually the amplification of design from a cluster referring to traditional characteristics of design (visualisation) towards an umbrella cluster with worldview characteristics.

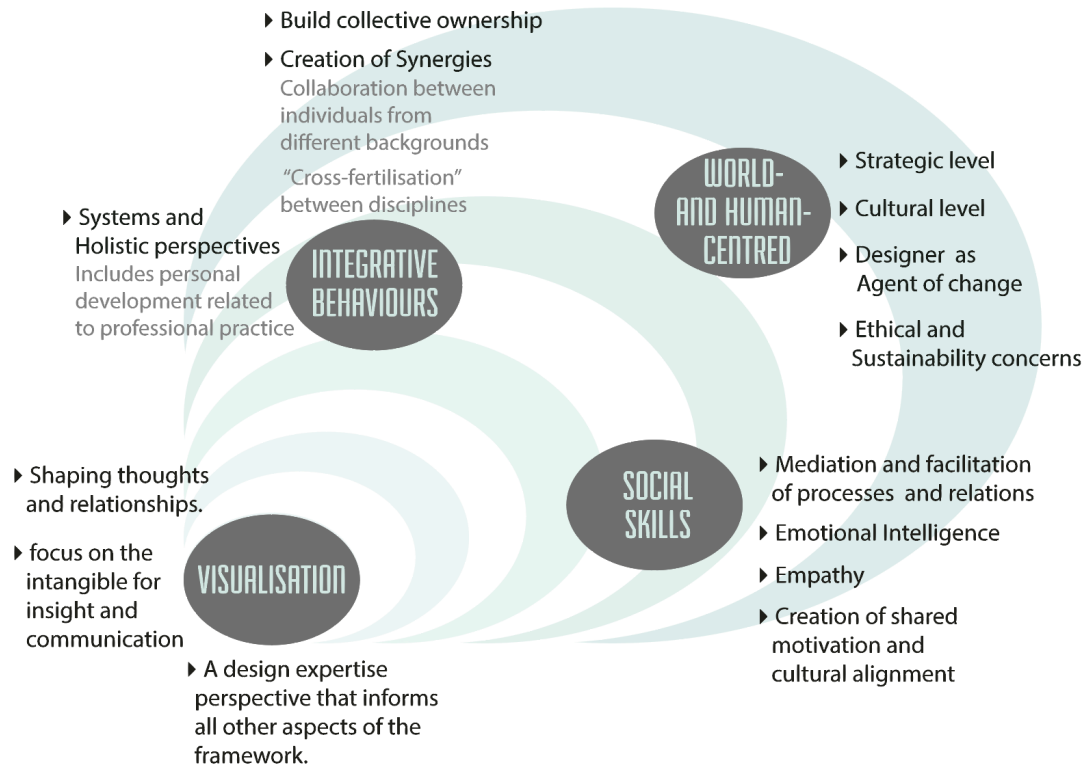


Figure 41 – Conceptual framework used in the first interview with design educators.

Following the first interview with a design educator, the conceptual framework went through another visual iteration (see Figure 42) used in the interviews of CS2 and with the remaining design educators interviewed for the development of the Masters programme. The use of this diagram had the same purposes as Figure 40: to mediate (Eckert and Boujut 2003) part of the interview by communicating (Inns 2013) and translating (Kolko 2010) the conceptual framework for an amplified mindset of design. While using this diagram it became apparent that design educators from outside the specialism of design innovation struggled with the terminology used (see Interview 1, in section 4.9). Educators from traditional design specialisms could not relate the terms used in the diagram with their practices and others assigned different meanings to the words used (see Interview 5, in section 4.9) preferring their own vocabulary to make the framework more familiar to them. Empathy was merged with communication skills (a term introduced after Interview 5 in section 4.9), and after further reading, emotional intelligence was taken out since it was implicit in other aspects such as mediation, and was not that frequently found in design literature.

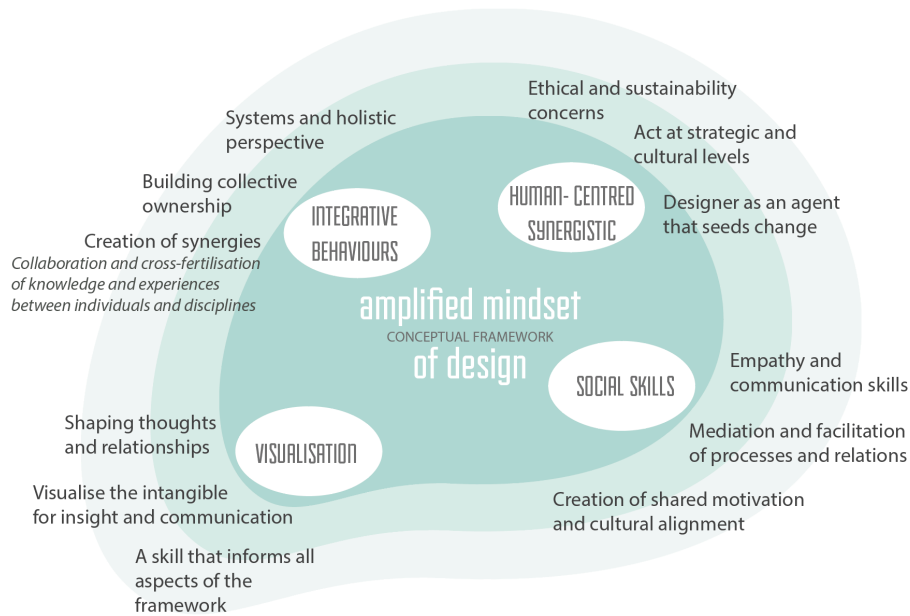


Figure 42 – Diagram used in the interviews of CS2

This section has outlined the process of changes that transformed the conceptual framework for an amplified *practice* of design into the conceptual framework for an amplified *mindset* of design, for which a final visual iteration is offered in Chapter 7.

In all the visualisations used in this research, the aesthetic aspect of the visuals was used both as a tool to communicate and to generate insights (Bertin 1983, Kolko 2010) during the encounters between the researcher and the participants in this research. The several visualisations of the conceptual framework moved from a use of visuals for communication purposes (see Figure 39), towards using them for creating and visioning (Manzini 2013) the layout of a Masters programme in (see Figure 41 and Figure 42), which will be covered in the next section.

4.9 – Designing a Masters programme

This section describes the sequence of fieldwork activities carried out to design a Masters programme focused on developing an *amplified mindset of design*. By doing so, it aims to partially answer this research's question: How can distinct approaches to postgraduate design education help future designers develop an amplified mindset? The fieldwork activities conducted for this phase of the project included one initial informal interview with an HE consultant, the creation of curriculum visualisations, a cycle of interviews with design educators, and a validation focus group with design students, educators and practitioners. Following the social constructionist orientation of this thesis, these activities were collaborative moments between myself and the participants (Rouslon 2010) in which we collectively constructed a meaning for this Masters programme. Their objectives were as follows:

- The non-directive interview with an HE policy consultant aimed to explore how an amplified mindset of design could be translated into education, and learn about pertinent aspects to consider during the development of such an educational approach;
- The individual semi-structured interviews with design educators, were used to refine and consolidate this study's layout of the Masters programme;
- The working session with one HE learning and teaching professional, aimed to refine the intended learning outcomes of the Masters programme;
- The validation focus group with design students, educators and practitioners aimed to assess the adequacy of the Masters programme.

Additionally as depicted in Figure 43, a summary of relevant concepts from educational literature (see Chapter 6), and relevant findings from the case studies (see Chapter 5) are introduced to contextualise the choices made during the design of this Masters programme. These are preceded by a methodological introduction on this process.

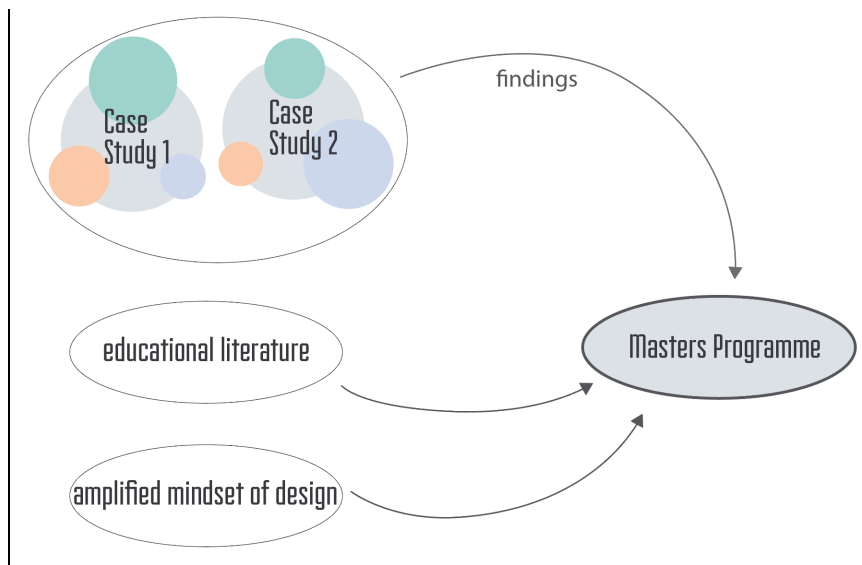


Figure 43 – Elements of the research used to develop the Masters programme

– **Methodological process**

This section represents an addition to Chapter 3 (methodology), and reflects a shift in this research that is further explored in Chapter 6. To develop an outline for a Masters programme, which exposes students to an amplified mindset of design, a methodology of qualitative interviews was used which was informed by the design practice of generating visuals and the principles of low fidelity prototyping (Brown 2008, NESTA 2013).

This methodological process was also informed by aspects of action research (Denscombe 2010, Kemmis and McTaggart 1998, Reason and Bradbury 2008) in

a cycle of interviews with six design educators from different design specialisms – Fashion, Product, Interior, Design Thinking – and two HE professionals working in HE policy and in Learning and Teaching departments. Gray's (2014: 329) interpretation of essential action research principles served as a starting point to explore some of these principles in the process of designing the layout of the Masters programme. The use of this methodology informed the creative aspect of developing a layout for a Masters programme, which was enriched by the iterations with design educators and HE professionals.

The process followed cycles of interviews with different design educators until a finalised version of the programme took shape. These cycles were instrumental to critically reflecting (individually and with the five interviewees) on several drafts of the Masters' layout. Although involving different participants, this cyclical process fits into Kemmis and McTaggart's (1988) action research model: plan, act, observe, and reflect. However, Hammond and Wellington (2013) contend that action research seeks to improve the practice of both researcher and participants in a study, which was not the case in this research. I was looking to improve my approach to the development of a Masters programme, while the participation of the interviewees was limited to single moments of contact with this research in which we jointly explored and reflected on the AMD and the Masters programme. Each cycle included one interview with a different design educator, limiting their involvement and perspective on the project. This allowed me to develop the Masters programme using the diverse perspectives of the each educator, their experience and knowledge in design education and design practice. These moments were also validation moments in the spirit of trial and error in low-fidelity prototyping.

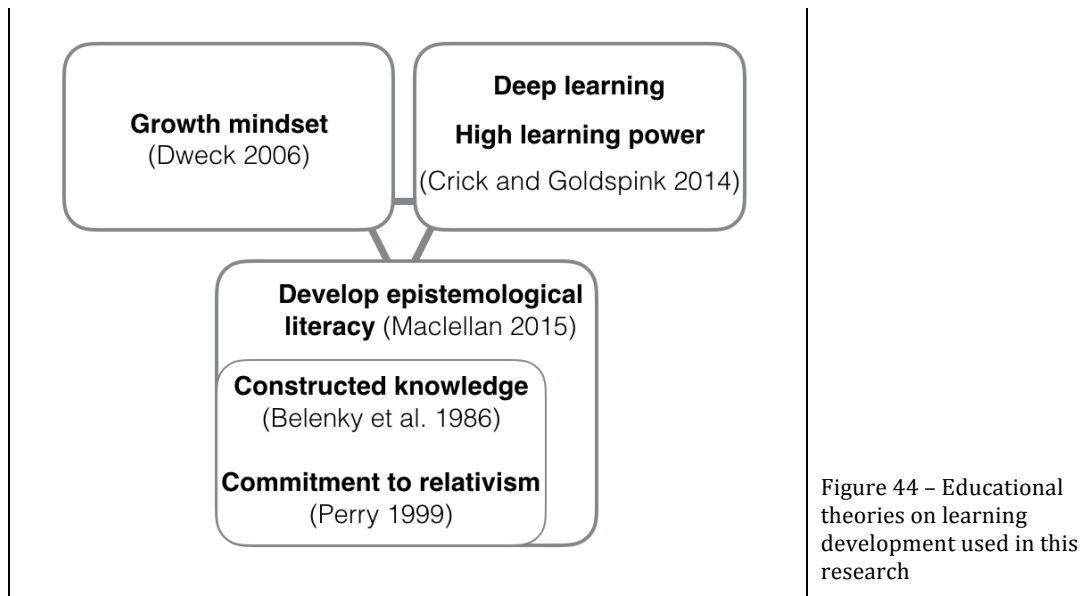
– *Relevant concepts from the literature*

To fill the gap in design education regarding the insufficient incorporation of educational literature (see section 2.5), this section serves to contextualise this study's approach to a Masters programme by presenting a summary of fundamental concepts of learning and educational theories found suitable for the development of an educational approach to an amplified mindset of design. A richer account of these theories is critically discussed in section 6.2, and resulted from the shift in this research from the development of work packages into the development of a Masters programme. Chapter 6 explores and justifies this shift.

Epistemological development is relevant

From the perspective of an amplified mindset of design, as design briefs are increasingly dealing with complex problems that demand tailored approaches, new knowledge and partnerships with other disciplines, to develop such a mindset requires that students have high tolerance for ambiguity and paradoxes, and for the integration of emotion and reason. Based on MacLellan (2015), this thesis argues that a suitable educational approach for the development of an amplified mindset of design needs to focus on developing students' critical thinking skills and epistemological awareness regarding their own learning beliefs and dispositions (Crick and Goldspink 2014). Figure 44 depicts a summary of relevant educational aspects crucial for the development of an AMD. First, Perry (1999)

and Belenky et al. (1997) offer relevant insights into epistemological development, having identified a series of epistemological positions from more simple to more complex stages in students. Due to its complexity, the development of an AMD would have to include cultivating epistemological literacy (MacLellan 2015) and epistemic beliefs reflecting sophisticated positions such as constructivism (Belenky et al. 1997) or relativism (Perry 1999). Additionally, this thesis also recognised the need to foster in this Masters programme a growth mindset (Dweck 2006), self-development learning goals (Dweck 2000), a deep learning disposition and high learning power levels (Crick and Goldspink 2014). Second, these qualities could be promoted by creating a context of connectedness (Bellenky et al. 1997) to reflect and support the social skills, integrative behaviours and human-centred aspects of the AMD.



Social approach to learning for epistemological development

The following summary of a triangulation of educational theories (see Figure 45) is critically discussed in section 6.2, and used to inform the development of the Masters programme. It highlights the combination of learning for individual epistemological development and social learning.

Firstly, epistemological development is addressed in the theory of transformative learning (Mezirow 2009, 1998), referring to changing students' problematic frames of reference (assumptions, beliefs, mindsets) into more inclusive frames to generate social change. As it promotes critical self-reflection and dialectical discourse, transformative learning was found useful to educate for an amplified mindset of design. This is due to both its transformational (strategic) intent and adaptive disposition, on one hand, and the transformation of students' views into the currently emerging view of design with ontological consequences, on the other hand.

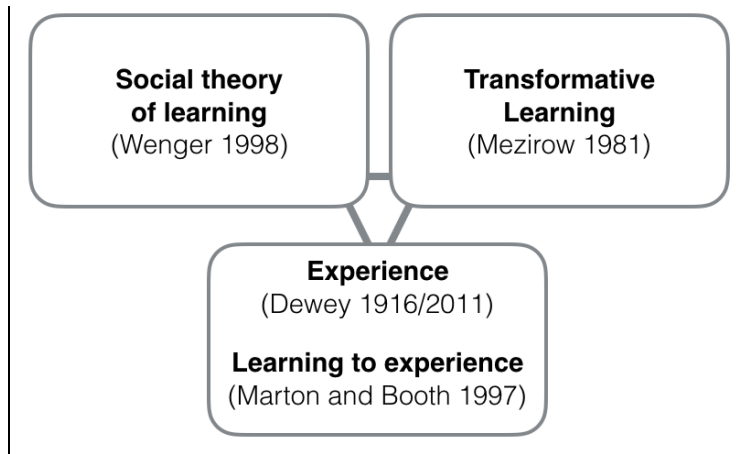


Figure 45 –Educational theories found suitable to develop an amplified mindset of design

Secondly, the same focus on epistemological development was found in Dewey (1916/2011), and Marton and Booth (1997) which also explore transformations in the person-world relationship. Dewey (1916/2011) focuses on *experience* as the process of inquiry (Stoller 2013), which is followed by communicative interactions, which are relevant for design as a discipline of *making*. Marton and Booth's (1997) contribution was also found to enrich Dewey's focus by exploring the relevance of learning to experience, which for this Masters programme will contribute to creating the conditions for new learning to occur regarding a project or situation. Thirdly, and because the previous accounts showed an emphasis on the individual over the collective, collaborative practices inherent to the AMD ask for a social theory of learning (Wenger 1998) that defines learning as social participation. This approach can be said to foster deep learning when there is successful engagement with a community of practice. A focus on group work and interdisciplinary collaborative projects would be a vehicle for this Masters programme to build a community of practice around an amplified mindset of design and thus establish, advocate and advance this new position within design.

This thesis argues that the combination of adult education and formal education theories above is relevant for design due to its vocational heritage, and the opening of design's disciplinary focus. It serves to respond to the complexity and integral character of an amplified mindset of design, with an educational approach intended as a catalyst for a more sustainable world where students are equipped with knowledge and skills to develop meaningful work in complex conditions that are becoming the norm for designers. Although this Masters programme resorted to the signature pedagogies of design (Shreeve 2015) by being studio-centred and having project work at its core, it aimed to follow a non-specialism orientation open to theoretical contributions from other disciplines (systems theories and complexity theories, team dynamics and cultural studies, for example) to further develop the student's epistemic beliefs. The importance was also recognised of having a formal focus on dialogue and reflection, and in forming international and inter-cultural cohorts of design students. Additionally, the social constructionist position that informs this Masters programme can be seen as an approach to education with the potential to generate the desired epistemic growth (Muis and Duffy 2013, referred by MacLellan 2015).

– ***Lessons from the cases studies***

Relevant aspects from the analysis of both case studies (found in Chapter 5) also informed the development of the Masters programme. These are addressed below in relation to the four aspects of the conceptual framework for an amplified mindset of design. Considerations regarding the intended format of this Masters programme, and its transformational aspirations are also included in this section. Although findings from CS1 and CS2 are offered in Chapter 5, it was relevant to anticipate these as they have informed this second phase of fieldwork. Both cases showed signs of an amplified mindset and shared the following relevant characteristics for this Masters programme:

- collaborative ways of working,
- interdisciplinary orientation,
- international cohorts of students,
- focus on navigating complex scenarios,
- strategic orientation,
- transformative potential.

It is important to note that the use of the term social sciences in this thesis, mainly associated with CS1 (used in sections 5.2 and 5.3), intends to denote an inclination towards the adoption of methodologies borrowed from sociology.

Integrative behaviours and social skills

The collaborative ways of working in both cases, the development of pluralistic thinking formally addressed in CS1's short course "Ways of Seeing", and the community experience and dialogical approach in CS2, were identified as helping develop the 'integrative behaviours' and 'social skills' aspects of the AMP. These would contribute to the development of a predisposition to adapt to different people and contexts in their projects and informed the type of collaborative work developed in this Masters programme. The collaborative live projects in both cases, and particularly in CS1 where this approach is better established due to the lifetime of the programme, were recognised as benefiting the students' industry-readiness, and were also drawn upon to develop the Masters programme. However, collaborative work is challenging, as identified in CS1 and CS2, affecting the dynamics and communication in the group. Development of the 'integrative behaviours' and 'social skills' of the AMP are therefore crucial. The Masters programme developed in this research intends to formally address team dynamics and collaborative working.

Human-centred and synergistic worldview

As found in both cases, a sense of mission is connected with the strategic concerns of their design specialisms, which correlates with the 'human-centred and synergistic worldview' of the AMD. A social sciences approach and ethical considerations of a designer's intervention (in CS1), and a care for sustainable

solutions (in CS2) will be included in this Masters programme under the consideration of a quadruple-bottom-line of sustainability.

The holistic approaches to learning and teaching in CS2, and the embodiment exercises in both cases (with a more mature approach in CS2) were used to inform the development of the whole student in this Masters programme, with an emphasis on different types of reflective activities. Issues with student reflection were also pointed out as a challenge in CS1, hence the need to invest in these. Moreover, reflective activities are intended to explore the students' personal views of theory and practice within the Masters programme to develop the students towards an amplified mindset.

Visualisation

Although the development of visualisation skills in the students of CS1 and CS2 was not found to be a relevant aspect, a further development of visualisation skills was included in this Masters programme to support the designer's integrative behavioural and social skills and the worldview aspects of the AMD. It is believed that this would encourage students to use this mindset to visualise, communicate and to generate insights and visions.

Format of the Masters programme

Regarding the format of the Masters programme, this study identified an approach centred on project development work (as in CS1) as having the potential to increase the student's engagement in experiential learning, where the theoretical concepts learned in other academic activities support the development of practical projects. This aspect was also reinforced in CS1 and CS2 in their attempt to build bridges between practice and research/theory. This format of revolving project work informed the visual metaphor of a circular representation of each term (see Figure 47, for example).

Transformational aspiration

The intensity of a one-year program, the high levels of involvement resulting from live projects, the use of formal moments for reflection, and the harnessing of theoretical concepts (such as systems, complexity and holism), were aimed at seeding the development of an amplified mindset of design in the students and producing a Masters programme with transformational aspirations of the sort that were identified in CS1 and CS2. Additionally, and following the input from the HE policy consultant, the interdisciplinary orientation and international cohorts of students in both the cases informed the creation of an fictional cohort of personas (see Figure 46) to explore a potential audience for this the Masters programme, making it less abstract.

STUDENT PROFILES/PERSONAS

 <p>Joanna, United Kingdom 23 years old Academic Background: Interior Design Experience: 1 year as junior interior designer</p>	 <p>Nicola, Greece 24 years old Academic Background: Interaction Design / Virtual Reality Experience: 2 years as Junior Game Developer</p>	 <p>Bruno, Spain 27 years old Academic Background: Communication Design / Design Innovation Experience: 5 year as designer in a multinational communications company</p>	 <p>Mark, The Netherlands 25 years old Academic Background: Product Design Experience: 4 years working at Electrolux</p>	 <p>Sonia, China 22 years old Academic Background: Interior Design Experience: 6 months internship</p>	 <p>Rakesh, India 26 years old Academic Background: Product Design Experience: 3 years working as Packaging designer</p>	 <p>Franz, Germany 34 years old Academic Background: Graphic Design / Photography Experience: 10 years working for radical a sports magazine</p>	 <p>Sarah, United Kingdom 25 years old Academic Background: Illustration Experience: 1 year as Intern in a book publishing company and Freelancer</p>	 <p>Alexandra, Italy 26 years old Academic Background: Fashion Design Experience: 3 years working in Fashion Industry</p>	 <p>Camille, France 23 years old Academic Background: Product Designer Experience: 1 year internship at Phillips Design</p>	 <p>Tina, Hong Kong 29 years old Academic Background: Communication Design Experience: 7 years working as a freelancer for design agencies in Asia and the UK</p>
 <p>Zikri, Malaysia 27 years old Academic Background: Graphic Design Experience: 3 years working as user interface designer in IT sector</p>	 <p>Alexandra's major project: The use of textile patterns and textures as self-diagnosis and early treatment tools, for moderate mental illness Future work: Launch her own brand in partnership with the NHS</p>	 <p>Camille's dissertation: Nature photography as a methodology to increase social agency and awareness Future work: Designer at World Nature Organisation</p>	 <p>Tina's major project: Strategies to communicate bureaucratic and legal language to lower level education audiences. Future work: Consultant at local government agencies to improve communication strategies</p>							

Tina | Hong Kong | 29 years old

Tina travels often. She's always under the pressure of deadlines and hates complicated emails. For her, if people could learn how to write telegram-like messages and be transparent about what they mean, it would be perfect!

Tina likes to draw as a way to decompress from work and reflect on herself. She seeks to read books and see movies that are visually exciting and believes that appreciating beauty makes her feel better and more in tune with herself. For her being a communication designer is not a profession, but a way of life.

Goals in life: She wants to have an active voice and do her part to improve people's lives, easing some of the contemporary anxieties at some level. Especially making the world more accessible, she says.

Frustrations: Working for seven years as freelancer for design agencies between Hong Kong, Taiwan, and the UK, she feels that her work should evolve to another level. Bounded to aesthetic work and brand briefs only, she feels restrained.

Motivations: Everything is complex and full of details and connections that are waiting to be discovered. Once, Tina cracks the code of a complex issue or situation through her designs, she's fulfilled.

"I see my grandfather puzzled and worried anytime he gets a letter from the Council regarding his incapacity benefit. The letters look like coded messages and that causes lots of anxiety. As a communication designer I should do something."

Figure 46 – First exercise of personas-students

– ***Non-directive interview: HE policy consultant***

This non-directive interview (Gray 2014) was the starting point for exploring ways of using an amplified mindset of design to develop the Masters programme. From the notes taken and approved by the HE policy consultant, the following include the HE consultant's contributions to the beginning of this process:

- Recognising the framework's potential for being used as the basis for developing an academic programme, after adjusting its terminology and transforming the framework into criteria to design the Masters programme. This was taken into consideration later in the process when I began creating the programme's intended learning outcomes.
- Suggesting that to operationalise the AMD into a Masters programme would need validation activities with stakeholders, which was considered and implemented at the end of this process.
- Raising questions and issues pertinent to moving from the conceptual framework to its transformation into a Masters programme:
 - o The need to extract from the AMD the programme's aims, purposes, distinctiveness, assumptions, and approaches;
 - o Identifying the building blocks of the curriculum. What is the format and hours of contact;
 - o Identifying the audience (designers/non-designers), and considering the number of students per cohort;
 - o Showing the relevance of such an academic programme to the employability of students;
 - o Considering what students will produce, and which aspects of the programme will be assessed;
 - o Identifying how much of the students' work will be pre-determined and how much will be student-led.

These were taken in consideration as guidelines for the development of this Masters programme.

– ***Developing visual materials***

This section introduces the initial visualisations created to illustrate the Masters programme. Continuing the use of visuals in this research, curriculum visualisations were used as boundary objects. This was deemed advantageous for discussing an approach to education in a visual discipline such as design, and draws on the insights of existing studies and literature. Indeed, according to a

survey conducted by Aitchison, Dewberry and Lotz (2015) on 50 leading design schools worldwide, the use of curriculum visualisations is underused and was identified as a valuable tool for educators when used as boundary objects beyond communication purposes, that is, to generate more engagement with audiences and stakeholders, to build a common vision and to support collaborative thinking. This research made use of visualisations in such a way as suggested by Aitchison, et al. (2015), that is, to support the researcher's thinking, the collaboration between the researcher and the design educators during the interviews, and the communication during the validation focus group.

Instead of creating a written document of programme specifications to be used in the interviews with design educators, visual representations of the Masters programme were created as an appropriate way to convey the idea of the different aspects of the Masters programme and the relationships between them. The use of a visual method during the interviews was intended not only be more appealing to the interviewees but also to encourage critique (Kolko 2010) on the AMD and the initial layout of the Masters programme and generate new insights for the further development of the programme. Its visual representation, illustrated in Figure 47, communicates a programme with tentative topics for each term, placing primarily collaborative projects at the centre, with surrounding activities such as:

- A foundation theory course suitable for steering the development of an amplified mindset by introducing systems, complexity and holistic theories;
- Workshops to develop technical and research skills;
- Elective courses for students to pursue individual interests that complement the main programme;
- Assigned moments for collective discussions to reflect on the overall experience of the programme and the students' journeys. This element intends to bring together all aspects of the programme, while at the same time helping students develop verbal communication skills and a pluralistic perspective suitable for collective work developed in this programme.

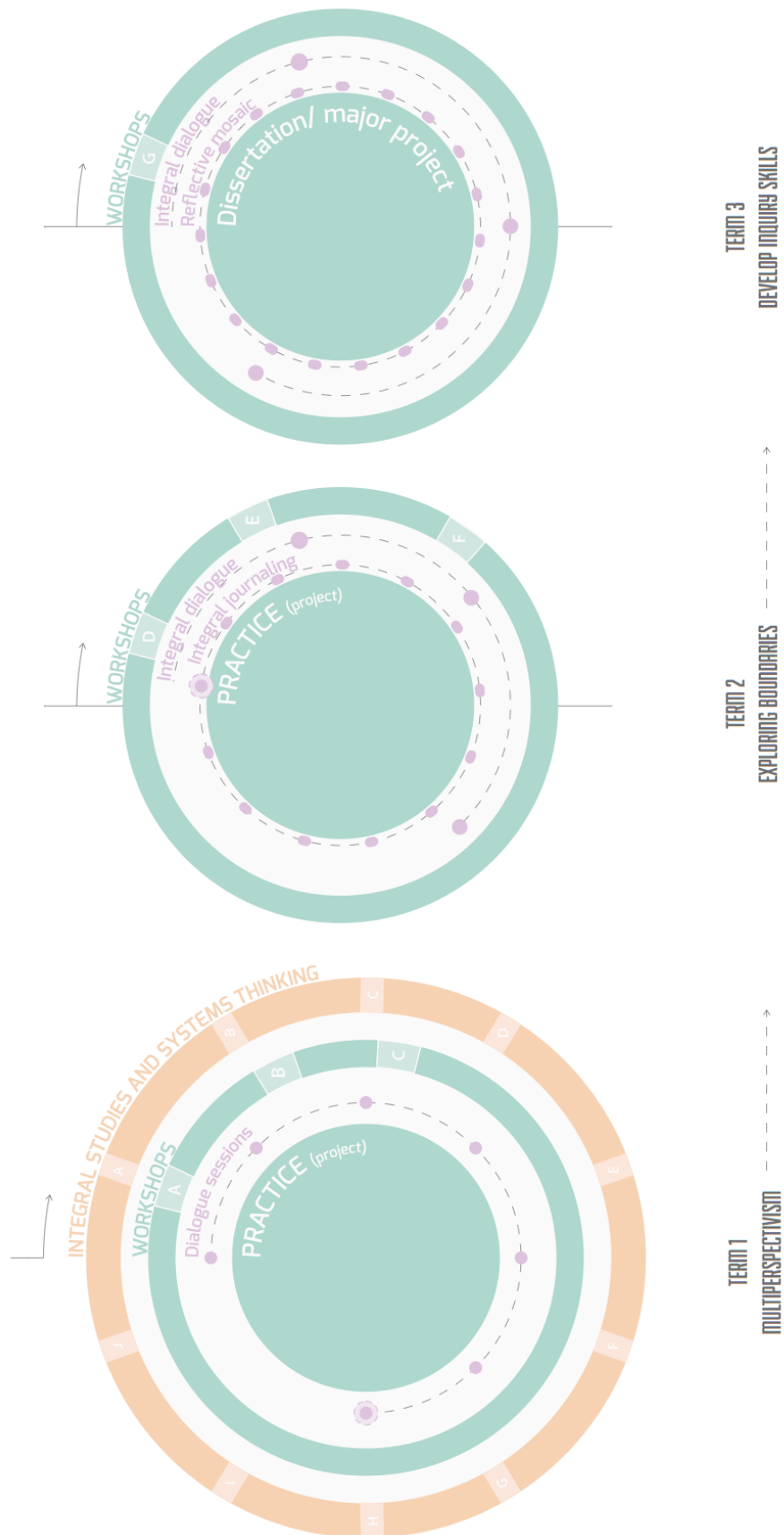


Figure 47 – First visual representation of the Masters programme

The visuals offered in Figure 47 include an underlying grid that divides each circle/term into 12 weeks to show when these activities happen in each term, with an arrow indicating a clockwise organisation of time. Looking at this research's visualisation of the Masters programme, a bridge can be drawn with the conceptual diagram of Bauhaus's Vorkurs by Walter Gropius in 1922 (Bauhaus-Archiv 2016), illustrated in Figure 48.

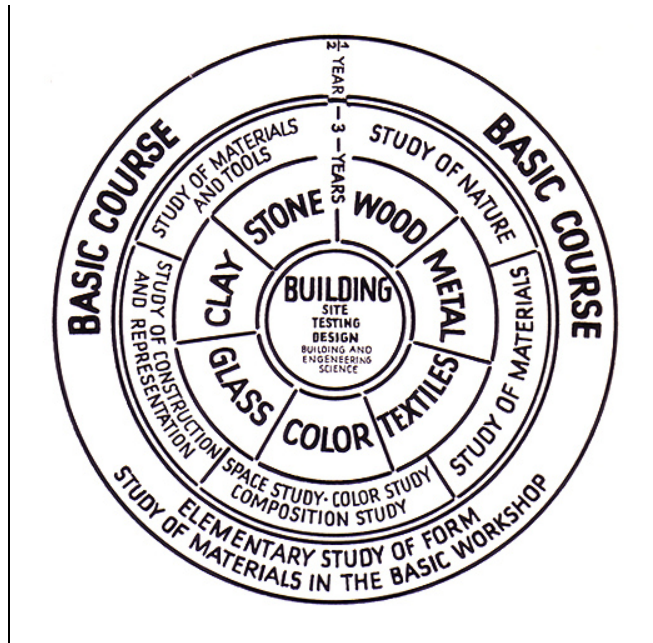


Figure 48 – Bauhaus's Vorkurs diagram. (Bauhaus-Archiv 2016)

The outer rings represent foundational courses of the Bauhaus programme, followed by modules of experimentation to develop and explore techniques and materials in workshops, with a final move towards the centre of the diagram as students master their craft. Although this was an innovative approach to teaching aimed at breaking the boundaries between theory and practice and pursuing an integrative approach, the subjects of the Vorkurs were all from the arts. Therein lies a fundamental difference between the Bauhaus approach and this research's interdisciplinary approach. To address the contemporary scenario of complexity, the Masters programme offered here incorporates a variety of topics such as systems thinking, theories of complexity, team dynamics and research methods which aim to support design projects and develop in the students a relational disposition (leading to more complex epistemic orientation) to inform their practical and intellectual design activities.

A fictional cohort of personas/students

An exercise to explore the audience of this programme took the form of a fictional cohort of personas/students, illustrated in Figure 46, above. Twelve personas were created with different levels of detail. Four personas were explored further (see pink box in Figure 46) to include the type of major projects or dissertations they would do at the end of the programme, and prospects of future employment roles. In this simulation one persona was developed further (see

green box in Figure 46) to include details regarding lifestyle, life goals, frustrations, and motivations as a detailed example of a potential candidate for this Masters programme. This initial fictional cohort ranged from 23 to 29 years old, with design backgrounds and various specialisms. This was later reviewed following further discussion and reflection, and will be expanded upon in the Reflections section below. A final version of this simulation exercise is offered in section 7.2.

A vision for each term

As noted earlier, this Masters programme was intended to consist of three terms over the course of one academic year to create an intense learning experience capable of realising its transformational aspirations. The following diagrams found in Figure 49, Figure 50, and Figure 51 detail each term of the Masters programme, and include topics of workshops and studio projects, and explain relevant teaching methods. The diagrams were used as a starting point for the first of five interviews with design educators. Throughout the cycle of interviews these underwent alterations and improvements that will be described in the following section.

TERM 1 - MULTIPERSPECTIVISM

This term is about developing pluralistic thinking as a basis for the work developed throughout the academic year.

CONTENT - FOUNDATION COURSE

Seminars and practical exercises (A-J represent the sessions) covering theoretical topics related to systems theory and integral theory to support the development of an amplified mindset of design

CONTENT - THEMATIC WORKSHOPS (2 DAYS)

Two days' workshops

- A - Research (Introduction to — ; Ethics and Ethnography)
- B - Visualisation and Pattern Finding
- C - Cross-cultural collaboration and Team Dynamics

METHOD - DIALOGUE SESSIONS

Group sessions to develop constructive dialogue skills, multiperspective thinking, and self-awareness.

Topics are expected to emerge in the session and will be related to any part of the programme.

There is an intention of creating a sense without perceived hierarchy.

Last session: introduction of an integral perspective on social interactions (for the next semester - Integral Journaling)

Informed by:

- On dialogue (Bohm 1996)
- Transformational learning (Mezirow 2009, Kegan 2009)
- Discursive approach to communication (Barge & Little 2008)
- Psychodrama exercises (to investigate and gain insight into life)

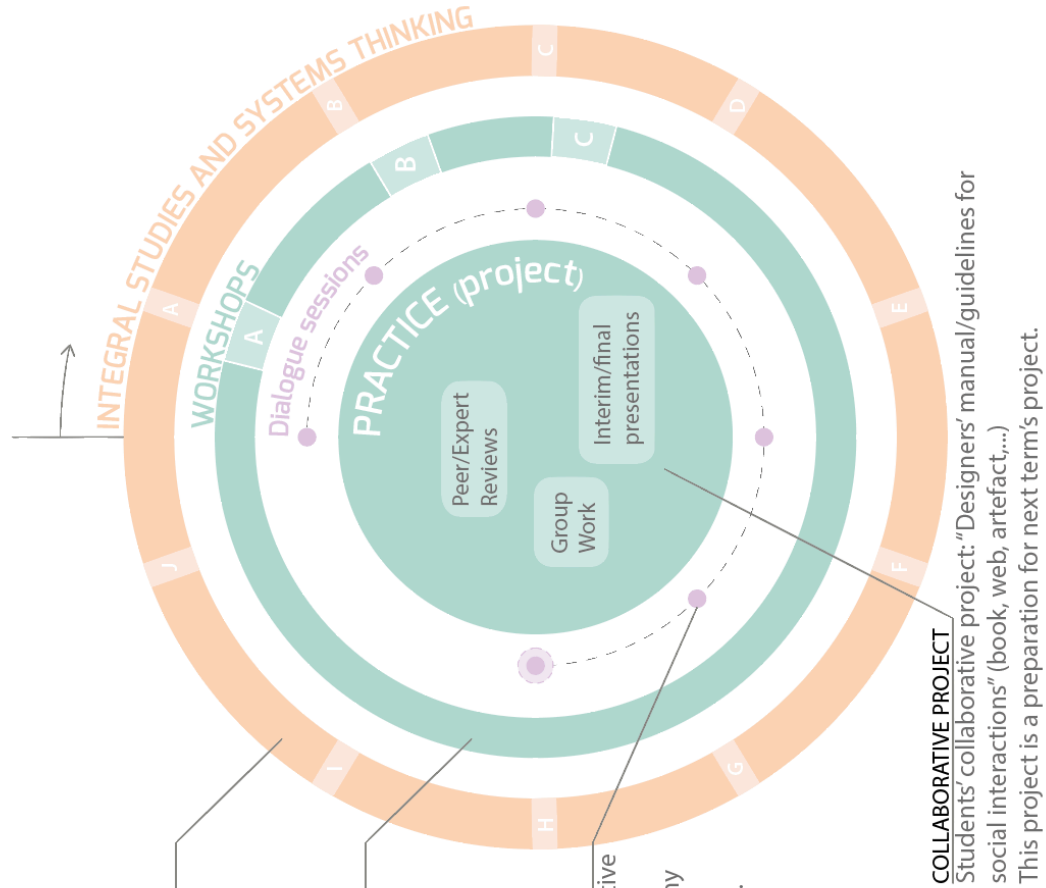


Figure 49 – Detail of Term 1

TERM 2 - EXPLORING BOUNDARIES

This term is about exploring interdisciplinary collaborative work, and addressing sustainability from a range of perspectives.

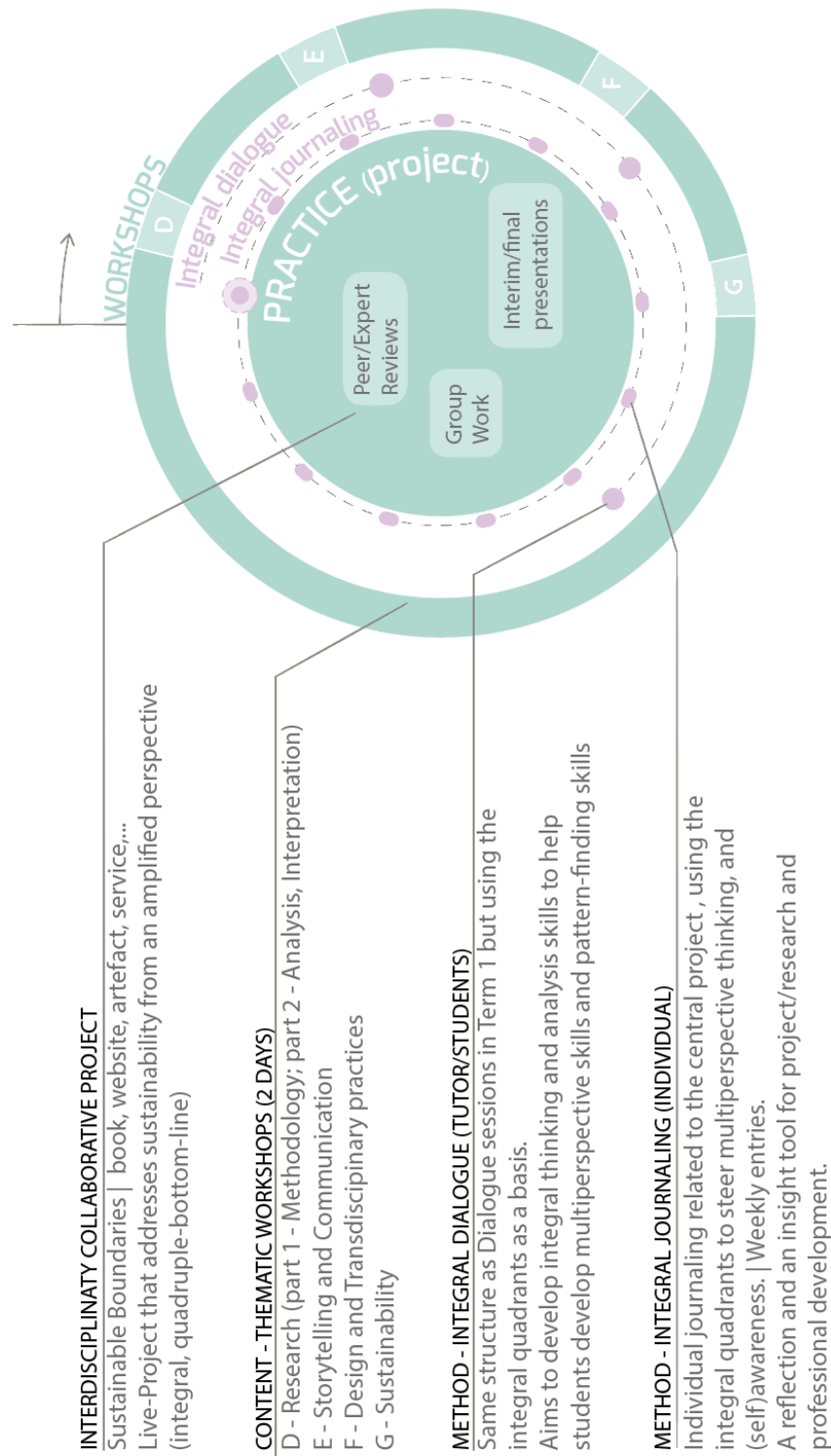


Figure 50 – Detail of Term 2

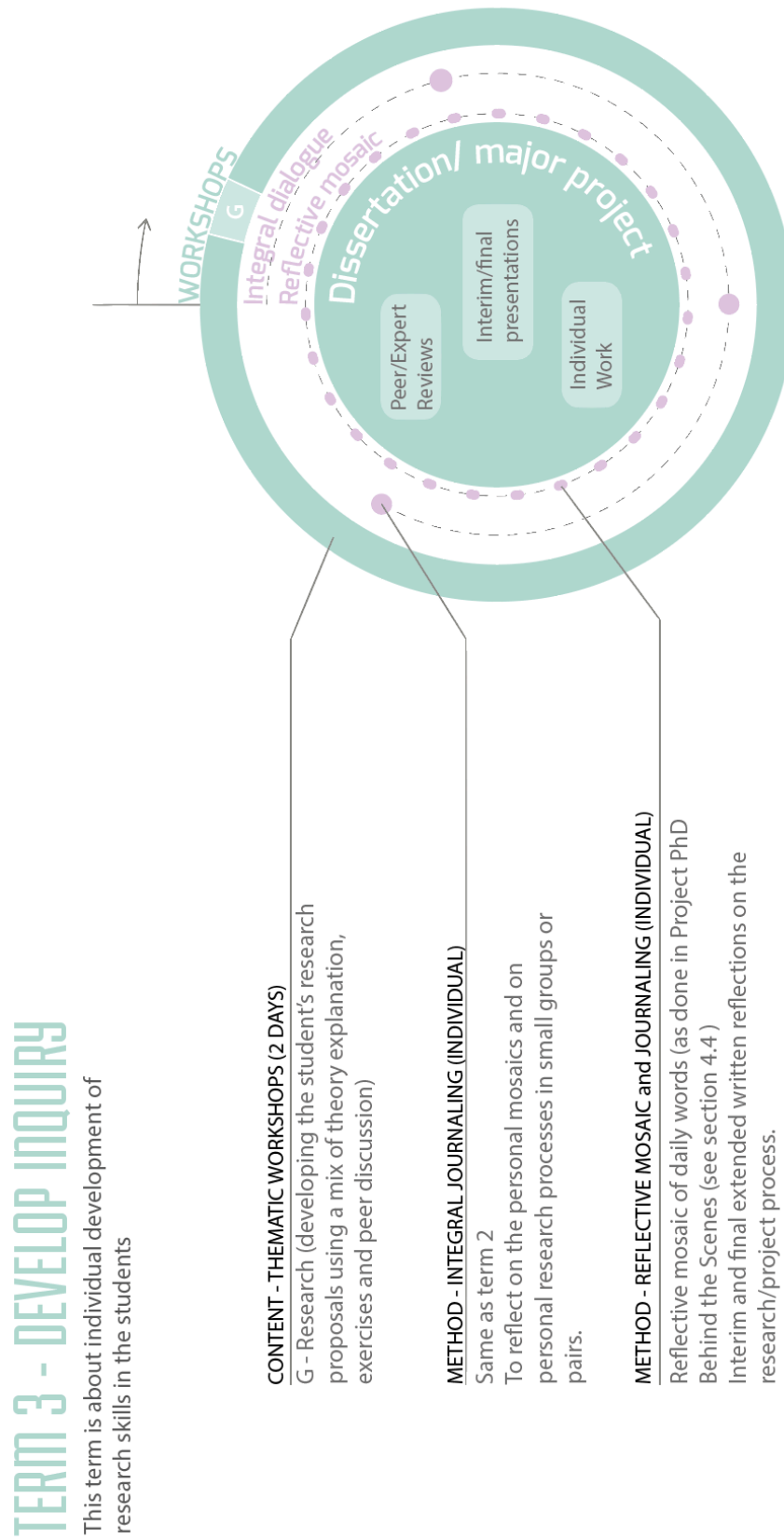


Figure 51 – Detail of Term 3

– ***Individual semi-structured interviews***

The visual materials discussed above were used in the interviews with a diverse sample of design educators to support the iterative process of conversations and collaborative reflections, primarily on the Masters programme and secondarily on the amplified mindset of design as this framework is the foundation of the programme. This was a design oriented methodology rather than a traditional methodology of educational development. A more traditional approach can be recognised in the recording and transcribing of the interviews, but a design perspective was also employed during this process in that simulated structures and visual representations were used to trigger answers and reflections from the participants. This is arguably an innovative approach to educational development coming from the field of design which has the potential to bring the participants closer to the material in a game-like interaction where different types of educational experience can be tested.

The participants were all design educators from HE institutions in the UK, their specialisms including Fashion Design, Interior Design, Product Design, Ecological Design Thinking, with one educator coming from a background in Graphic Design and Fashion Design but with a current focus on Design Thinking. This diversity aimed to identify perceptions that complemented each other and that focused on different aspects of this research due to their specialist orientation. After each interview (questions can be found in appendix 6) which lasted for approximately one hour, I read the interview transcripts while listening to the interview recordings to extract relevant feedback for further development of this Masters programme. What followed was the review of the initial visuals into refined ones to use in the next interview. Each interview had two elements that were adjusted according to the level of involvement from each educator. A first element, with an evidence approach, sought to discuss the amplified mindset of design and gather the design educator's thoughts on the presence of such a mindset in their programme(s). Here, I presented a diagram of the AMD and explained how it emerged and what it represented. Figure 41 and Figure 42 illustrate the diagrams used in the interviews. A second element of the interview followed a more grounded approach where educators were asked to reflect on possible approaches to postgraduate education for an amplified mindset of design and discuss early designs of the programme. Figure 47 to Figure 51 were used in interviews 1 and 2, and the experience of these interviews in explaining the AMD and how the Masters programme aimed to develop it led to inserting the Masters diagrams into the AMD diagram, creating the integrated diagram found in Figure 52 in the following interviews. Table 17 offers an account of the main diagrams used in the interviews.

The feedback offered by the educators considered relevant to the development of this Masters programme will be detailed below. Appendix 6 includes the research notes which integrate the educators' feedback into the diagrams.

	Amplified Mindset of Design (used diagrams)	Master Programme (used diagrams)
Interview 1		
Interview 2		
Interview 3		
Interview 4		
Interview 5		
Interview 6		

Table 17 – Diagrams used to support the interviews with design educators

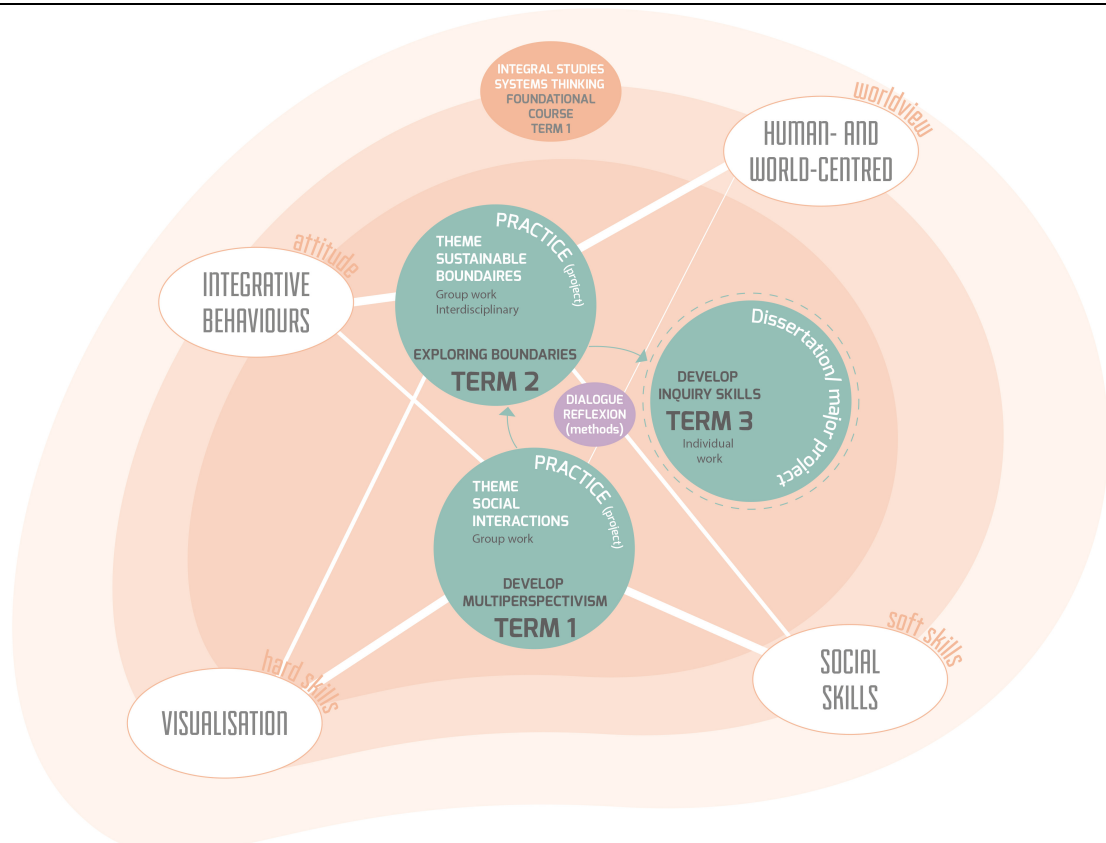


Figure 52 – Integration of the Masters programme into the amplified mindset of design

1: Fashion design educator

The conceptual framework of the AMD was at first too complex, abstract and far removed from this educator's design specialism for them to be able to contribute to ways to devise a possible programme. Such a specialism can be considered more traditional when compared with the design practices investigated in this thesis showing an orientation towards conceptualising design around materiality, which could explain this distance. However, after the presentation of the layout of the Masters programme the discussion was more productive and was centred on the structure and assessment criteria used in the educator's programme as an example of an implemented programme, providing useful material for consolidating the programme developed in this research.

2: Product design educator

Having previously worked as a senior designer in a multinational company, this educator fully identified her previous practice with the AMD (except for the worldview component of the Conceptual Framework) which indicates the affinity of the framework with contemporary emerging design practices. Regarding the Masters programme, the interviewee appreciated the way the narrative of the programme appeared to express a balanced one-year journey. This educator identified Term 1 as being about grounding students (a small facilitation project could be implemented), Term 2 as being about practicing collaboratively with a

big industrial project for example, and Term 3 about practicing individually with a thesis. Regarding the workshops, and based on their experience in education and industry, this educator suggested that the workshops could be short and run by students to create more engagement in the cohort. Additionally, the interviewee described this as a very explorative programme, and noted that the ways of teaching seemed very relevant (dialogue and reflection, and practical projects) to developing an AMD. This educator's conceptual orientation of design can be identified as focusing on social interactions. Moreover, at the end of our conversation, and having identified this Masters programme as being related to the movement of graduates between disciplines and designer roles, the interviewee wondered about the title of the programme, offering several suggestions. Following this session and further brainstorming, the programme was notionally titled 'MDes in Moving Design Practices'.

3: Design thinking educator and researcher

This educator stated that the AMD was a good and concise way of articulating something as complex as the emerging design practices, and that design today is more than making things, it is a way of thinking, which aligns with the 'mindset' of the conceptual framework. This educator showed a conceptual orientation about design focused primarily on thinking and also on social interactions in the future, which echoes this thesis literature review.

As for the Masters programme, the interviewee recognised that placing the diagram of the programme within the diagram of the AMD (see Figure 52) means there is the potential for different programmes to be informed by the same philosophy of the AMD, signalling the transferability of the conceptual framework to other educational proposals. For this educator, this way of presenting the Masters programme was effective in communicating its foundation and underlying vision as important elements of building cohesion between the different curricular activities and the diversity of academic staff involved, whereas the traditional use of learning outcomes would be limiting. Additionally, the interviewee stressed that any programme should align with the philosophy of those who run it, showing an almost vocational disposition. Regarding the tools and methods presented, the educator's advice was to keep them less defined otherwise the programme's overall vision could be lost; different briefs might demand for different teaching methods. Moreover, he recommended that the language used to communicate this (and any) Masters programme should be student-friendly to avoid misinterpretations.

4: Interior design educator

This educator characterised the AMD as idealistic and culturally contingent, and was not sure if this framework could be applied across design fields, especially to interior design or fashion design, for example, revealing a conceptual orientation of design related to materiality. When referring to practices in the private sector and related to conventional commissioning, this educator believed much of the AMD would dissolve, especially the ethical and sustainable concerns.

Regarding the use of the AMD in education, this interviewee identified the potential for this to be used as part of project-based briefs and live projects, to address mainly the strategic and cultural aspects covered by the AMD.

However, the educator expressed difficulty in understanding the role of this Masters programme in the broader suite of design, relegating it to a course format to be run alongside masters specialisms and to inform the students' studio work, through the exploration of project issues from another angle and augment the students' work.

5: Product design educator and researcher

Reinforcing the recognised complexity of the AMD, the conversation with this educator was dominated by issues of visual representation and translation. The educator saw the visual representation of the Conceptual Framework as a dynamic model, good for communicating the emerging landscape of design, but it needed to be better at conveying the complexities inherent to such a framework.

This educator interpreted the terms 'integrative behaviours' as interdisciplinary work, 'creation of synergies' as creation of networks, and 'systems and holistic perspectives' as very nuanced terms which he could not connect to any teaching method. The interviewee argued that social skills are not a preserve of designers, which denoted a more traditional perspective of design and not the one that is currently gaining prominence. Also, this educator suggested that visualisation and social skills be clustered into one aspect of the AMD under the theme

'communication'. During the interview this educator revealed a conceptual orientation of design towards materiality, representation, and communication.

Regarding the Masters programme, this interviewee commented that circles were a good shape for portraying the non-linearity of the programme. However, the integrated representation of this Masters programme (Figure 52) was not the best for this interviewee, based on the circles around the four aspects of the AMD that raise questions about what defines them. This interviewee did not recognise a connection between this Masters programme and the AMD, and preferred the initial representation of this programme seen in Figure 47. Regarding educational approaches to the development of an AMD, this interviewee suggested the use of an open curriculum, and this interview's focus on the meaning of words was taken into account in this research and informed later iterations by refining the conceptual framework of an amplified mindset of design.

6: Ecological design thinking educator

This educator recognised the importance of a conceptual framework of an AMD to capturing the complex changes that the design field is experiencing. While agreeing with its contents, the educator recognised that the use of specific words needed translation. This reinforced my efforts to ensure the conceptual framework's would adequately portray the complex scenario formed by overlapping partial views of design that address the same issues using different terms. Regarding the Masters programme, the educator recognised that their programme (case study 2) was already pursuing an amplified approach, and shared Educator 3's opinion on the effectiveness of the integrated diagram (see Figure 52) in showing the underpinning principles of the Masters programme that hold

the programme together. However, due to the close interrelations of the curricular activities, the 2-D representation had its limitations; it is static, and blurring the graphic edges of the diagram could provide a better sense of interconnection. This educator showed a conceptual orientation of design closer to thinking than making.

To close this section, Figure 53 offers a scale indicating the overall position of each educator regarding the relevance of such a Masters programme to developing an amplified mindset of design. This process of interviews was instrumental to crafting a Masters programme. Although it was not the intent of these interviews to theorise about each interviewee's perceptions it is interesting to note in Figure 53 that educators 5, 4, and 1 who were less engaged with the relevance of the educational approach in this thesis showed a conceptual orientation of design related to materiality, while the remaining ones (educators 2, 3 and 6) were identified with conceptual orientations of design towards thinking and social interactions, which reinforces the non-specialist character of this Masters programme, and its focus on epistemological development and collaborative practices.

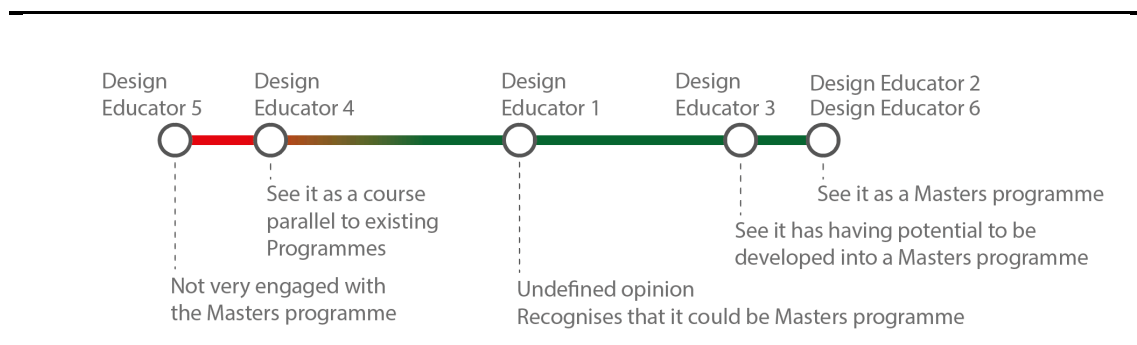


Figure 53 – Variations in the views of design educators regarding the Masters programme

As explained in section 4.8 (Figure 41 and Figure 42), and observed in this section, the process of developing a Masters programme influenced the conceptual framework and vice-versa, as these two outcomes were closely interwoven.

– **Work session: HE academic development professional**

To discuss the clarity of the aims and intended learning outcomes (ILOs) of the Masters programme, after the interviews with design educators I organised a working session with an HE academic development professional based in an arts and design HE institution. Prior to the working session, I attempted to create ILOs based on aspects of the AMP, and informed by level 11 of the Scottish Credit and Qualifications Framework (SCQF 2012). The diagram in Figure 54 indicates the initial ILOs intended to be explored in each curricular activity. These initial ILOs proved too vague, too close to the description of each aspect of the

AMP, and needed further improvement. Informed by Biggs (2003), by Bloom's taxonomy of learning (Bloom et al. 1956), and Allan Davies' (n.d.) writing of ILOs, a revised set of ILOs and aims was created (see section 7.2) to discuss at the working session.

During this session, the HE professional posed a few questions to better understand what led to the creation of this programme and what students were expected to produce. Although in a conversational manner, this helped me to articulate succinctly and in clear terms the aims and objectives of the Masters programme. After this, both of us assessed the ILOs that I had produced so that they would reflect what was explained before. Based on the recommendations made during this session I produced a final set of ILOs (see section 7.2) and aims that were sent to the HE professional for final comments.

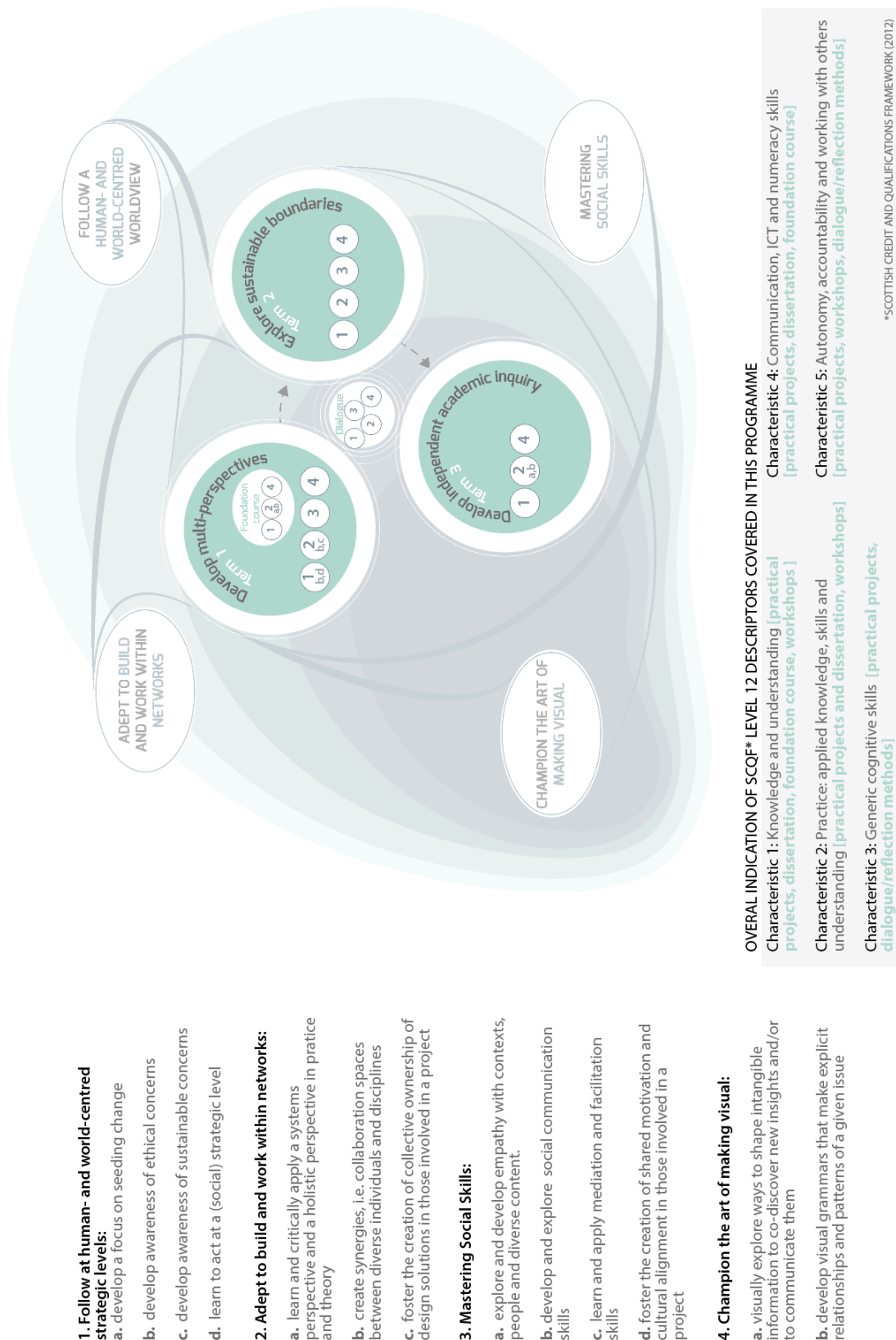


Figure 54 – First approach to the creation of ILOs based on the AMD and the SCQF levels

– ***Validation focus group***

The final stages of the development of this Master programme included a validation focus group to discuss the programme's relevance to the demands of the design industry from the perspectives of practitioners, design educators and students. The structure of this validation workshop was the same for the pilot and the real focus group (see appendix 5).

Piloting the approach

Following Powney and Watts's (1987) pilot guidelines, this session aimed to test the choreography of the session, its content and my communication in terms of how to generate responses to fulfil the objectives of the session. The logistics of the session were of particular importance in this pilot because of one key activity entitled 'Student-journey Game', illustrated in Figure 55 and Figure 56.



Figure 55 – Piloting the validation focus group

The pilot was run with four participants from my department with postgraduate degrees in design, three of them with teaching experience at postgraduate level, and three of them with postgraduate certifications in education related topics.

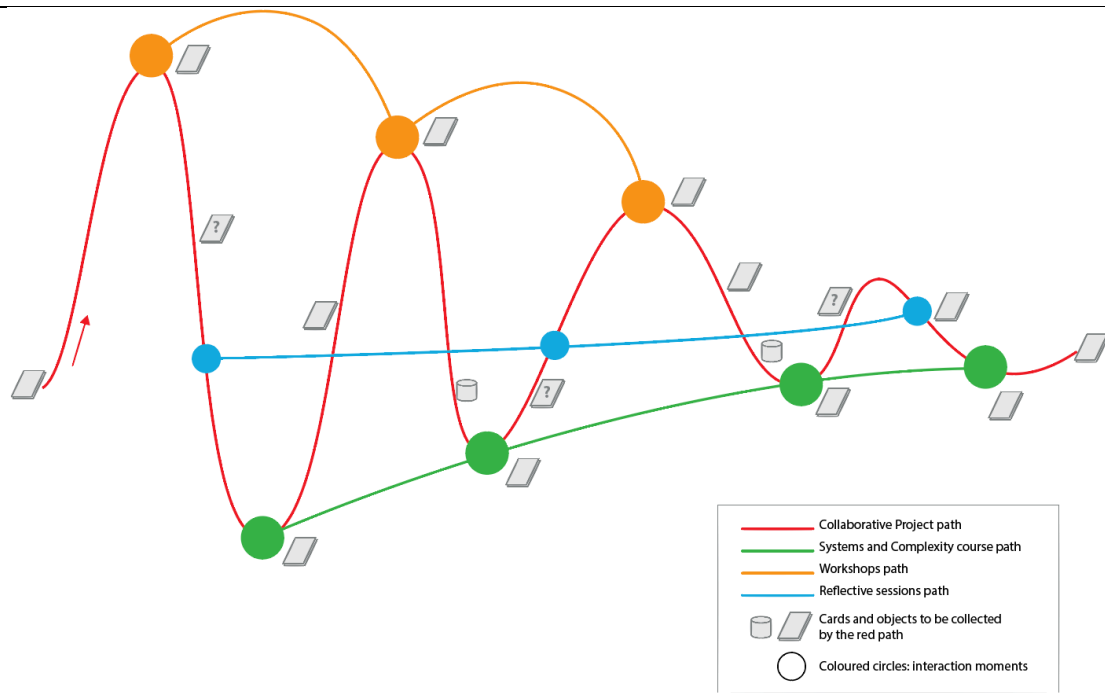


Figure 56 – Student-journey game: floor plan

It is relevant to offer more detail on the student-journey game, which was a walk-through game where participants played pre-assigned roles that embodied key curricular activities. This game aimed to sample the relationships between the different activities of the programme. During the pilot no work had to be developed by the participants; they were simply asked to follow the instructions given by the researcher and in cue cards. The student-journey game was preceded by an introduction to the context and the rationale for the Masters programme, its audience, guiding principles and aims. At the end of the game, pilot-participants were invited to share their impressions about the Masters programme and about the focus group agenda in general to check the type of feedback the focus group could generate.

The participants' feedback was recorded in writing, and shared with participants to confirm their accuracy. Relevant feedback included the following:

- The structure of the workshop was adequate.
- The student-journey game was fun but too short, the instructions were too prescriptive and as participants they would have liked to be challenged more instead of following instructions. For this group it would be beneficial to open up a dialogue with participants so that they could construct their own approaches to each role.

This feedback was taken into consideration for the student-journey game in the actual validation focus group. With this and previous pilots, it was possible to get an immersive immediacy that allowed the participants to engage deeply with the methods and the subject matter. However, looking back, the comments from the participants were a reaction to what was learnt which lacked reflection on the reaction itself. Such reflection, better explored in educational literature than in

design education literature, would have allowed me to assess with the participants the consequences of the changes suggested to the student-journey game.

Validation focus group

The validation focus group consisted of six participants (two design educators and practitioners, one student, two young practitioners, one practitioner), was voice and video recorded, and had the participants consolidate their feedback on the Masters programme in mind-maps. Figure 57 shows the setting for this workshop.



Figure 57 – Room for the validation focus group

The session followed the same structure as the pilot focus group with changes to the student-journey game that included asking participants to construct their own approach to the curricular activity they had been assigned, which is illustrated in Figure 58. The closing activity of the focus group asked participants to form two groups to reflect and answer the following questions in mind-maps:

- What are the programme's strong points? What's missing?
- Design students: Would I apply for it? Why?
- Design industry: Would I employ someone from this Masters? Why?
- Design educators: Is it a robust enough programme? Why? Would I want to teach on it? What and how? Why?

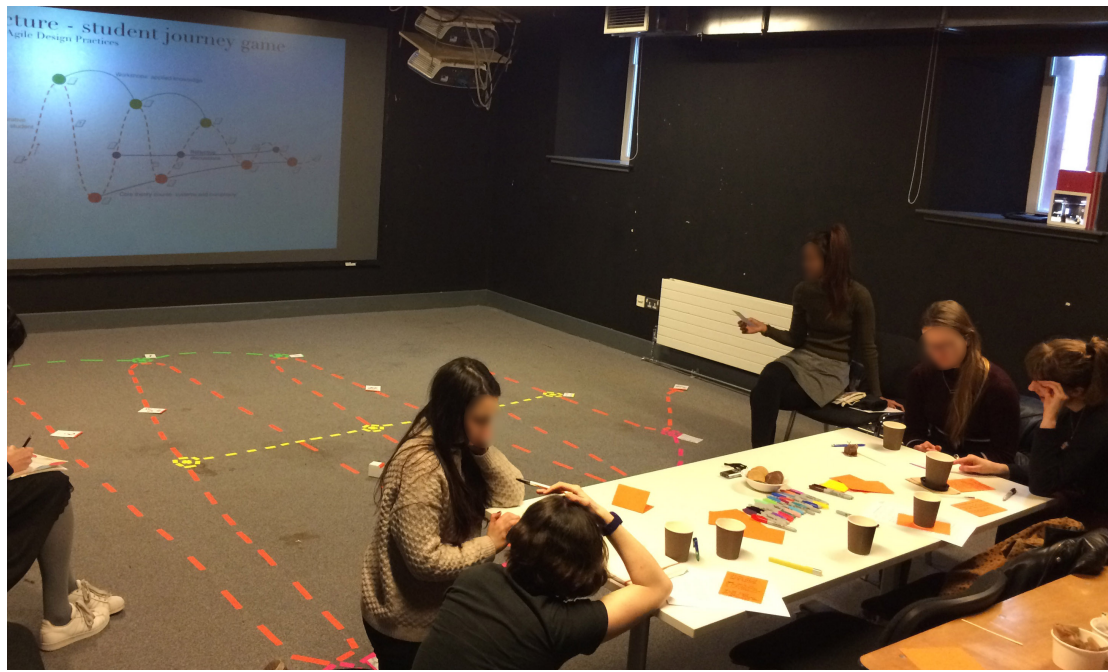


Figure 58 – Participants engaging with the student-journey game

A transcription of the mind-maps was made and the following is a result of the feedback offered by the participants. In terms of weaknesses, the participants identified a need to openly value failure, mistakes, and surprises, the need to better communicate the structure of any reflection methods, the fact that learning outside one's background can be a challenge, the lack of flexibility and adaptability of the structure, and also the need to ground projects in reality including managing budgets, timeframes, and people. As for strong aspects of the programme, the participants identified that it was stimulating and challenging, its crossdisciplinary (more accurately, interdisciplinary) and "cross-everything" orientation that did not focused on the discipline itself but in linking people and knowledge, and its encouragement "to be brave" which reflects the transformational intentions of the programme. Also, one student and recent graduate recognised that this programme offered a bridge between academia and real life (job market). Design practitioners referred to this Masters programme as a valuable experience. The temporary name that had been attributed to this Masters programme for the focus group was MDes Agile Design Practices, and as a result from this session it was revised to MDes Adaptive Design Practices.

Reflections

This focus group revealed the frequent tensions of fieldwork. Some participants shared two roles (practitioner and educator, student and practitioner, for example), and all of them brought with them their personal experiences and feelings associated with certain institutions and programmes. Also, this programme was designed to have a great deal of embodied learning, so there was a need to consider the differences between learning and teaching styles of students and staff, which cannot not be anticipated. These differences were intensified by differences in each participant's views of [design] education. On one hand, this

validation focus group did not yield the results that were expected, and the changes made in the student-journey game proved counterproductive, not allowing the participants to experience the game as planned, but involving them in creating their own experience based on poor knowledge about this programme. The reasons for this can be attributed to the like-minded people who formed the pilot group (although they fit the profile of the required participants). On the other hand, from an educational perspective, the participants' reactions to this new Masters programme show what students do when they are in a learning environment, and when there is a gap in knowledge; when student do not know the knowledge they lack. This is to say that the participants in this focus group were not familiar with this research and would need more time to be at an insider's level. Finally, the validation focus group suggested that programme approval processes could benefit from a more holistic perspective and include some simulations informed by design and design thinking like this student-journey game used in the validation focus group. This is due to the way that such simulations add a "fluid dimension to the exploration of complexity, allowing for nonlinear thought when tackling nonlinear problems" (Kolko 2015: n.p.) such as the development of curriculum. A useful addition to the current structure would be an initial moment to check the participant's expectations, and during the session it would check with the participants if what is being experienced matches their expectations. If not, a final conversation about the specifics of such differences and what would need to be done to match the initial expectations could close the gap.

– *Improvements for a final version of the Masters programme*

Having finished fieldwork for developing the Masters programme for an amplified mindset of design, I have identified adjustments that needed to be made for the final representation of the programme in section 7.2. These included changes in the profile of the personas/students, simplifying the visuals used, and written elements to communicate the Masters programme.

Firstly, the cohort of personas initially created had a design background and were fairly young. This was later revised to reflect trends in education at Masters level which show an intake of more international students (Universities UK 2016) and mature students with mixed academic backgrounds (Davies et al. 2011), which was indeed the case in CS1 and CS2. The exposure to more a diverse group would enhance learning and support the student's development into a practitioner with an amplified mindset (see final personas exercise in section 7.2).

Secondly, a final iteration of the Master programme (discussed and offered in section 7.2) was mainly focused on simplifying the visuals to contextualise the Masters programme and make its communication more effective. Detail was removed from the main diagrams while maintaining the key features and principles to make the programme's approach more explicit. This was an attempt to offer a flexible curriculum model to be adjusted to each cohort of students, staff and resources, one which is informed by the principles of an AMD and can

therefore tackle complexity and adapt to changing contexts. To contextualise, the definition of curriculum followed in this thesis is argued to fit into Fraser and Bosanquet's (2006) definition categories C and D. Correspondingly, that curriculum comprises the student's experience of learning, and is a dynamic and interactive process of teaching and learning.

Finally, the visual materials produced during this process were key elements to exploring conceptual and abstract aspects of the Masters programme. However, written materials still need to explore issues related to a potential implementation of the programme such as schedule, written intended learning outcomes, and texts to communicate the programme to a general audience and prospective candidates.

CHAPTER 5 – ANALYSIS, INTERIM FINDINGS AND CONCLUSIONS

This chapter addresses the sub-research question concerned with finding the characteristics of the Masters programmes in CS1 and CS2 as examples of an amplified approach to design, to answer the main research question: How can distinct approaches to postgraduate design education help future designers develop an amplified practice/mindset?

5.1 – Analysis process

To analyse the data gathered from both cases, a thematic analysis protocol (Braun and Clarke 2006) was followed (see Table 20), aiming to identify both evident and latent information (Braun and Clarke 2006), from the obvious information to its interpretation, to identify assumptions and underlying concepts beyond what was explicitly stated in the data. The detail on the analysis process offered in this section intends to contribute to the quality of this approach so that the reader can learn how the analysis was conducted and the findings were inferred (Miles and Huberman 1994). The data set used to analyse both cases is shown in Table 18 for CS1 which lasted approximately two and a half years, and Table 19 for CS2 which lasted one week. Comparing both tables it is possible to observe the smaller data set of CS2, which resulted from a micro-ethnography (Creswell 2014) which produced rich descriptions and information about the programme.

This analysis process was mainly informed by Braun and Clarke's (2006) analytical process except for the last phase referring to the production of a report, for reasons discussed in section 3.4. The overall process was enriched by the contributions of Boyatzis (1998), Dey (1993), Miles and Huberman (1994), Miles Huberman and Saldaña (2013), and Saldaña (2009) to the field.

Documents (sources) used in the analysis – CS1					
Official documents (7)	Interview Transcripts (8)	Documents from students (10)	Fieldnotes (3)	Design Theory course (3)	Degree Show Booklet '14-15 (5)
Programme specifications	Student i1	Personal process journal (PPJ) i2	Conversation with Programme Leader	Conversation with course tutor	Section 1 – programme director (a)
Programme specifications - 2009	Student i2	PPJ i4	The Studio	Programme Overview	Section 2 – programme director (b)
Study guide	Student i3	PPJ i5	Course: Ways of seeing	Transcript of mind-maps from Focus Group	Section 3 – school director (a)
Stage 1 Brief-a	Student i4	Project report i1			Section 4 – school director (b)
Stage 1 Brief-b	Student i5	Project report i2			Section 5 – term 1
Timetable '15-16	Staff d1b	Project report i3			
Website text	Staff h2g	Statement Intent i1			
	Staff b3i	Statement Intent			

	i2			
	Statement Intent			
	i3			
	Statement Intent			
	i5			

Table 18 – Data set used to conduct the analysis of CS1

Documents (sources) used in the analysis – CS2		
Official documents (4)	Interview Transcripts (8)	Fieldnotes (8)
Programme overview	Student e1	Conversation with the programme leader
Handbook 2016	Student e2	Interviews
Module Handbook	Student e3	Final impressions
Website text	Student e4	1 st day
	Staff m1n	2 nd day
	Staff r3p	3 rd day
	Staff s2b	4 th day
	Staff s2b2	5 th day

Table 19 – Data set used to conduct the analysis of CS2

Thematic Analysis vs. Inductive Thematic Analysis

This research found Braun and Clarke's (2006) process of thematic analysis suitable for this exploratory study due to its open structure which enabled it to be adjusted to this particular research. Following Braun and Clarke's (2006) advice on how to avoid the potential risk of falling into mere descriptions when following this approach, I looked for both manifest codes as well as latent codes which imply interpretation of the data, and informed by Boyatzis (1998) I sought to remain critical about the findings of the analysis, and aimed for consistency while coding. Also, a data-driven (inductive) approach was followed to find the key features in the data and to generate unanticipated insights, which could imply the use of Boyatzis's (1998) inductive thematic analysis. Table 20 below presents both these approaches. The choice of Braun and Clarke's approach lies in two case characteristics of the approach used in this thesis.

Phases of thematic analysis (Braun and Clarke 2006: 87)	Stages of inductive thematic analysis (Boyatzis 1998: 44)
1. Familiarising with data: Transcribing data, reading and rereading the data, noting down initial ideas.	<u>Stage 1</u> 1. Deciding on sampling and design issues

2. Generating initial codes: Coding interesting features of the data systematically across the entire data set, collating data relevant to each code.	2. Selecting subsamples
3. Searching for themes: Collating codes into potential themes, gathering all data relevant to each potential theme.	Stage 2
4. Reviewing themes: Checking if the themes work in relation to the coded extracts and the entire data set, generating a thematic map.	1. Reducing the raw information
5. Defining and naming themes: Ongoing analysis for refining the specifics of each theme and the overall story that the analysis tells, generating clear definitions and names for each theme.	2. Identifying themes within subsamples
6. Producing the report: The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating the analysis back to the research question and literature, producing a scholarly report of the analysis.	3. Comparing themes across subsamples
	4. Creating a code
	5. Determining the reliability
	Stage 3
	1. Applying the code to the remaining raw information
	2. Determining validity
	3. Interpreting results

Table 20 – Phases of thematic analysis contrasted with stages of inductive thematic analysis. Sources: Braun and Clarke (2006: 87), Boyatzis (1998:44)

Firstly, the holistic approach to data suggested by Braun and Clarke (2006) includes an overall view of the data, and provides an iterative process that allows the data's potential to be inferred from the onset of the process. In contrast, the approach suggested by Boyatzis (1998) emphasizes the selection of subsamples for analysis to be tested later in subsequent subsamples as a way of verifying the reliability of the codes. This implies the choice of certain information or sources of data over others, limiting the potential of the remaining data to contribute to the bigger data set by fitting it into existing codes. Secondly, perceptions of the notions of 'coding' are different in the two accounts. Boyatzis's account of *code* is more abstract compared to Braun's and Clarke's (2006). Boyatzis (1998: vi-vii) refers to identifying themes (patterns in the data) within subsamples before creating a code ("...list of themes; a complex model with themes, indicators, and qualifications that are causally related; or something in between the two forms"). Braun and Clarke (2006) refer to codes as a feature of the data and part of an overarching theme (patterns in the data, resulting from a combination of codes). This research adheres to the latter approach. However, Boyatzis's (1998) account provides useful elements which enriched this research's process, for example regarding procedures for determining reliability and validity in this process and in relation to finding latent and manifest codes.

Similar approach to both case studies

Although CS1 and CS2 were not approached from a collective case study methodology, the processes of analysis for both are discussed simultaneously due to their similar analytical approaches, CS1 being an exploration of the process, and CS2 the refinement of it through repetition and practice (Boyatzis 1998). During the development of this section the differences between the first approach to analysis in CS1 and the refined approach in CS2 will be highlighted.

The process explained below shows a combination of software assisted coding with NVivo 11 (see section 3.4) and manual coding in a series of iterations between textual description and thematic maps until findings were consolidated. The use of NVivo was prevalent in the first phases of the analysis to help me navigate the large body of data that had been gathered (Bassett 2010). Additionally, memos were used (Dey 1993) to record insights and reflections while doing the analysis and to assist in writing the present section.

Discarding tentative predetermined codes

As a strategy to keep the analysis closer to the research objectives, I started by defining a codebook (Creswell 2014, Miles and Huberman 1994), which proved unsuitable to the exploratory nature of the case studies in this research due to the subjective qualities of the data and the consequent potential for revelation of unanticipated information (Dey 1993). The balance between controlled and unexpected findings was constantly negotiated.

This early codebook (see Table 21) was based on the amplified mindset of design, and on specific codes related to design education. I intended to follow a “prior-research-driven code development” process (Boyatzis 1998) based on my conclusions in the literature review and fieldwork regarding an amplified mindset of design, in order to find expressions of such a framework in the data.

Conceptual framework of an amplified mindset of design	Aspects related to design education
Human-centred and synergistic worldview <ul style="list-style-type: none"> - Agent of change - Ethics-culture - Strategic levels - Sustainability 	Views of the designer in innovation/ecological design Education methods Pedagogical views
Integrative behaviours <ul style="list-style-type: none"> - Collective ownership - Holistic thinking - Multi-disciplinary - Synergies creation - Systems thinking 	Role of the teacher
Social skills <ul style="list-style-type: none"> - Empathy - Communication skills - Mediation and facilitation - Creation of shared motivation - Creation of cultural alignment - Personal development 	
Visualisation <ul style="list-style-type: none"> - Build meaning - Visioning - Intangible - Shape thoughts and relationships 	

Table 21 – Initial codebook

However, these cases were not meant to primarily confirm or refute the presence of an amplified mindset of design but to explore themes that characterise each

case, focusing on ways of teaching and views of the designer. To follow a code development informed by prior research would limit the potential of the analysis for finding new codes and themes when compared with the inductive approach (Boyatzis 1998, Patton 1990) that was followed, in which coding is more context-sensitive and open to novel codes and themes (Miles and Huberman 1994).

Following an inductive thematic analysis

To explore the findings of each case in relation to an amplified mindset of design, the initial codebook was created during in phase 1 of the analysis and was later set aside in phase 2, leaving it for potential further use in later stages of the analysis. The choice of this approach over a theory-driven thematic analysis is justified by my intention of coding closer to the data set, maintaining contextual data surrounding the several constructs in the data (Burr 2003, Saldaña 2009) without the influence of a pre-assigned set of codes that could obscure relevant information (Boyatzis 1998, Braun and Clarke 2006). According to Boyatzis (1998), such use of a data-driven approach to coding has the potential to improve the understanding of data by allowing the identification of evident *and* latent information. However, I was aware that this coding could not be a *tabula rasa*, following the epistemological stance and theoretical assumptions of this research. Using an ethnography-informed position, I did not want to start afresh as substantial fieldwork and research had already been done, but aimed to maintain an open mind while coding (Miles and Huberman 1994). Although there is an overarching sub-question applying to both case studies—How does teaching happen in these postgraduate design programmes?—leading to the assumption that a theoretical thematic analysis could be better suited (Braun and Clarke 2006), this is an exploratory question where predetermined codes could limit the findings of the cases.

– Phase 1: Sensing the characteristics of the cases

This phase started during fieldwork upon the collection of relevant documents and using them to understand each case and engage in fieldwork. Each document was also looked at to anticipate its contribution to this research (see sections 4.5 and 4.6 referring to relevant documents), and I listened to the interview transcripts and edited them when needed. The combination of audio and text served not only to ensure the accuracy of the transcripts but also to help to immerse and familiarise me with the data (Boyatzis 1998, Braun and Clarke 2006).

The remaining data sources, the field notes, were re-read and edited, and the documents from both cases were reviewed and re-read following Braun and Clarke's (2006) guidelines to knowing the breadth and depth of the data. At this point I created a set of predefined codes, depicted in Table 21, based on the conceptual framework of an amplified mindset of design and aspects related to design education. The analysis framework was thought to be helpful to starting to code the data, and before uploading the documents into NVivo, I created these predefined codes in the software, which was chosen to facilitate the navigation across data, and throughout the different codes (Bassett 2010). This phase has similarities with what Boyatzis (1998) called the first step of stage 2 in inductive

thematic analysis, which is concerned with reducing raw information, taking notes and summarising content when appropriate.

In this phase I prepared the data to start the initial coding in phase 2. The topic of group dynamics in the interviews, for example, was identified from both case studies. In CS1 there was also the identification of a focus on live projects and approaches to design innovation informed by sociology. In CS2, holistic sciences, community environment and the understanding of students as a whole were identified as impactful on the development of ecological design thinking.

– Phase 2: Finding ways of working

As introduced and explored in section 3.4, to support this phase of the analysis I used holistic coding (Dey 1993) to get a sense of the type of codes that could be generated from the whole data set, trying to tackle overlapping issues in the different sources leading to a more detailed look later (Saldaña 2009) in Phase 3. As an example, see Figure 61 and Figure 62 to find the number of different sources that each code covers. Additionally, a simultaneous coding approach (Miles et al. 2014) was used to identify the multiple meanings of each passage, and the variety of perspectives offered in the different sources of data.

During this phase, NVivo (explored in section 3.4) proved to be a useful software tool allowing an efficient visualisation of the coded passages from different data sources, and providing a general sense of the meaning and characteristics of the codes (Bassett 2010). The use of NVivo visualisations supported my interpretations during the analysis process (Miles and Huberman 1994). Figure 59 from CS1 offers an example of simultaneous coding, showing the usefulness of NVivo's coding stripes to visualising different codes (collaboration, integrative behaviours, synergies creation) in one passage:

So the students are working collaboratively with their peer group, collaboratively across programme demarcations. They are working collaboratively between academia and commerce and industry and they are working collaboratively with particular types of organisation. (Interview transcript from CS1)

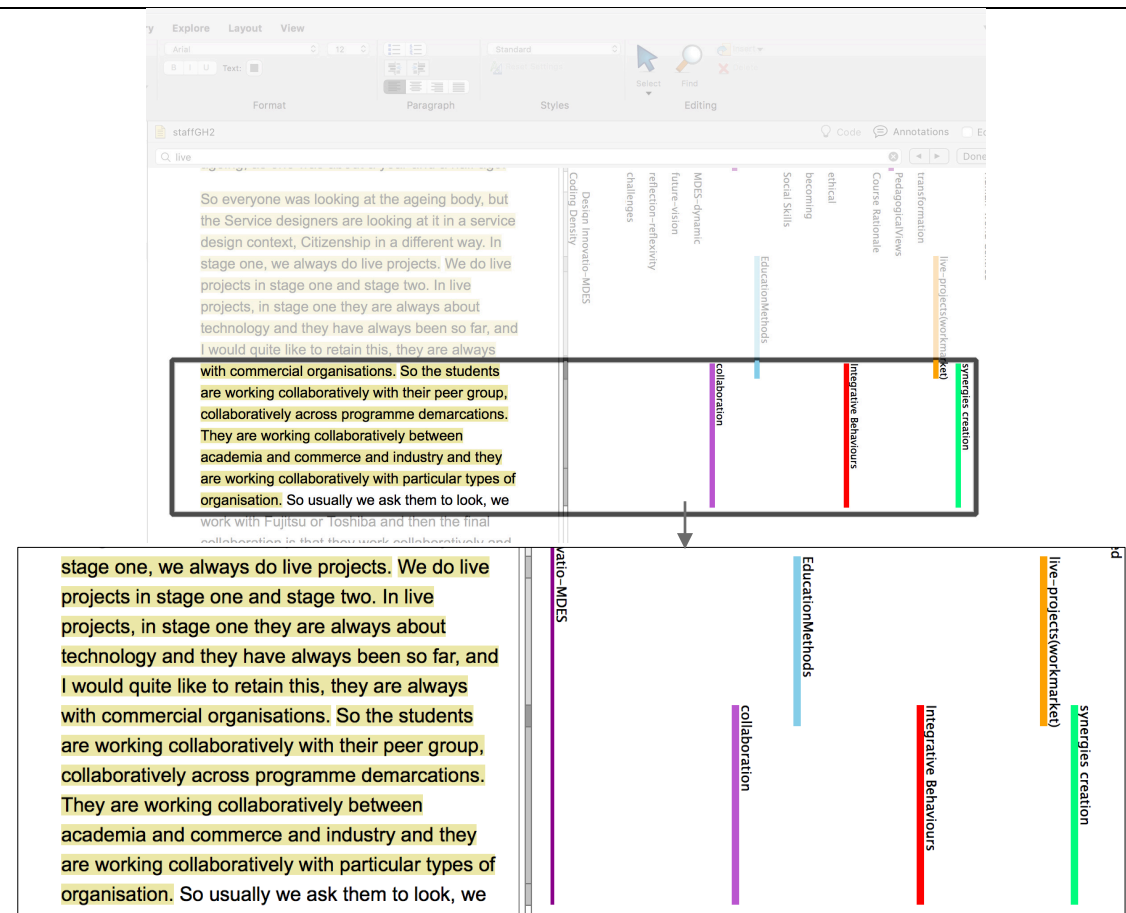


Figure 59 – Example of simultaneous coding in a passage of an interview transcript for CS1, using NVivo 11

An example from CS2 is offered in Figure 60, showing where the codes were assigned to the following passage:

I guess there is a vision in the sense that the course is designed to encourage people to become actively involved in social and ecological change in whichever way suits them. So there is a vision, but the way that that vision is manifest [pause] won't change completely, but it will shift, each year, I think. (Interview transcript from CS2)

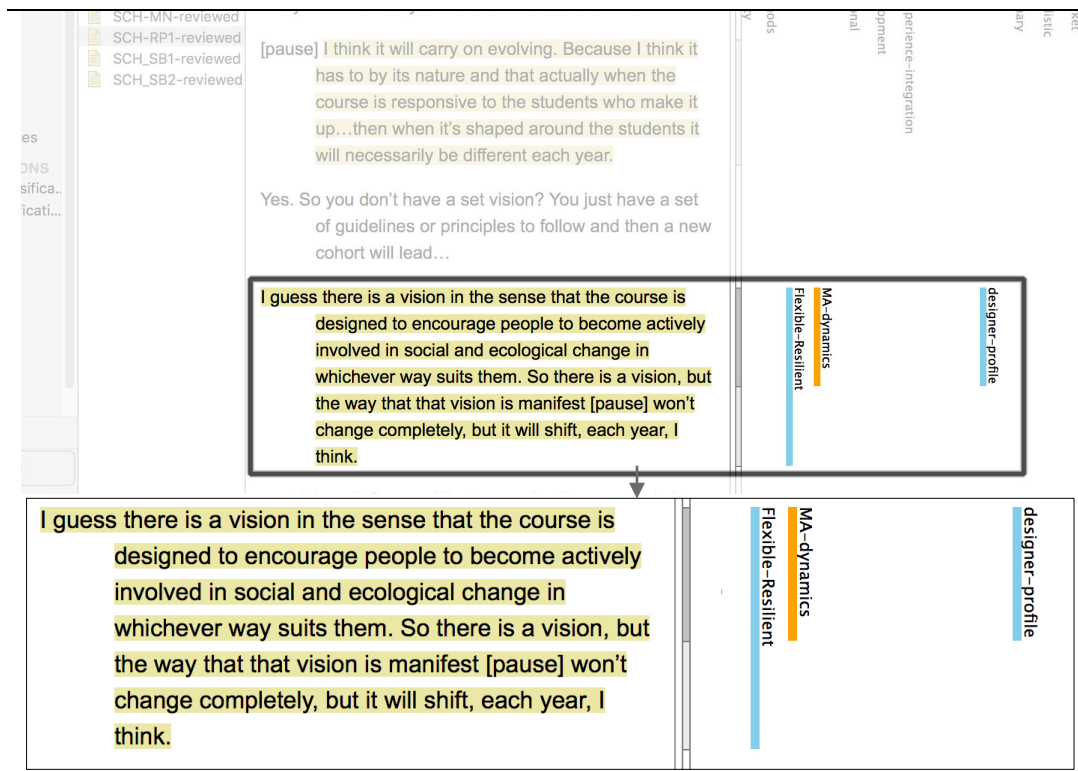


Figure 60 – Example of simultaneous coding in a passage of an interview transcript for CS2, using NVivo 11

Following Braun and Clarke (2006), an abundant amount of codes was generated during this phase to open the possibility for new findings along the process. Any hierarchy was tentative so that I could look for patterns, connections and different aspects of any one topic that could lead to the formation of themes (Braun and Clarke 2006) in phase 3.

Good practices

The coded segments had some surrounding data to maintain the context (Vaismoradi et al. 2013) and improve its interpretation. Following Braun and Clarke's (2006: 96) checklist for good thematic analysis, during this phase and the remaining phases I repeatedly read through the data and the passages of each code against the rest of the data to get a better understanding of the meaning of each code, and check whether there was any irrelevant information or information to be transferred to other codes. During this phase I also started to create memos (Miles and Huberman 1994, Saldaña 2009) recording my reflections in relation to the process and the content of the codes to assist in the writing of the analysis process and the findings.

Predetermined VS emerging codes

Soon after starting to generate initial codes using the codebook in Table 21, I realised that this process was limiting the potential of the data to reveal new information (Boyatzis 1998), mainly because the primary purpose of each case

study was not to evidence the existence of an AMD but to understand the characteristics and views of design in each Masters programme. The predefined coding categories gradually lost their importance when new codes started to be identified in the data as shown in Figure 61 and Figure 62. Figure 61 also exemplified the organisation of the data set in NVivo, under *SOURCES* (on the left of the screenshot).

Initial codes for CS1 that were created outside the codebook are depicted in Figure 61 and included: course rationale, course culture, and description of design, which were aimed at helping me to get a sense of the context of the case, and ‘work in boundaries’ as a code that could lead to unpicking ways of working in this case.

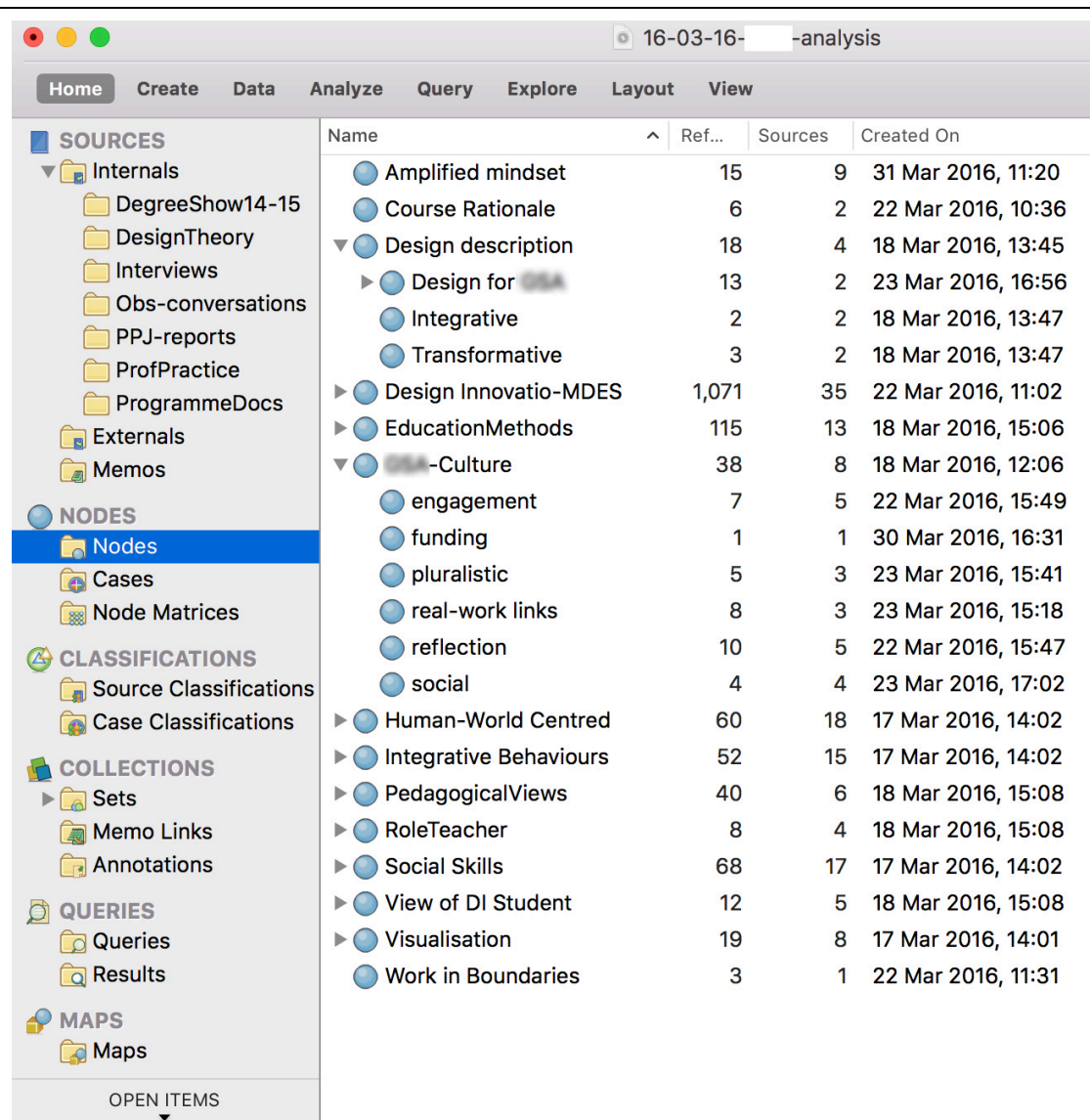


Figure 61 – Initial codes generated for CS1 in March 2016, using NVivo 11.

In CS2, the number of codes created outside of the codebook in comparison with CS1 was higher as a result of repeated and refined practice in CS1 (Boyatzis 1998: 11). Indeed, by this point the value of a data-driven approach, while maintaining

some of the predefined codes, had become apparent. The pre-codes referring to education were not created as the case was a Masters programme and codes relating to education emerged inevitably during the process. As illustrated in Figure 62 examples of new codes regarding views of the designer included 'designer-professional', 'student's profile', and 'Eco Lens-EcoDesThinking', while educational methods and pedagogical views were expressed in the three codes 'transformational', 'interdisciplinary', and 'theory and practice', and under the group 'teaching methods'. New codes such as 'flexible-resilient', 'pluralistic-holistic' and 'college-community' were starting to highlight principles and ways of working in this case.

Having finished coding the whole data set, there was an attempt to sort the relevant from the irrelevant codes for this research, followed by the printing of all the data from each code to prepare for the next phase.

▶ ● [AMP]	3	32
▼ ● [CO]Content	10	52
▼ ● [CO]inter-disciplinary	8	19
● [CO]student profile	10	23
▼ ● [DES]designer-professional	9	37
● [DES]communicate-build relati...	4	9
● [DES]facilitation	4	4
● [DES]sense-mission	2	2
▼ ● [RES]ResidualCodes	0	0
● [RES]Context	5	8
● [RES]MA-origins	4	4
● [RES]MA-structure	5	8
● [RES]my reflections	3	7
● [RES]Theory&Practice	4	9
▼ ● [TM]TeachingMethods	0	0
▼ ● [TM-EL]-ExperientialLearning	11	18
● [TM-EL]embodiment	5	7
● [TM-EL]embodiment-outsidi...	3	8
● [TM-EL]LiveProjects	6	10
● [TM]assessment	2	12
● [TM]Circles-Dialogue	3	5
● [TM]Circles-outsideMA	2	3
● [TM]dialogue	10	20
● [TM]Other	11	23
● [TM]Other-outsideMA	3	6
● [TM]Peer-learning(&community)	2	2
● Challenges	10	59
● College-community	14	56
● EnterWorkMarket	7	16
● Flexible-Resilient	4	31
● Future-ideal-vision	8	41
● Lens-EcoDesThinking	9	31
● Outcomes	8	13
● Pluralistic-holistic	11	45
● StudentDevelopment	6	23
● Transformational	8	35
● Uniquenes	7	17

Figure 62 – Initial codes generated for CS2 in July 2016, using NVivo 11

– ***Phase 3: Emerging guiding principles and key notions of design***

As a result of phase 3, each code was printed and code piles were created (organised in Figure 64). This phase included slight differences in approaches between the cases, which are summarised in Figure 63 and further detailed below.

The main difference involves the creation of mind-maps in both cases. In CS1 these were code-mind-maps that lead to the identification of initial themes, whereas in CS2 initial theme-mind-maps emerged as a result of clustering of the code piles.

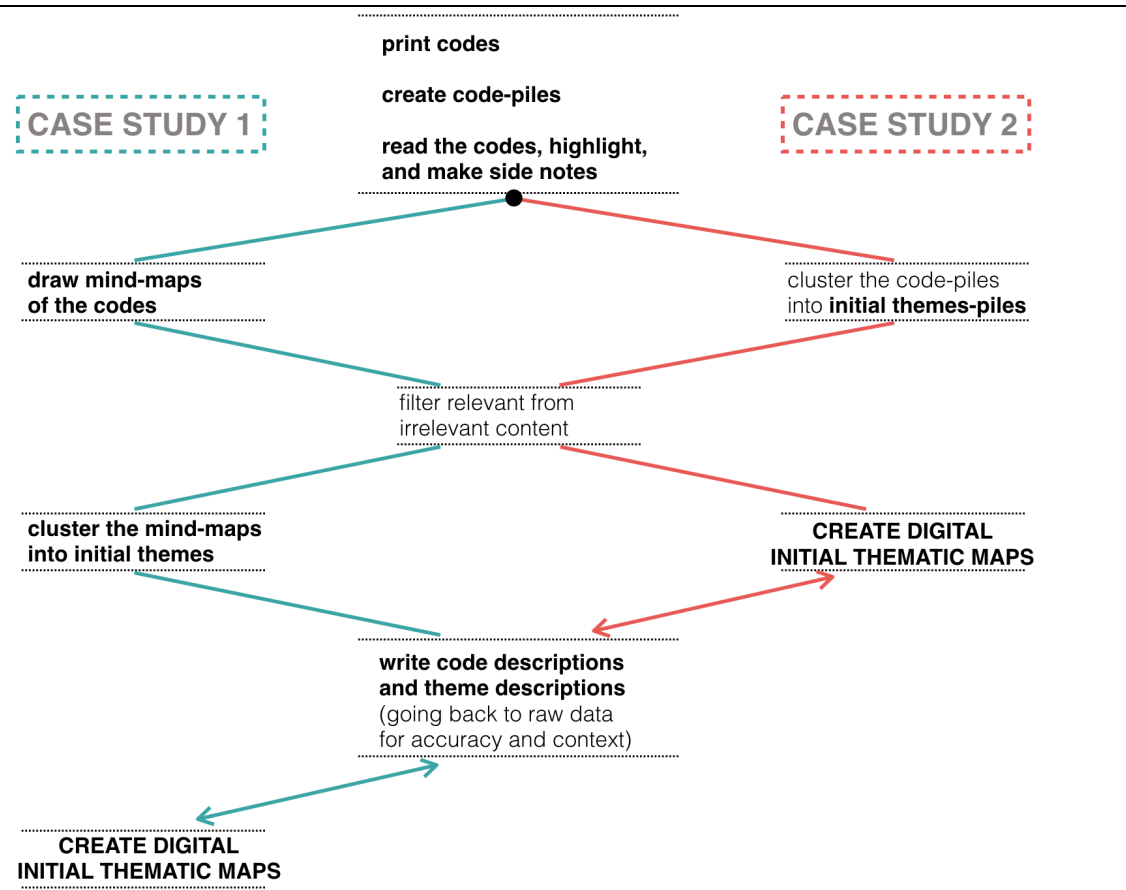


Figure 63 – Comparing phase 3 between case studies

Having printed the codes to start this phase, I chose to reserve the use of NVivo software only for updates on the clustering of codes into tentative themes. The process was conducted manually so that I could be fully immersed in the codes, physically grasp the contents of each code, and see the annotations and highlighted text simultaneously. My workplace, illustrated in Figure 64, created that sense of immersion in data with the printed pages laid in code piles arranged in corkboard.

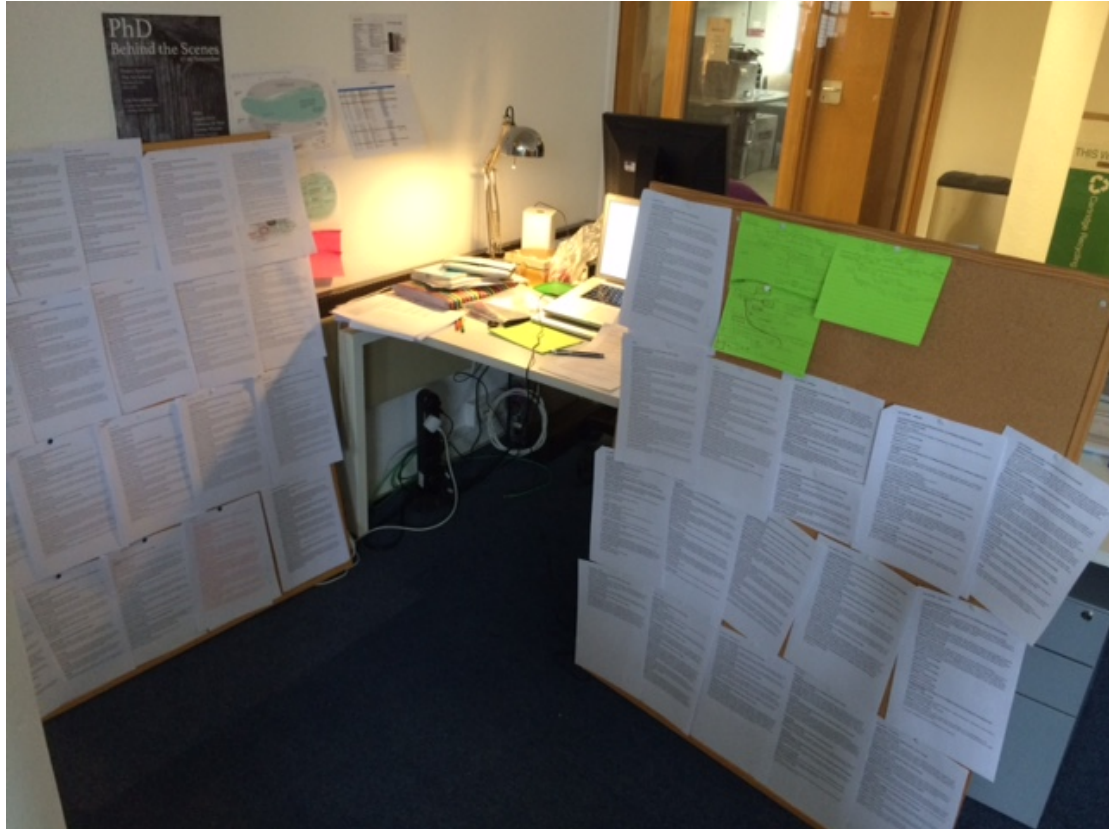


Figure 64 – The manual coding process in Phase 3, example of CS1.

Creating mind-maps of codes and tentative themes

After the creation of code piles, the next stage was to systematically read through the data collated in each code, underline meaningful segments and write marginal remarks (Miles and Huberman 1994) in an attempt to interpret the meaning of each code (Dey 1993, Saldaña 2009). These notes and highlights of text informed the creation of mind-maps (Braun and Clarke 2006) as an intermediary level of abstraction and data reduction (Miles and Huberman 1994). The organisation and re-organisation of code-piles in CS1, theme-piles in CS2, and the following creation of mind-maps served to interpret and synthesise the data from both case studies.

Following Braun and Clarke's process (2006) not all codes were put into the mind-maps as during this process it became apparent that some codes were not relevant to answering this research's sub-question regarding the case studies (How does teaching happen in these postgraduate design programmes?), which brought more clarity to what the data was showing at this point.

Creating initial themes

As I coded and created the initial themes (manually in CS1 in Figure 65, and digitally in CS2) it was becoming apparent that the focus on unveiling the ways of working and how each programme worked was revealing the tacit rules of each Masters programmes; that is, their guiding principles and key notions in regard to their design specialism (16-05-09-memo). It was also becoming visible that the

intended focus on methods and content here was to be seen from the lens of an amplified mindset of design so that it could be connected to this research. This meant that I would be looking at methods and content when they reflected a potential to develop an amplified mindset of design (16-05-11-memo).

Informed by Dey (1993), and seeking accuracy and alignment between the content of the mind-maps, the context of the cases and the objectives of this research, for the analysis of CS1 I iterated between these mind-maps, the raw data in NVivo, the printed code-piles and themes. For the analysis of CS2, iteration served to find overlapping issues in the different codes and themes, and to identify content that could be dismissed or transferred between codes/themes.

The code mind-maps produced in CS1 were then clustered to identify tentative themes, as seen in Figure 65. In this figure the different colour tags, used to differentiate the themes (Braun and Clarke 2006), refer to the themes that at this stage were: principles, design innovation, practice, and becoming.

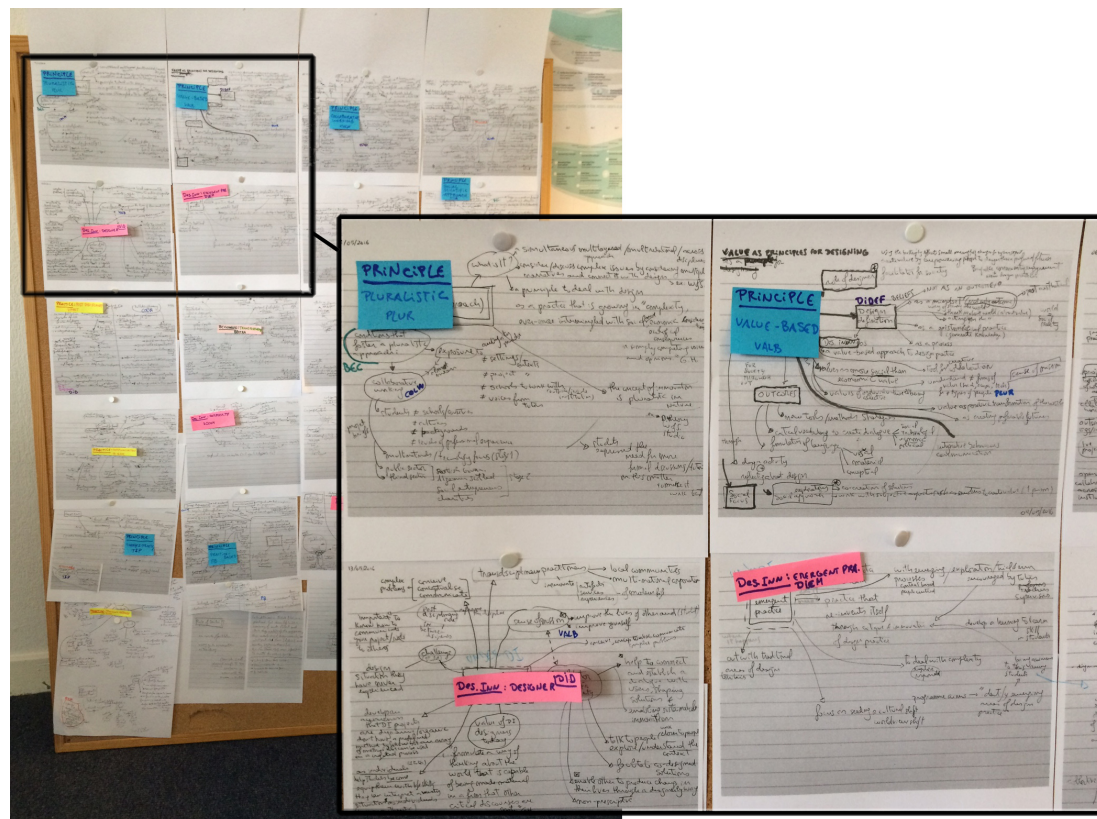


Figure 65 – Manual synthesis of codes and creation of colour coded themes, for CS1

The titles of the themes were still in definition, for example, the theme Becoming was very abstract and not self-explanatory. Here, the researcher wanted to cover issues of reflexivity and self-transformation of the students in their Masters programme. A further reflection on these tentative themes continued in CS1 with a printed list of the codes from NVivo (see Figure 66) as some of them were seen as irrelevant, eliminated or merged into other codes. For the first time in this

analysis process, colour coding was used to guide the process of clustering the descriptive diagrams into themes (Braun and Clarke 2006) and to reflect these themes in the NVivo list of codes.

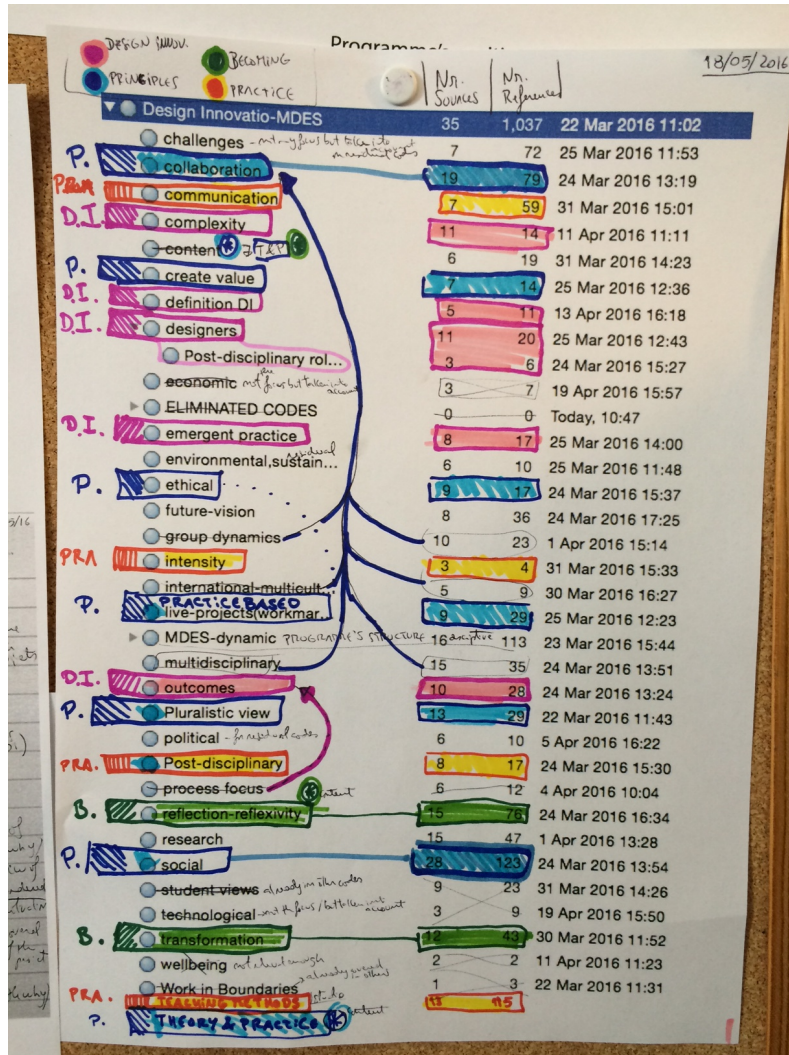


Figure 66 – List of NVivo coloured codes to reflect the iteration done manually in the diagrams of CS1

In CS2, the process during this stage of phase 3 differed from CS1. Following the clustering of code piles into themes, I created initial thematic maps digitally. In comparison to CS1, this refined approach where the code piles were clustered into theme piles, leading to the creation of digital initial thematic maps, was mainly possible because CS2 had less data to analyse. The digital theme mind-maps in Figure 71 show the initial themes generated at this point, which included guiding principles, ecological design thinker, and teaching methods. The same colour process was used with the list of NVivo codes (see Figure 67) to further reflect on these themes before moving on to produce the definitive initial thematic maps.

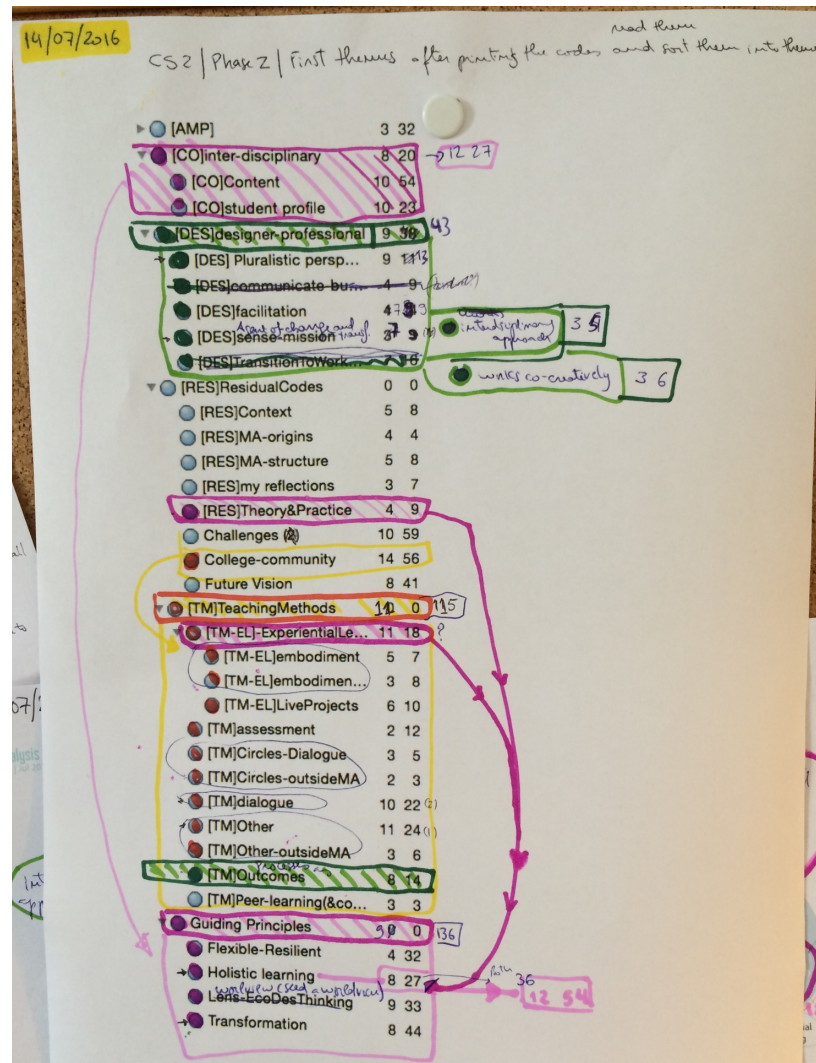


Figure 67 – List of NVivo coloured codes to reflect the iteration done manually in the diagrams of CS2

Iteration diagram-text-diagram

From the clusters of codes and diagrams defined as candidate themes (Braun and Clarke 2006) created manually in CS1 and digitally in CS2, I began to write descriptive texts to consolidate the characteristics and meaning of each theme and what they represented in the context of each case, trying to differentiate the codes and the themes (Boyatzis 1998). For each text, I iterated between the mind-maps and the raw data, using this iteration to check if the themes were accurate and if additional coding was needed (Braun and Clarke 2006). At this point the analysis process was becoming more fluid, entering Braun and Clarke's phase 4. In this research, these texts informed the creation of initial thematic maps in CS1 and the consolidation of the initial thematic maps in CS2. Additionally, and contributing to the validity of the analysis (Braun and Clark 2006), I pointed out in the texts any existing connections with other codes within a theme, between themes, and re-coding the data when needed. As noted, this moment of the process started to signal an entrance into phase 4 (reviewing the themes) as I started to get a sense of the meaning of each theme.

For CS1 I created one text document for each code and stored them in a folder referring to each theme. A sample of these texts is depicted in Figure 68.

<p>THEME: PRINCIPLES (20-05-2016)</p> <p>[ETH] ETHICS / ETHICAL APPROACH</p> <p>This code represents a principle for the practice of design innovation within this programme. It refers to considering the ethical aspects of a project, and by itself it influences student development and 'Becoming'.</p> <p>This principle is connected with the theme <u>Becoming</u> since it includes reflective activities and potential transformation of projects, practices and the students themselves.</p> <p>The ethical approach influences students to develop a sense of self, an identity (personal and professional) and new forms of design.</p> <p>This principle leads students to reflect about- and question their practice in order to advance it. (For example, to address potential ethical dilemmas in project briefs, which is much more evident in the Citizenship specialism)</p> <p>"I think it's almost a little bit funny because they've placed me in a group where I was coming from a Marxist perspective and they placed me in a group to with [Bank name] who are famous for apartheid funding, guns, weapons providers, tax dodging,... (...) "I'm not going. No. This is not what I want to be doing." But and then at the same time: "Oh yeah, you need to consider the ethics". And, well (laughs)... I was a little bit bitter, I'm not going to lie but I think that's where I started from. That's where my final project started from. It was that tension between the two and I never really managed to find neither a bridge nor a language to speak about it. I don't know why but it took me a while, to actually dare to ask that question."</p> <p>student e1</p> <p>Ethics of research: formal teaching through workshops and ethical forms</p> <p>Social ethics (practice) related with Design Innovation as 'at the service of society':</p> <ul style="list-style-type: none">- informal learning through the students fieldwork (How to deal with people- interrogate social reality and suggest preferred futures- taken into account in collaborative working forms, in the use of knowledge from others, in attempting to respond to others in a reflective and sympathetic manner <p>For students at first this is an unexpected relation with design innovation. There is a need more from staff members to keep improving the ethical skills/thinking in students.</p>
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Figure 68 – Example of code descriptions produced in CS1

As for the refined approach in CS2, each theme was in one text file instead of a folder, and it included the descriptions of the theme and its codes in one table (see a sample in Figure 69) with relevant quotes beneath it. This can be considered part of Phase 4 because while writing the texts I was also refining the themes based on my previous experience of analysing CS1. However, this step remains in phase 3 because it served to consolidate the initial candidate themes.

Profile of the Ecological Design Thinker	<p>This theme represents the main characteristics of an ecological design thinker for this masters programme</p> <p>This theme and the 'Guiding Principles' theme provide the foundation for the work developed in the Masters.</p>
Codes	Summary
Facilitator	<ul style="list-style-type: none"> - Creatively build relationships with groups and their environment using visualisation - Be aware of group dynamics - Be flexible and open - Manage open-ended processes of problem-solving - Students learn about facilitation skills in the programme
Agent of change and transformation	<ul style="list-style-type: none"> - Sense of mission to build a more ecologically sustainable world <ul style="list-style-type: none"> o be part of the solution o sense of agency an leadership o be a catalyst for social and economic transition o seeded by the academic and community environment
Pluralistic perspective	<ul style="list-style-type: none"> - Attitude of an ecological design thinker: <ul style="list-style-type: none"> o handling diversity o dialogical skills o open mind - working co-creatively in a range of contexts <ul style="list-style-type: none"> o having a wider perspective o constructive scepticism - Environment that nurtures this perspective <ul style="list-style-type: none"> o Culturally diverse community (national and international students in different courses) o Interdisciplinary masters programme <ul style="list-style-type: none"> ▪ <i>students from different academic and backgrounds</i> ▪ <i>group work</i>

Figure 69 – Example of theme and code descriptions produced in CS2

Initial thematic maps

The creation of these texts led to the creation of new digital mind-maps in CS1 as candidate thematic maps, and allowed the consolidation of the theme's meaning and characteristics in both cases. These initial thematic maps constitute an outcome of phase 3. The use of a digital medium to create the maps served in this stage to consolidate the findings from this phase and differentiate them from the initial exploratory hand-drawn maps. Figure 70 and Figure 71 illustrate candidate themes correspondingly for CS1 and CS2.

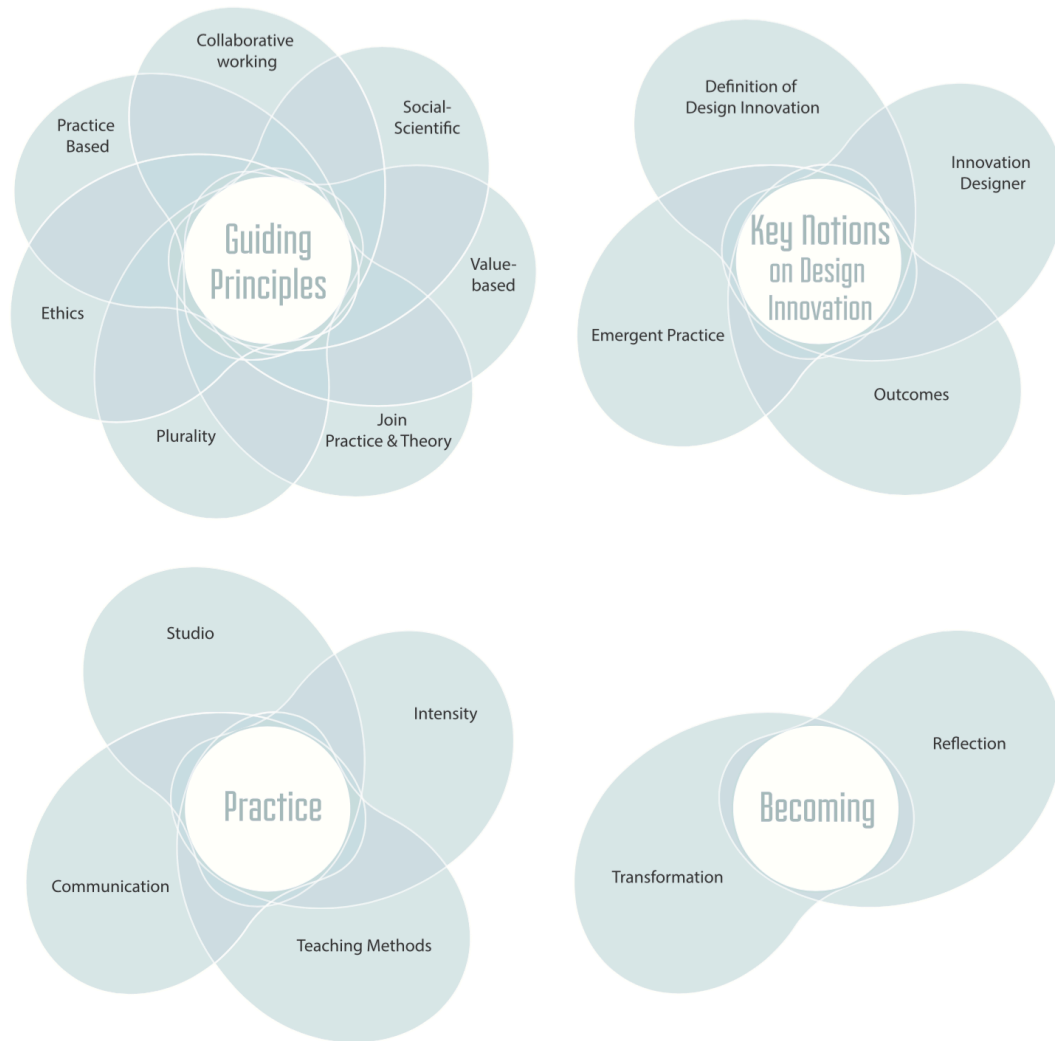


Figure 70 – CS1's initial thematic maps

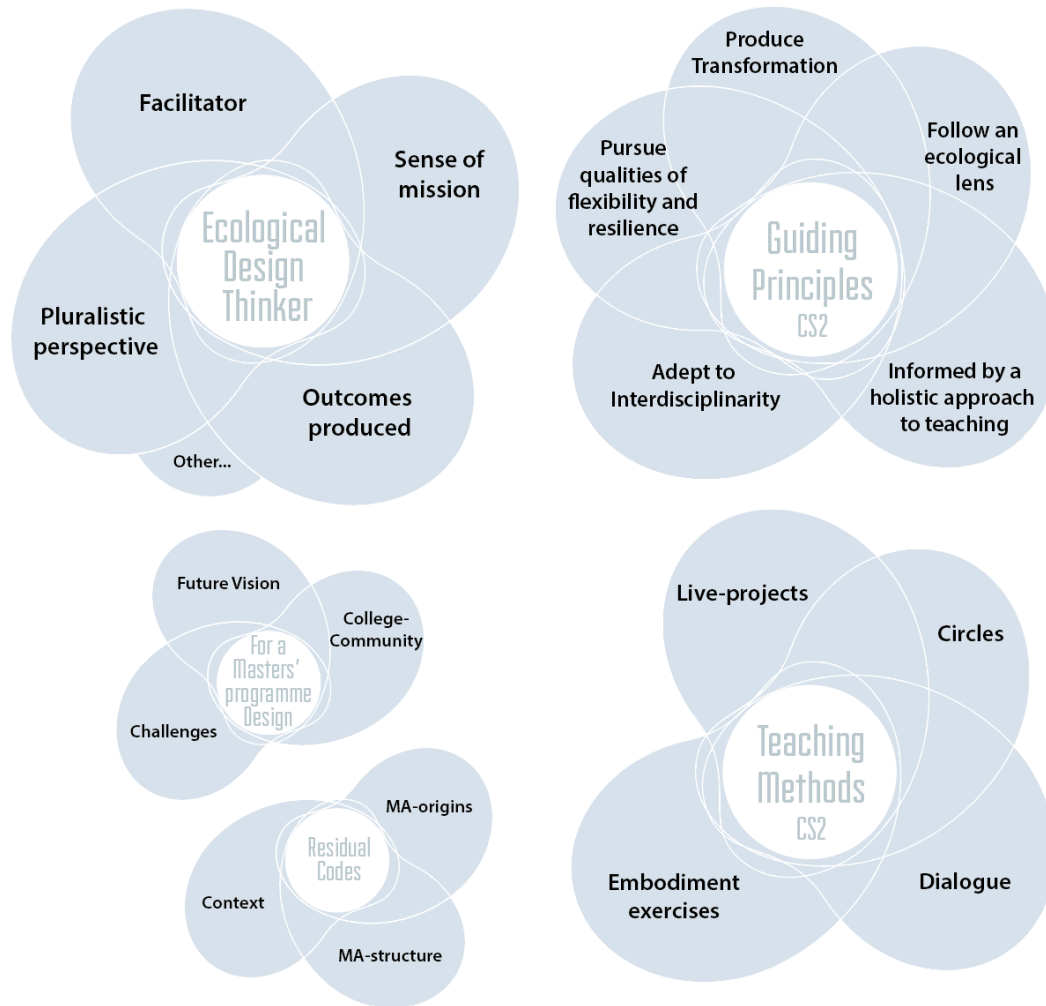


Figure 71 – CS2's initial thematic maps

As noted above, the research sub-question guiding this analysis was “How does teaching happen in these postgraduate design programmes?”, which led to the need to explore the characteristics of each programme with a focus on its methods and content. Defined at early stages of the research (see Chapter 1), the expected outcome here was to provide the characteristics of each programme, and build a connection with an amplified mindset of design. These characteristics were interpreted during the analysis mainly as the guiding principles of each Masters programme and the key notions within each programme about its design specialisms. Other characteristics included the theme of practice (in the programme) and becoming (later renamed “develop identity”) for CS1, and teaching methods and other residual codes in CS2. The last two of these (teaching methods and residual codes) were taken from the data with a focus on the development of an amplified mindset of design.

– Phase 4: Consolidated themes

The majority of the examples in this phase refer to CS1, as the initial themes in CS2 constituted the final themes for that case with only a few changes. This was due to the smaller amount of data of CS2 in comparison with CS1; the fact that in CS2 I was not trying to fit the data into pre-defined codes from the start, and because the printed codes were clustered before producing diagrams for the initial themes.

For both cases, during this phase and after having produced the initial thematic maps, I read the detailed hand-drawn mind-maps again and the descriptive texts produced for each code and theme going back to the collated segments in the codes. This was done to check the themes against the context of each case, and check the accuracy of the clustered information in the thematic maps (Dey 1993). While doing this, my focus shifted between each individual code, the relationship between the codes, their overarching theme, and the relationships between the themes. For example, the theme of guiding principles was the most populated in CS1. Therefore, I focused on reviewing this specific theme, and produced a diagram (see Figure 60) showing the relations between its codes. During this phase, the themes and their codes were reviewed and questioned in both cases with an added focus in CS1 for the reasons pointed out above.

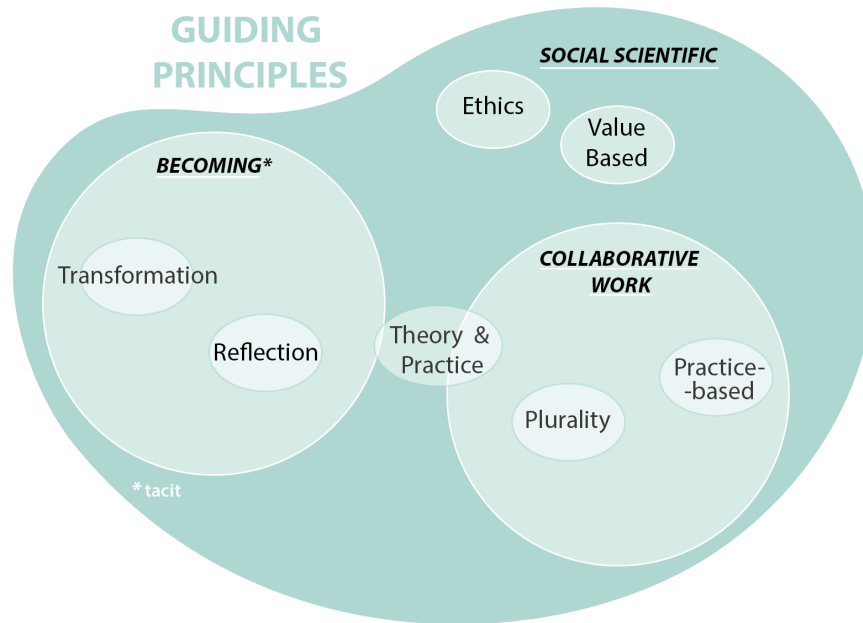


Figure 72 – Exploring relationships between the codes of the theme Guiding Principles, in CS1

To exemplify the type of diagrams created for CS1 with details on each theme and its codes, Figure 73 shows one of two displays of the code for ‘social-scientific’ from the theme of guiding principles. This type of diagram was created for all themes and their codes in CS1 and contributed to improving the themes and codes descriptions started in phase 3 (see Figure 68). These diagrams can be considered a visual version of the type of documents created in CS2 during phase 3 to describe the themes and their codes (exemplified above in Figure 69). The visual display created in CS1 was recognised to be time consuming and I found that the creation of descriptive tables in CS2 (see Figure 69) served the same purpose and allowed for a more structured view of the themes.

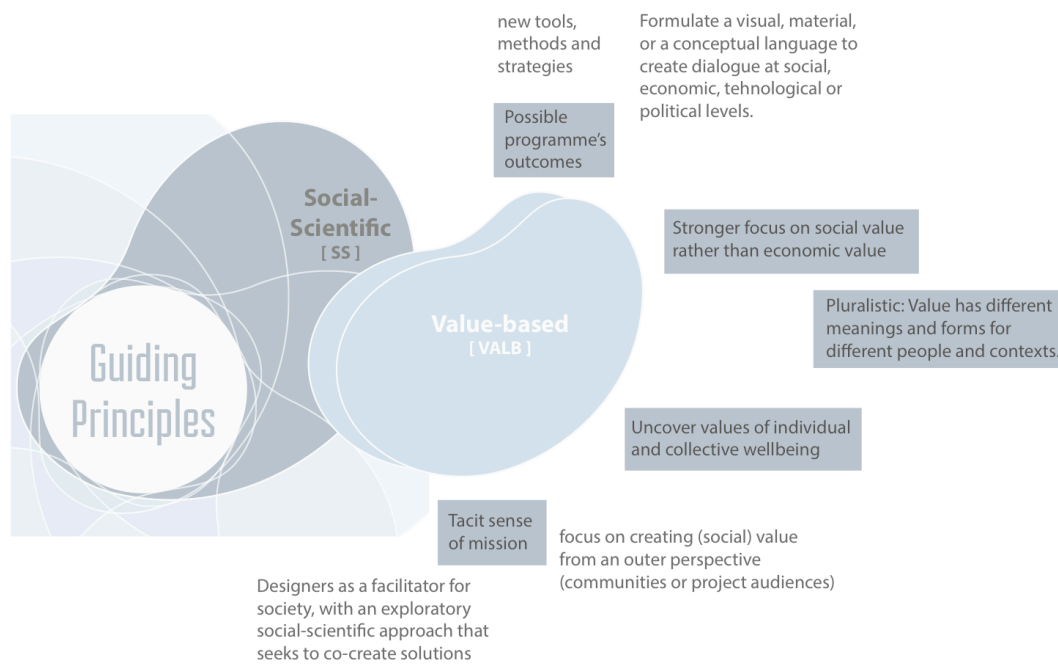


Figure 73 – One of the two displays of the code Social-Scientific, from the theme Guiding Principles in CS1.

Moreover, the review of themes in CS1 depicted in Figure 74 included replacing some codes, and merging and re-arranging two initial themes (becoming and guiding principles). Revisiting the descriptions of the themes led to further changes that included moving the code for theory & practice from the theme of guiding principles (of the Masters programme) to the theme of becoming (or “developing identity” as it was later renamed). While doing this, I concluded that the name “becoming” could be interpreted as a tacit principle of the programme, and it became subsumed under the theme of guiding principles.

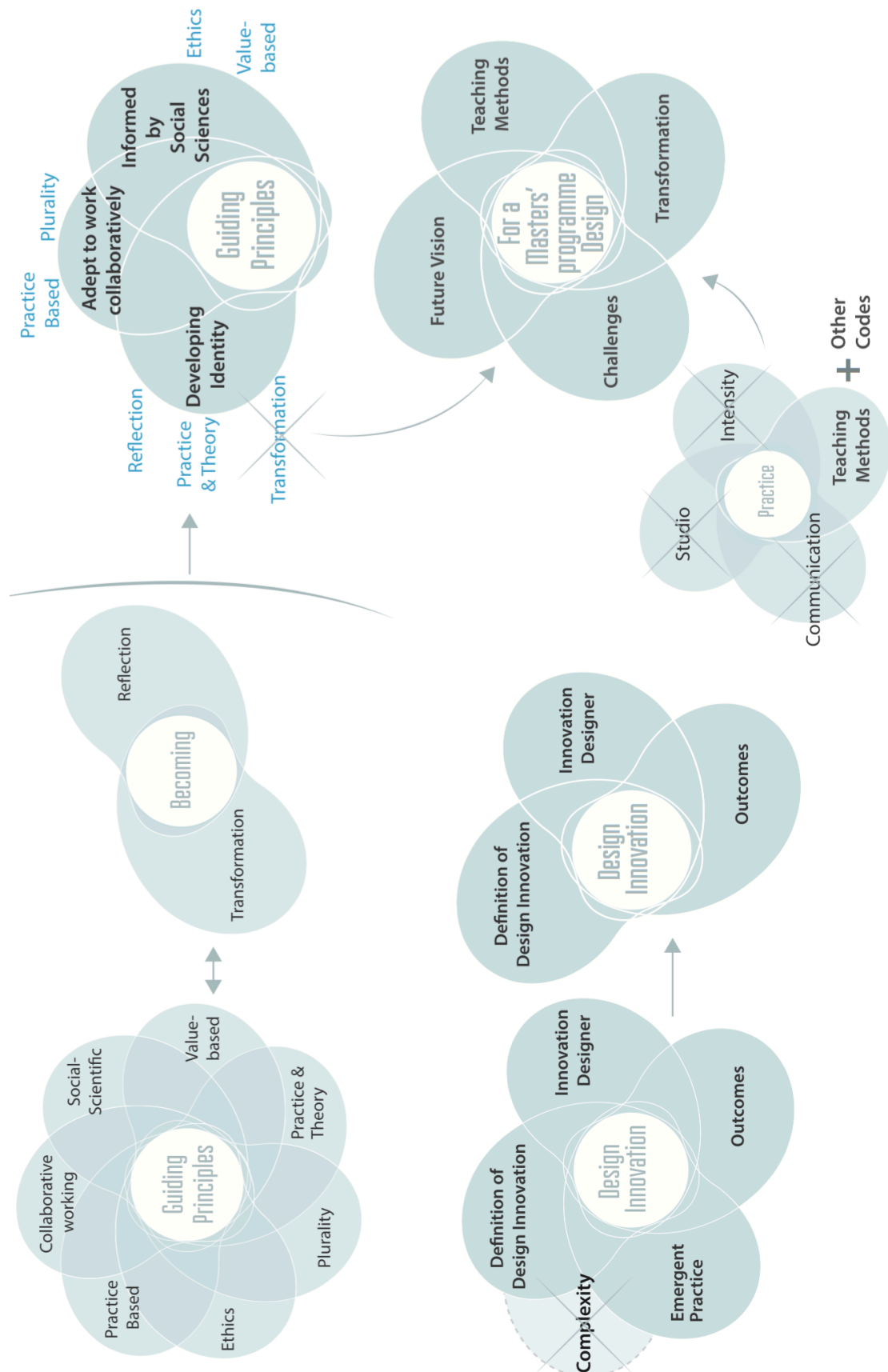


Figure 74 – Revision of themes and their names in CS1

As in the previous stage for both cases, the process of displaying the codes visually allowed me to reflect on the codes and themes while arranging them, helping to move the process along to subsequent phases (Miles and Huberman 1994). This review of themes in CS2 assumed a different format from CS1 as the initial themes were reviewed while the texts and diagrams were being created during phase 3. In comparison with CS1, the shorter iteration in CS2 (see Figure 75) entered Braun and Clarke's (2006) phase 5 regarding defining and naming the themes. These changes can be seen in Figure 75 referring to the final thematic map for CS2.

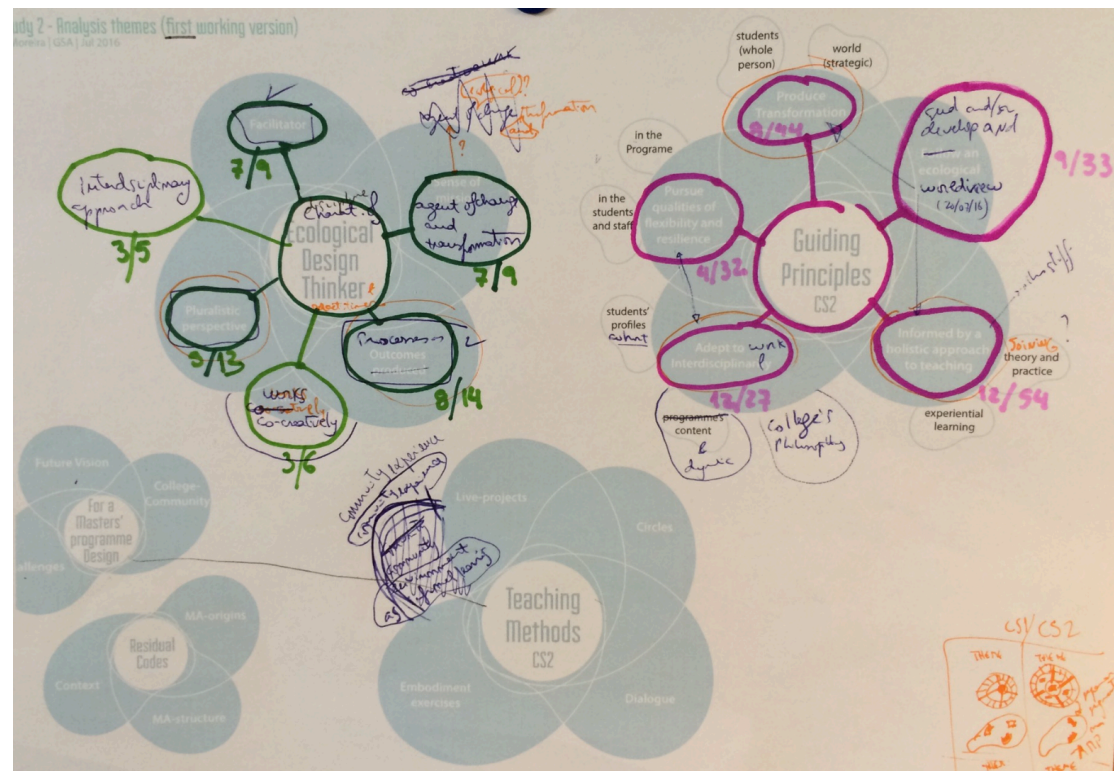


Figure 75 – Reviewing and naming the themes in CS2

It was a challenge in both cases to separate the work into the phases defined by Braun and Clarke (see Table 20) because while I was reviewing and re-arranging the themes their names were also being revisited for clarity and accuracy, making it less relevant to maintain a boundary between phases 4 and 5. This was a very organic process, resulting from my immersion in the data. However, its ordering into phases and tasks allowed a focus on building a reliable process, and enhanced its communicability. For example, Figure 74 from CS1 shows not only the revision of themes from Phase 4 but also Phase 5's naming of the themes that were complemented with a brief description of each theme. By the end of this phase I had produced and consolidated the themes of both cases, which included final thematic maps (see Figure 76 for CS1 and Figure 77 for CS2), final names of the themes, and final descriptive texts built upon the texts produced in Phase 3.

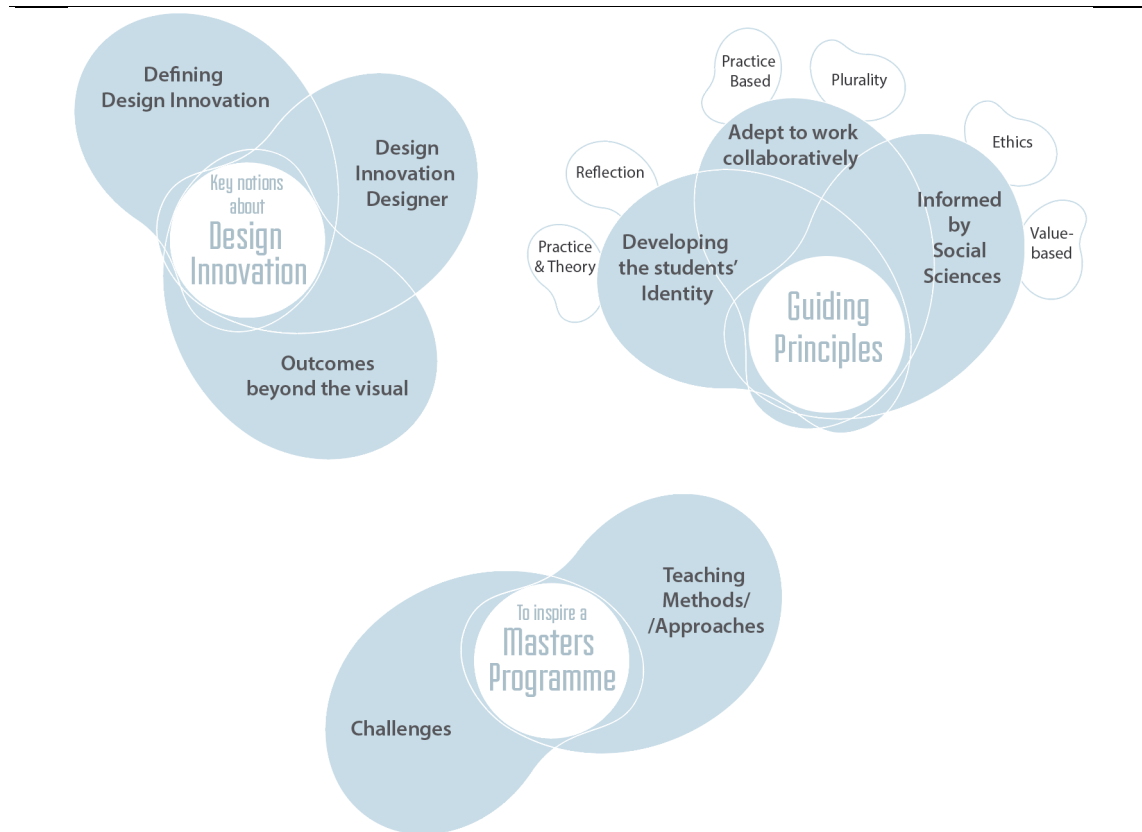


Figure 76 – Final thematic maps of CS1

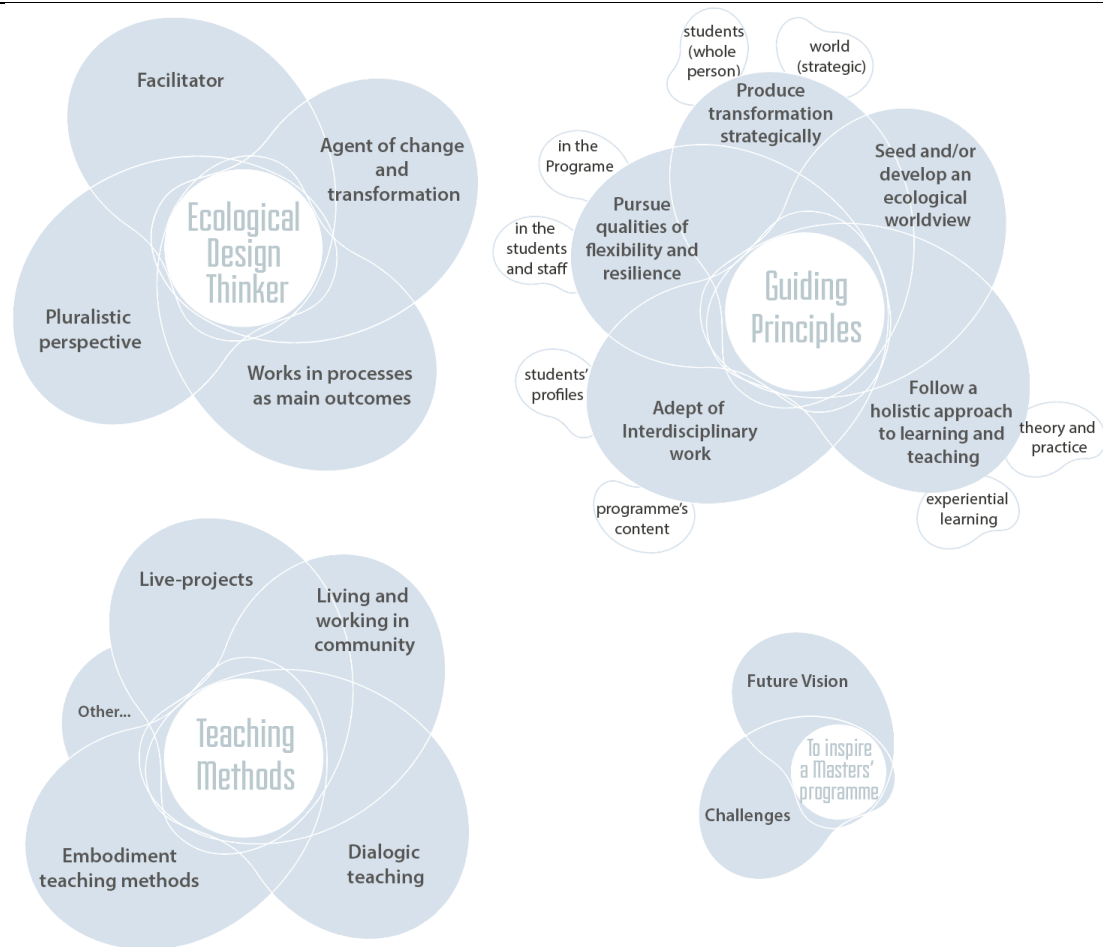


Figure 77 – Final thematic maps of CS2

Before entering the next section, dedicated to highlighting the relations between the themes of each case and the conceptual framework of an amplified mindset of design, Table 22 provides an overview of the analytical phases of this research. The table shows a process with alterations when compared to the structure suggested by Braun and Clarke (2006), and it summarises the outcomes of each phase.

Phases of thematic analysis	Outcome of each phase in this research
1. Familiarising with data: Transcribing data, reading and rereading the data, noting down initial ideas.	1. Sensing the characteristics of each case CS1 perceived issues: a focus on live projects, and approaches to design innovation informed by sociology. CS2 perceived issues: holistic sciences, community environment and the understanding of the student as a whole as impactful elements in the development of ecological design thinking. CS1 and CS2 common issues: group dynamics

<p>2. Generating initial codes: Coding interesting features of the data systematically across the entire data set, collating data relevant to each code.</p>	<p>2. Finding ways of working</p> <p>CS1: codes started to reveal ways of working</p> <p>CS2: codes started to highlight principles and ways of working in this case</p>
<p>3. Searching for themes: Collating codes into potential themes, gathering all data relevant to each potential theme.</p>	<p>3. Emerging guiding principles and key notions about design</p> <p>CS1 initial themes: guiding principles, key notions on design innovation, practice, becoming. CS1 initial descriptive texts</p> <p>CS2 main initial themes: guiding principles, ecological design thinker, teaching methods. CS2 initial descriptive texts</p>
<p>4. Reviewing themes: Checking if the themes work in relation to the coded extracts and the entire data set, generating a thematic map.</p>	<p>4. Consolidated themes</p> <p>CS1 themes: guiding principles and key notions about design innovation to inspire a Masters programme*</p>
<p>5. Defining and naming themes: Ongoing analysis for refining the specifics of each theme and the overall story that the analysis tells, generating clear definitions and names for each theme.</p>	<p>CS2 themes: guiding principles, ecological design thinker and teaching methods to inspire a Masters programme*</p> <p><i>*referring to the Masters programme outlined by this research and informed by an amplified mindset of design</i></p>

Table 22 – Summary of the outcomes of each analytical phase against Braun and Clarke’s phases of thematic analysis

– ***Finding relationships with an amplified mindset of design***

To finalise the analysis process, I overlaid the themes of both cases onto the conceptual framework of an Amplified Mindset of Design. Through visual proximity and indicators of connections, Figure 78 and Figure 79 highlight the stronger points of contact between the codes of the themes and the four dimensions of the framework.

CS1 shows a wider dispersion of its themes and sub-codes throughout the conceptual framework in comparison with CS2, and more than one diagram was needed to highlight the relationship between the case’s findings and the conceptual framework. Therefore, Figure 78 refers solely to the theme of key notions about design innovation. Conversely, themes from CS2 (see Figure 79) were superimposed within one diagram because they are less dispersed throughout the conceptual framework and do not show as many overlaps as in CS1.

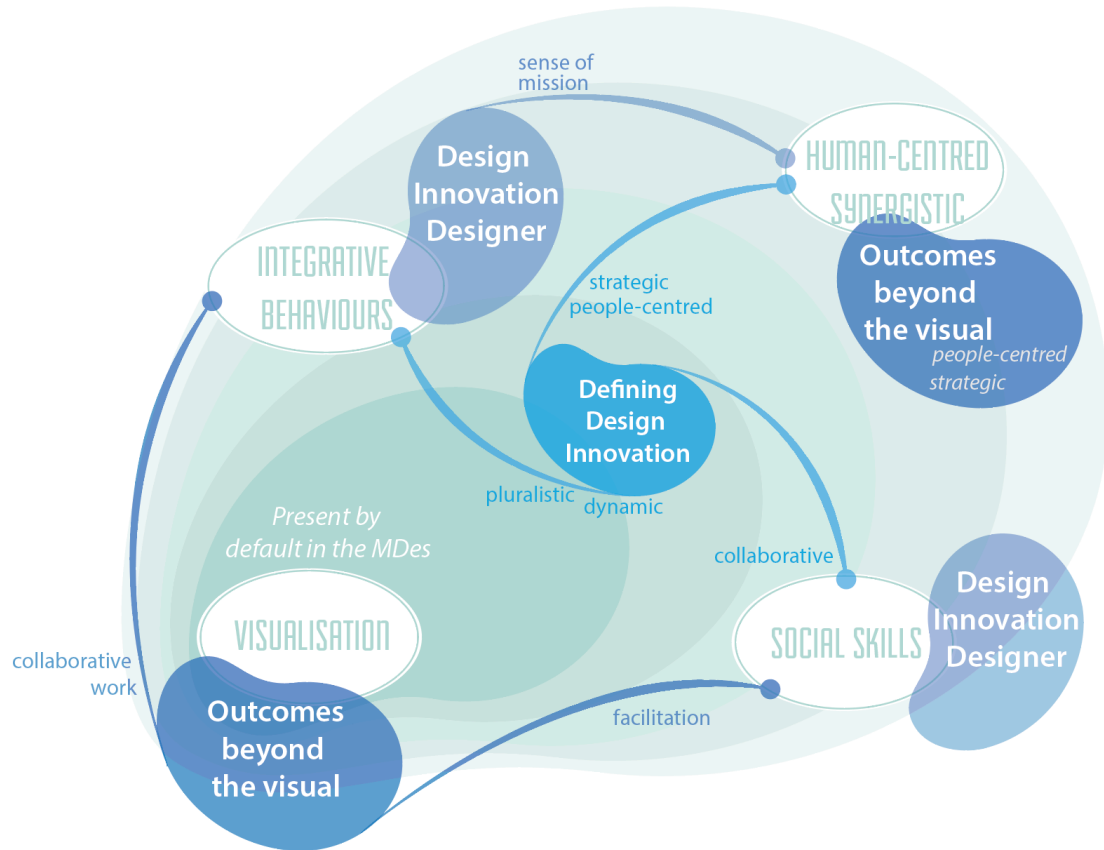


Figure 78 – Key notions about design innovation from CS1 superimposed onto the conceptual framework of an amplified mindset of design

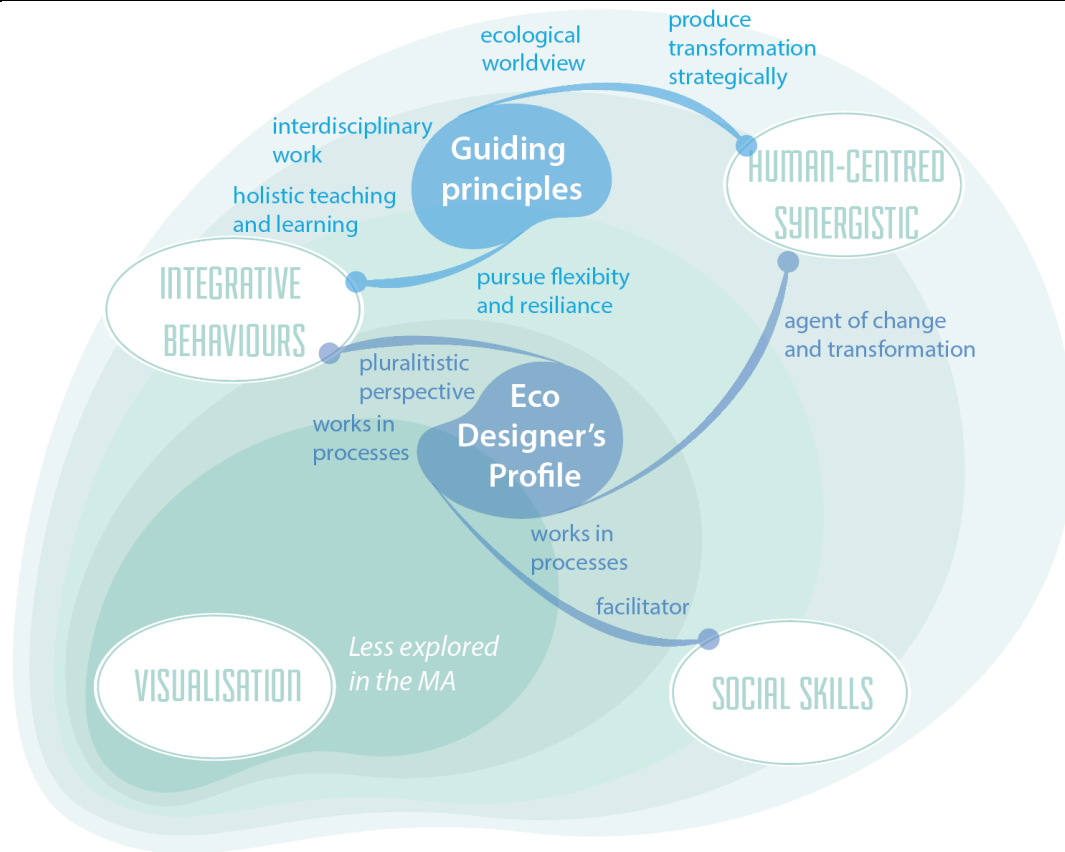


Figure 79 – Themes of CS2 superimposed onto the conceptual framework of an amplified mindset of design

– **Reflections on the process**

This section expanded on the analysis process of CS1 and CS2 simultaneously as both followed a similar process, with a divergent point during phase 3. Although each case was analysed separately, the analysis process was similar and refined from CS1 to CS2 in a learning-by-doing manner (Boyatzis 1998). A significant moment of refinement in phase 3 led to differences in the subsequent phases for both cases, also showing a different arrangement from Braun and Clarke's (2006) process (see Table 22). The divergence of analysis processes in phase 3 resulted, as noted above, from the smaller body of data of CS2 in comparison with CS1, as well as a refinement of the approach from CS1 to CS2 which meant I was not trying to fit the data into pre-defined codes from the start, leading to the creation of more accurate initial themes which with few changes constituted CS2's final themes.

Moreover, this process of thematic analysis and the variety of iterations with the data allowed me to alternate and iterate between the whole data set and specific aspects of the themes of each case to maintain the context of the cases (Saldaña 2009). From the perspective of this research, this iteration between general and detailed information led to a funnelling towards the essence of each case.

Iterating between digital and manual processes

The iteration between digital and manual processes of analysis served various purposes in this research. The manual processes aimed to support the creation of initial themes and reflections on data in a more exploratory and intuitive form, while the use of digital tools served to consolidate tentative and final themes. An exception to this was the starting point of this process using the NVivo software to assist in organising and navigating the raw data to generate initial codes. The manual coding that followed the initial coding in NVivo allowed me to be deeply immersed in the data. Printing all the codes and sorting them physically on corkboards helped me to physically grasp the contents of each code and see simultaneously the text annotations and highlights, leading to the creation of the initial diagrams that captured the essence of each code (for CS1) and theme (for CS1 and CS2). The initial diagrams (hand-drawn in CS1, digital in CS2) prompted the writing of descriptive texts for each code and theme which led to the creation of final digital thematic maps, followed by final descriptive texts. A later phase of analysis (expanded in section 5.6) enabled comparing and contrasting the cases, outlining the sources and references of each case, looking for points of contact and distinction.

Seeking quality

This section addresses issues of reliability and quality. Fundamentally, as the fieldwork in this research is largely informed by an ethnographic perspective, this research aligns itself with the view espoused by for example Fetterman (2008) that finding themes or patterns (the purpose of thematic analysis) constitutes a form of reliability by itself. The following highlights the procedures undertaken to ensure the quality of the analysis processes outlined above. These included my active role during the analysis, the equal attention given to the whole data set, and consistency of judgement to generate valid themes. Firstly, as principles for ensuring the quality of this analysis process, I sought to take an active role in interpreting and generating codes and themes (Braun and Clarke 2006: 96) instead of assuming that the themes would emerge. Secondly, to ensure a good thematic analysis process, equal attention was given to the whole data set in this research (Braun and Clarke 2006). Examples of how this was done included the use of holistic and simultaneous coding strategies in phase 2, and a search for accuracy in the process through iterations between the different codes, the different themes and raw data, and re-coding the data when necessary (Dey 1993) in phases 3 and 4. Thirdly, the use of holistic coding in phase 2 allowed me to observe the same issues in different data sources showing various takes on one topic, which contributed to the generation of valid themes and to the consistency of judgement in this process (Boyatzis 1998). This strategy led to reaching more accurate findings (Creswell 2014).

Furthermore, during phase 2 another form of ensuring the quality of this analysis included maintaining contextual aspects of the cases by coding bigger passages of data (Creswell and Miller 2000) as seen in Figure 59, for example. Additionally, and contributing to the validity of the analysis, the descriptive texts of the codes and themes (see samples in Figure 68 and Figure 69) produced in phases 3 and 4

highlighted existing connections with other codes and themes, showing coherence between the themes of each case (Braun and Clark 2006).

On the research questions

The findings resulting from this analysis process led me to question the suitability of the sub-research-question directly linked with the case studies, that is, “How does teaching happen in these postgraduate design programmes?” The findings of this analysis can be understood as comprising the characteristics of each case study with a focus not exclusively related to teaching methods or pedagogies. Instead, these revealed primarily underlying notions that inform each programme and a few aspects related to teaching. Therefore a more suitable sub-research-question would be: “What characterises these postgraduate programmes?” (see final research questions in section 6.1). Additionally, the amplified mindset of design is offered in this thesis through a conceptual framework that comprises its characteristics. Therefore, comparing the characteristics of the case studies with the characteristics of the conceptual framework is more accurate due to the nature of the elements being compared.

This analytical process produced interim findings in this research as these were intended to inform the creation of an educational approach for the development of an amplified mindset of design. With regard to the main research question (final version in section 6.1)—How can distinct approaches to postgraduate design education help future designers develop an amplified mindset?— the case studies intended to partially answer this question from existing approaches to design education, and this research’s proposal of a layout for a Masters programme (see section 7.2) aimed to expand the answer by developing a specific approach to an amplified mindset of design and contributing to the advancement of design education.

Answering the sub-question directly linked with the case studies, “What characterises these postgraduate programmes?”, this analysis process identified the guiding principles of each Masters programme, and the key notions related to their design specialisms. This information allowed me to identify the distinct aspects of each case that related to an amplified mindset of design. Moreover, other themes including teaching methods, for example, were harnessed to contribute to the design of the Masters programme proposed in this research. The findings from this process will be explored and detailed below in sections 5.2 and 5.3.

5.2 – Case Study 1: interim findings

The findings to be presented next resulted from the analysis of 32 data sources (see Table 18) which ranged from interview transcripts, field notes, official and public documents, and documents produced by students. These had two purposes in this research. First, the distinct aspects of this case were translated into foundational guiding principles and notions about design innovation, as the basis for the work developed in the MDes Design Innovation, and were also

interpreted against the amplified mindset of design to find the amplified character of this case. Secondly, the findings were used to assist the development of this thesis' Masters programme for an amplified mindset of design.

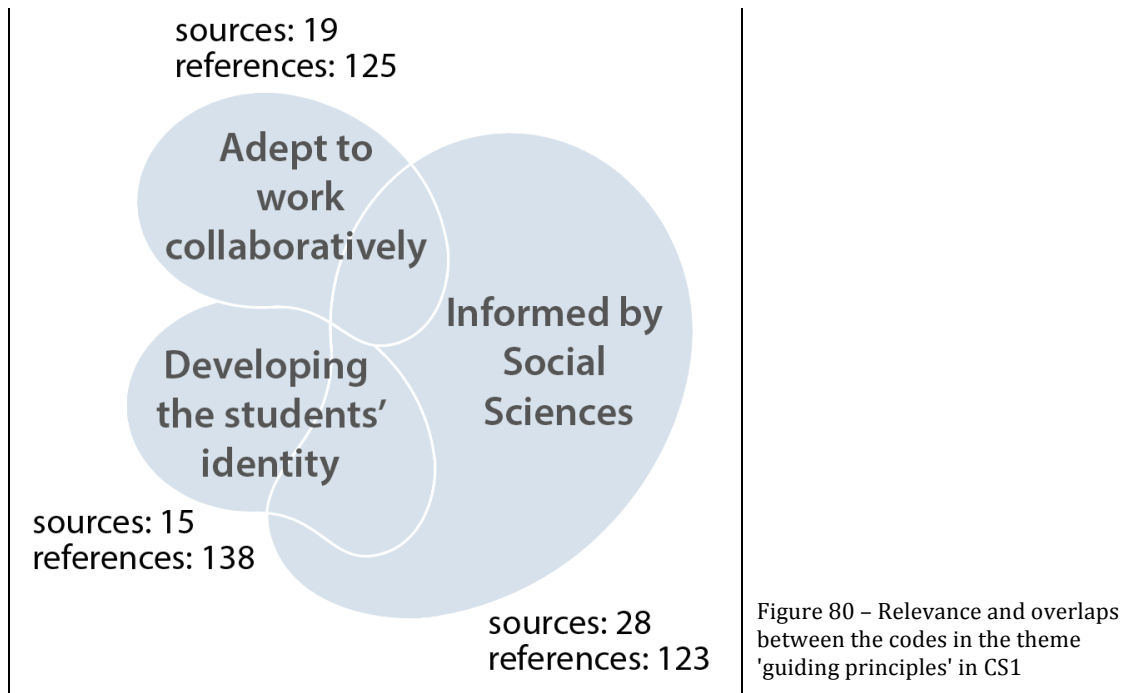
Throughout the presentation of the findings the voices of the participants are prominent as evidence/counter-evidence of the claims made in the programme's documents and in the aspirations expressed by the programme leader. Following Miles and Huberman (1994), after the analysis process was complete, I verified the findings and revisited the data sources to verify the consistency of the findings presented below.

– **Guiding principles**

The guiding principles of this case (“adept at working collaboratively”, “informed by social sciences”, and “developing the student’s identity”) represent the foundation that guides the programme’s approach to teaching design innovation, along with the key notions about design innovation to be presented in the next section. A summary of the main characteristics of each guiding principle is offered in Table 23, indicating the number of data sources and references used to establish the significance of each principle in this case study (Miles and Huberman 1994). The significance and overlap of this case’s guiding principles is depicted in Figure 80 and it shows that the principle “informed by social sciences” has a significant influence on the remaining principles. The term social sciences as used in CS1 was identified by this research as illustrating an approach informed by sociology.

GUIDING PRINCIPLES Data sources: 28 / References: 386	This theme represents the set of foundational principles of this Masters programme that guides the programme’s approach to teaching design innovation. This theme and the theme of key notions about design innovation provide the foundation for the work developed in the Masters.
Codes	Summary
Adept at working collaboratively Data sources: 19 / References: 125	<ul style="list-style-type: none"> – A practice-based approach – Developing a pluralistic mindset in the students.
Informed by social sciences Data sources: 28 / References: 123	<ul style="list-style-type: none"> – Uses research methodologies from social sciences – Considers the ethics of a social approach to design projects – Studio-projects have a core focus on people and society – Pursues a (social) value-based approach to design innovation
Developing the student’s identity Data sources: 15 / References: 138	<ul style="list-style-type: none"> – Encourages the development of reflective skills and critical awareness in the students – Bridges practice and theory

Table 23 – Summary of the guiding principles of CS1



Guiding principle: Adept at working collaboratively

Being adept at working collaboratively was expressed in this Masters programme's practice-based approach and in the work towards the development of pluralist thinking in the students.

Practice-based approach

The practice-based approach of the MDes Design Innovation, was found in three aspects of the programme: Firstly, in the format of teaching and learning, which was studio-based and where work is mostly developed in groups. The workshops and courses on the programme revolve around studio work, and introduce knowledge that can advance the students' projects. These social and structural dynamics can be seen as providing the students with the confidence to develop as professionals, which relates this guiding principle with the development of the student's identity found in Figure 80, and is exemplified in the following data extract:

It's a nice thing about being in the studios as well, you get exposure to different people, that's very precious. And it gives you confidence. It gives you confidence in that you can make up your own [pause] you know, by relating to other people. So it's having confidence in your ideas if you can go and say, 'Well look, this is what I want.' And, 'Yes I think it's a good idea because...'.
Student i3

Secondly, the types of projects the students develop in the studio are live projects developed in groups. In Stages one and two, students are immersed in real contexts working collaboratively with stakeholders from multinational

corporations, public or third sectors. Depending on their major project, in Stage three some students also seek to pro-actively engage with real contexts because “you learn more” (student i5).

In the MDes Design Innovation, project briefs tackle issues of a collaborative nature and require collaborative work. For example, in Stage one the project briefs asked students to explore the ‘The Personal and Social Dimension of Digital Wallets’, and the ‘Internet of Things: Smart Villages, Smart Cities’. And in Stage three the students’ self-initiated projects tackled themes that included pedestrian experiences where the student worked closely with pedestrians and their routes in the city (Personal Process Journal, student i2), or a co-designed educational approach for young adults to be more active in society (Personal Process Journal, student i4). These live projects can be taken as experiential learning, exemplified in the extract below, where students learn to adapt their approaches when engaging with real audiences.

[...] but it’s different to learn from practice, because through the practice, you know more details about how to do that and what problems you might meet when doing the process, so actually, you know generally about how it works and why you need to do that, but through the practice you actually learn more and you can reflect the process, and to learn from the reflection.

Student i5

Thirdly, the development of industry-ready graduates is an aspiration of the programme, promoted by the close contact with organisations and professionals from outside the programme, and the variety of live-projects. To facilitate this aspiration, guest speakers are invited to visit, comment and engage with the students and their projects. Although this is not new to design programmes (it is common for design lecturers to be practitioners), in this Masters programme this aspect is accentuated and adds to the students’ exposure to professionals from other fields and to a variety of live projects. The value of such exposure is expressed in the following data extract, in which the student can be seen to value an insider’s view of industry:

I think we had a few workshops with -----, yeah, I think that was a very special experience for me, especially his experience from this industry (...) he also explained the process from his professional experience, so you understand how it works more easily through the practice, and yeah, so you see how the theory works, and how he did from his professional practice (...) And it was actually quite exciting, about to have someone from the professional, from the industry to come in to teach us.

Student i5.

This close contact with industry was seen in CS1 as equipping the students with practical knowledge resulting from conversations with practitioners and working practices that included, for example, in Stage one, to delivering a final presentation of their projects to Tesco Bank or Toshiba (Stage 1, project briefs). Another aspect of this industry readiness can be observed in the diversity of projects undertaken in the programme, as explained in the data extract below:

We do live projects in stage one and stage two. In live projects, in stage one they are always about technology and they have always been so far, and I would quite like to retain this, they are always with commercial organisations. (...) In stage two we tend to

work with either public sector or third sector organisations. So ----- Government, Alzheimer -----, social entrepreneurs, some charities,... (...) But when they leave they have two live projects in their folio and one personal project. The live projects are usually with a multi-national corporation and a significant public sector body, like the ---- -- Government and they can evidence collaborative working, for which there is huge demand in the market place.

Academic staff member h2g

Developing pluralist thinking

The theme of being adept at working collaboratively in this Masters programme was also expressed in the development of pluralist thinking in the students through the different forms of collaboration fostered in the programme, and the consideration of multiple perspectives on a given context or issue. This pluralistic thinking represents an advanced epistemic position explored in educational literature by Perry (1970) and Belenky et al. (1986).

In the MDes Design Innovation students were exposed to five different forms of collaboration, highlighted in Table 24, which can be said to develop critical awareness in the students from the exposure to different ideas and mindsets.

Or I think, you know, that the kind of critical awareness that you develop just by exposure to different ideas and I definitely notice that when I look back now. I think, 'God, my critical awareness of certain things is much better.'

Student i3

Type of collaboration	Detail
Student / Student	<ul style="list-style-type: none"> – Different backgrounds (culturally and disciplinary) <p>In Design Innovation we don't necessarily recruit students from design backgrounds, so therefore we are challenged by the fact that we've got people coming from, I don't know, IT, ethnography, you know, all sorts of different backgrounds we've had.</p> <p>Academic staff member b3i</p> <ul style="list-style-type: none"> – Stage 1: working groups from different specialisms – Stage 2: working groups from the same specialism (service design, citizenship and environmental design) answering to the same brief to generate specialism-oriented solutions
Student / Different departments within the school	<ul style="list-style-type: none"> – Elective disciplines can be done across departments (School of Architecture, School of Fine-Art, etc.)
Student / Teaching staff	<ul style="list-style-type: none"> – Some lecturers expose students to concepts or philosophies – and debate these with them – that can increase the student's motivation and lead to the development of their identity as designers. <p>And initially he was very much about developing the digital tool, but by introducing those texts and slowly</p>

	<p>introducing a particular philosophy that I think is relevant to his approach, the whole thing transformed so that he came to the point where he had a coherent project and something that was a much more meaningful contribution than what it would have been otherwise, if he had just gone about developing the digital tool. Academic staff member d1b</p> <ul style="list-style-type: none"> - From diverse design and non-design areas; some lecturers are practitioners and bring their experience from industry into the programme
Student / Other Institutions and professionals	<ul style="list-style-type: none"> - During Winter School <ul style="list-style-type: none"> o Work with other schools from around the world (KISD, Universidade of Aveiro, and Parsons School of Design, for example) o Inter-schools working groups of students <p>So we work with New York and we work with Tokyo and the students are aware that other people are working on similar briefs with the same companies. Academic staff member h2g</p> <ul style="list-style-type: none"> - In the live projects: <ul style="list-style-type: none"> o Third sector o Volunteer sector o Public sector (government, charities, non-profit organisations)
Student / Project's audiences and users	<p>For example, just working with small things like engagement tools. I had never done that within graphic design. That was never really...is more of a dialogue between the client and the designer, in a sense. And you're kind of evaluating the design but from different standards. So for me, it was really eye opening to get to view design from a different perspective. Even though in a bit of a crash course, maybe. Student i1</p>

Table 24 – Different types of collaboration found in CS1

These forms of collaborative work, which evidence the guiding principle of being adept at working collaboratively, led students to consider the multi-relational, diverse, and contradictory perspectives of a given context or issue. This required developing mature epistemic beliefs suited to dealing with complexity, as is also the case with the amplified mindset of design (MacLellan 2015). Such beliefs are expressed in the Degree Show Booklet in the voice of one member of academic staff, saying that design innovation is a practice that is “growing, ever-more intermingled with social, and economic considerations, ecological consequences or simply competing voices and opinions” (Degree Show Booklet, Academic Staff Member h2g).

The development of pluralistic thinking in the students was specifically found in a course called “Ways of Seeing” where students were asked to voice their opinions about complex issues and relate them with their design practice:

These sessions are an opportunity to discuss complex issues and become more familiar with a plurality of answers, to connect with design and the multiple narratives and multiple interactions that it encounters in the design process. The objective of these sessions is to link with how we think about design and relate with the material world (objects, services, events,...).

Fieldnotes on the course Ways of Seeing, paraphrasing the Lecturer

In stage three some students also made explicit the importance of considering a plurality of aspects to enrich their projects, as seen in the following passage:

By studying both the professional context and the individual experience simultaneously, the interconnection and balance between research and practice became of primary importance within this project. The intention is to ensure that more types of people, experiences, and journeys are considered within the design processes used by professionals that work on the urban, public realm.

Personal Process Journal, student i2

Overlaps with other codes/themes

The relationships between this theme (“adept at working collaboratively”) with the other guiding principles (“informed by social sciences” and “developing the student’s identity”) evidence the overlaps depicted in Figure 80 and cohesion between the different principles. A relationship was also identified between the principle “adept at working collaboratively” and the role of the designer as facilitator which was part of the theme “key notions about design innovation”. The collaborative practice-based approach of this Masters programme, and its user-led approach in the live projects, focused on interrogating social reality, addressing and responding to real issues in new ways (from the programme’s aims), which highlights a relationship between this theme and the guiding principle “informed by social sciences”.

[...] design innovation as a tool for creative collaboration and the generation of social and economic value within a specific context or domain.

Programme Specifications document

Projects such as these fuse the activity of design with the aspirations of a more democratic society and seek to explore how opportunity can be generated, experienced and shared with others. In this manner the portfolio of (...) Design Innovation, contribute to civic generation, to a dialogue with wider public regarding how we may wish to live.

Degree Show Booklet, Academic Staff member h2g

The different forms of collaboration were perceived in this programme as having a positive impact on the students’ confidence in their (unfinished) ideas, contributing to the development of their identities.

Finally, a relationship between collaborative work, the role of the designer as a facilitator and the type of outcomes produced was identified during the analysis. Collaboration is in this programme a way of expanding the traditional subject matter towards a more participative way of working where the designer-facilitator role is key to creating and running co-design/collaborative processes.

Guiding principle: Informed by Social Sciences

This guiding principle is about an approach to design innovation that makes use of research methodologies from social sciences, and considers the ethics of such an approach. It focused on people and society, and on the creation of (social) value to address complex issues.

Signs of this approach can be found across the MDes Design Innovation: from its department's orientation, to the students' statements of intent upon application to the programme, and in the subjects addressed in the studio projects, for example.

People and cultures are incredibly complex. In this project you will learn how to make sense of this complexity. You will be introduced to ethnographic research methods and the way they inform design by revealing a deeper understanding of people and how they make sense of their world. Ethnographic research lets us see beyond our preconceptions and immerse ourselves in the world and views of others.

Project Brief, stage 1

Using research methodologies from social sciences

The use of social sciences is intended in this programme to give design practice a discursive capacity for critical debate, as expressed in the extracts below:

In particular, graduates will possess the disciplinary expertise conferred by design practice combined with the discursive capacity for critical debate normally associated with the social sciences.

Programme's website text

Designers are not as good at critiquing the world as sociologists, but sociologists are not as good at proposing or prototyping alternative manifestations of the world as designers are. So I think design has its material capacity to manipulate things, both visually and in three or four dimensions (...). But sociology can provide a critical language that design doesn't have, because design tends to be rooted in people's experience and it is not very good at analysing that experience, quite frankly. Sociology or social science can offer a critical language for that, but it doesn't offer a way of testing alternative hypotheses of what might be better and it can't take something back to users (...) I would like to see more of that marriage between the sociological and design practice.

Academic staff member h2g

It was also intended in CS1 to embrace new ways to rethink and tailor design approaches.

Social-Scientific research methods enable designers to tailor their practices to societal changes and diverse markets and, moreover, to conceptualize and develop entirely new forms of practice.

Project Brief, Stage 1

Yeah, so you will start to think what's happening behind the behaviour and start to analyse and interpret to see whether there's any potential design opportunity.

Student i4

Social research methodologies were used in this programme to help students develop self-reflection regarding their roles as designers.

[...] the key focus: understanding where the design sits in the societal context. That's where I would place it. I guess that that tends to draw me towards policy-making, maybe a kind of designer as a facilitator looking to creating dialogues, creating communication, more so than product or service design.

Student i1

At the end of this Master's Degree I believe Design is important to the intellectual and practical life of any individual, especially as a member of a society, so I found my role as a Designer is to investigate how Design can have a foremost role in society, making it more dynamic, safe, comfortable, organized, and also awakening creativity and new ways of thinking in everyone.

Student i4

Considering the ethics of a social approach in design projects

To be informed by social sciences in this programme means to consider the ethics of a social approach to design projects, which is related to the notion of design innovation "at the service of society" in this programme. The consideration of ethics in the programme is reflected in:

- The experiential learning that happens during fieldwork (How to deal with people?);

We tried different ways to approach the homeless person, but it was very difficult, especially when you spoke to those people and you showed them those tools, they got frightened, 'What are you trying to do? What is this?' so then, we changed the approach, we tried to start from just casually talk, just talk some simple questions and to go deeper and deeper, and that works better than the engagement tools eventually.

Student i5

- The interrogation of social reality and suggestion of preferred futures, and;

The Internet of Things (IoT) can undoubtedly facilitate such designs and, in this project, you are being asked to consider ways in which the IoT can be used to both reveal and address the development of dynamics which will, in all likelihood, connect people-people, people-things, and things-things. More Specifically, you are being asked to speculate ways in which the IoT can connect rural and urban areas, and shape design experiences in one of the three following contexts: food, sharing economy/travelling and drones.

Project Brief, Stage 1

- The relationship aspired to with others during collaborative work.

The programme seeks to develop design practitioners and professionals who are capable of operating in collaborative working environments, utilising the skills and knowledge of others and responding in a reflective and sympathetic manner to the demands, constraints and opportunities afforded by the context within which design practice occurs.

Programme Specifications Document

I think the other thing that relates to ethics is also just teaching people about the ethics of research and how you deal with other people, how you respect their confidentiality, how you reassure them that their information will be treated respectfully, confidentially, anonymised (...). I think for many, many students they've never thought about that before. And they see it, at least initially, as either an inconvenience or an irrelevance.

Because they are so used to, 'I have to get to the end of the project, I have to finish the project. I have to refine the artefact and I have design the solution to the problem.
Academic staff member h2g

For students, at first, there was an unexpected relationship between ethics and design innovation, and a need more from staff members to keep improving the ethical skills/thinking in students.

One of the things is the engagement and the kind of ethical aspect of what we're asking students to do, and a lot of times I feel that the research is diluted by not significant-enough types of engagement with user groups.(...) this year's PPJs, the few that I read, students did refer to workshops on ethics and I think a lot of them found that the ethics workshop was quite empowering because I think it's something they all fear an we're all quite uncomfortable with 'What if we get it wrong? What if we do something offensive? What if somebody complains about us? What if this comes back to haunt me?' So it was interesting. A few of the students referred to the workshops and any kind of input into ethics was very useful.

Academic staff member b3i

A core focus on people and society

The studio projects, which were central to this programme, had a core focus on people and society, by:

- Promoting social ways of working (in the studio and in the type of projects undertaken);
- Seeking to create person-centred solutions, taking into account subjective aspects such as emotions;

The best designers can help public or private organisations or communities connect and establish a dialogue with users, shaping solutions and enabling sustainable innovation.
Study Guide

[...] especially all of the projects in [here], somehow, you would notice more about the emotional aspect for people, especially when you're doing research, you observe how people behave and what their emotional reaction is.

Student i5

- Developing a deep understanding of people's lives to find and generate design opportunities which consider the day-to-day experiences of people as a focal point for the students' projects, looking at communities and other types of engagement with people.

The intention of this project is to ensure that more types of people, experiences, and journeys are recognised and considered within the design processes used by professionals working on the urban public realm.

Personal Process Journal, Student i2

So the shift afterwards was: instead of looking at what people were using, to make decisions as they walked, rather than environmental cues, or cues in general, it shifted to why they were making decisions, which is I guess what I was trying to tell you about before, like the experience not being driven by the space but by the person. And so being able to articulate the 'what' to 'why', like as simply as that!

Student i2

Pursuing a (social) value-based approach to design innovation

To be informed by social sciences in this programme includes pursuing a (social) value-based approach to design innovation, where:

- Value is seen from a pluralistic perspective as having different forms and meanings for different people and contexts;

It can be a technological improvement of something. It can be an economic creation of value or it can be a social creation of value. I think it's about opening up to students not just an understanding of what a user is or how you draw a stakeholder map, but understanding that for different people, or different types of user or stakeholder on that map, that value exists in different forms.

Academic staff member h2g

- The focus is on social value over other forms of value. However, it seems confusing to read the quote above and the quote below from the same interviewee, which speaks of the creation of economic value as well as social value. But this social value orientation was inferred from the remaining data as signifying an aspiration to focus on social value even when the projects asked for economic or technological solutions.

[...] attain an understanding of design innovation as a tool for creative collaboration and the generation of social and economic value within a specific context or domain[.]

Programme Specifications document

- Students sought to uncover values of individual and collective wellbeing in their projects.

It was very good to understand all the steps and how we can connect to people and how can we take insights from what they say to us and what we observe, and then transform it into something that is good for the people. Whilst at the same time it is a design project.

Student i4

Ethnography research provides rich insights into how people make sense of their world. For example, people incorporate habits and unconscious behaviours into their lives -- but some such behaviours or interactions are large and public while others are small and private. By revealing the artefacts and behaviours that reflect people's lives, we learn what they value and hold dear. As a result, we can design products, services and environments that create meaningful and desirable experiences for people now and in a near future.

Project Brief, stage 1

- This indicates an underlying sense of mission in design innovation to create (social) value from the perspectives of others

I now understand a lot more about what design is and how design can improve the lives of other people and even yourself.

Student i4

Because not every design project tend[s] to create a radical change to the system, and sometimes you just tweak a little bit from the emotional aspect for a better impactful result. And I think, yeah, that's what I've learnt from here. How to tweak a little bit, but create a better impact to the result?

Student i5

An approach can be found across the MDes Design Innovation

Across the programme there were signs of a social sciences disposition (a concept that is relevant for learning and will be discussed in section 6.2) in design innovation, as follows:

- The programme's approach informed by social sciences can be found in the focus of its department (Institute of Design Innovation) which seeks to:
 - Create contexts in which people can flourish (across fields)
 - Develop creative communities to effect transformational change
 - Develop community-based solutions (civic, academic, business) and person-centred solutions
- The students' statements of intent, submitted during their application for a place on the Masters programme, showed the students' inclination towards addressing social issues through design.
- The topics of studio projects included the investigation of "creative collectives" and ageing, for example.
-
- The project areas ranged from public policy, public services, citizenship and social advocacy, to social enterprise, the volunteer sector and corporate multinationals, among others.
-
- Examples of the subjects of individual students' projects in term 3 included:
 - Demographics and the experience of food retails
 - Homeless people
 - Education for societal participation of young adults

Overlaps with other codes/themes

The ethical considerations of design practice in CS1 naturally relate to and influence the development of the students' identity as designers (a separate theme). Such considerations lead students to reflect on and question their practice, enabling it to evolve. The following data extract exemplifies this aspect:

I think it's almost a little bit funny because they've placed me in a group where I was coming from a Marxist perspective and they placed me in a group to with [Bank name] who are famous for apartheid funding, guns, weapons providers, tax dodging... (...) "I'm not going. No. This is not what I want to be doing." But and then at the same time: "Oh yeah, you need to consider the ethics". And, well (laughs)... I was a little bit bitter, I'm not going to lie but I think that's where I started from. That's where my final project started from. It was that tension between the two and I never really managed to find

neither a bridge nor a language to speak about it. I don't know why but it took me a while, to actually dare to ask that question.

Student e1

This research established a relationship between this guiding principle (“informed by social sciences”) and “key notions about design innovation” from the following:

- Design innovation was seen as a medium for social interaction and collaboration, in the co-production of solutions to complex problems;
- The designer was seen as a facilitator for society following a social-scientific approach to co-creating solutions;
- The outcomes of design innovation created in this programme intended to create value for society through new tools, methods and strategies. This programme also considered the development of a critical vocabulary to create dialogue: social, economic, technological and political (Website text).

Guiding Principle: Developing the Student's Identity

Developing the student's identity in this programme included encouraging the development of reflective skills and critical awareness in the students in relation to design innovation and their roles as designers, and bridging practice and theory by exposing students to theory and guiding them to create links with their design practice. This guiding principle can be understood as a tacit principle in this programme.

Develop the student's reflective skills and critical awareness

To develop the students' identities in this programme happened through asking students to be aware of and reflect on:

- Their design processes in relation to collaborative practices;
 - In summary, based on the findings, an innovative approach to research should:
 - Be driven by people, experience, and behaviour
 - Recognise walking as a network of decision points and moments
 - Consider the activity of walking as a continuous, connected experience
 - Not just collect data on a place, but consider the analysis of findings to create design outputs and strategies of quality
 - Work in many contexts across relevant disciplines.

Personal Process Journal, Student i2

- Their roles as designers;

Further, this essay advocates that a citizen-designer is anti-capitalist. In recent years there has arguably been a shift within the design scene, more and more interest is being put on sustainable, conscious design innovation and social design, both in professional and academic spheres.

Research Report, Student i1

Yeah, and it's just sort of actively reflecting through the whole thing, not just on what your process is, but on where, I fit into it as a designer. So then by third term, I was conscious of when my thinking was shifting, within the research....

Student i2

– Design innovation as a discipline.

With this change of direction, I asked myself if Design could still be an approach to deliver life experience skills to the students. From my personal experience, Design gave me the capacities that I consider to be life experience skills, so, I prepared some primary research through semi-structured interviews with designers, to understand if we shared the same opinion.

Personal Process Journal, Student i4

The students' self-reflection was intended to contribute to the development of a sense of confidence, as well as an awareness of personal thoughts, processes, and shifts happening in them.

But I think that most important was the self-reflection, because you have to be very critical and reflective about yourself to be able to do this project. And not only about yourself but also about your project, because you don't have a lot of communication with other people so you have to be able to criticise your project and see whether it is bad or it needs changing.

Student i4

Like I was saying with the PPJs, the sense of being stretched and you sometimes mentally react against it when it's happening to you and then when you look back and you go, 'Oh actually that was me developing. I was complaining like hell! Because I was uncomfortable and of course actually it was a good thing.' It can be quite hard to distinguish that.

Student i3

Although the students' do not always understand their value, the Personal Process Journals were central tools for reflection in this programme. The students reflect on their project processes, on themselves, and on their role as designers.

They don't understand why they're being asked – this is my own reading of the situation, they don't understand why they're being asked to create them. Although of course over time [they] seem to gain an understanding but not initially.

Academic staff member d1b

The core project of Stage three was an individual project in which students could demonstrate their critical thinking, and reflect and position themselves in relation to their education and future practice.

Stage three becomes a space where they take the skills and the experiences of stages one and two and then if they can harness those things as an identity project almost. It still has to be a design project, but (...) I want to see people thinking, reflecting, being critical, arriving at some form of self-understanding either in relation to education, 'Do I do a PhD after I've finished here?' Or in terms of industry, 'Where would I get a job if I took this skill set?' Or else in a path somewhere in between saying, 'Well, I'm not ready for a PhD or I want to do a PhD, I don't think I want to work in industry, even in some of the emerging career positions, I want to do something different with design skills that there is no clear market for just yet'.

Academic staff member h2g

Bridging practice and theory.

This MDes Design Innovation focused on bridging practice and theory, which was observed in the programme's core projects which consists of research-based practice in stages one and two, and practice-based research in stage 3 individual projects. This bridge was interpreted as having an impact on the development of the student's identity. Students were exposed to theoretical and philosophical concepts during workshops, electives, and courses, and asked/guided to create links with their design practice.

So I think, yeah, because he also explained the process from his professional experience, so you understand how it works more easily through the practice, and yeah, so you see how the theory works, and how he did from his professional practice, so you got to compare between the theory and the practice, I think that's probably the high point.
Student i5

In this programme, the reflection on theoretical constructs was aimed at developing the students' capacity to:

- Construct arguments in their projects, and display analytical and critical thinking;

So I did one session early on in the second elective, which asked students to consider what reality meant to them, in groups. So it was basically an ontological exercise that they have to go about defining what the real world is for them. That particular exercise seemed to me to be very influential for a certain number of students in that it showed them or it introduced them to the idea that things didn't necessarily need to be looked at from the objective perspective, or have to meet the objective criteria in order to be something that a claim could be made against. (...) Yeah, I have seen – and it's just simply introducing students, this was two particular students, I introduced them to particular texts, ones that I thought would be meaningful to them.
Academic staff member d1b

Or I think, that the kind of critical awareness that you develop just by exposure to different ideas and I definitely notice that when I look back now. I think, 'God, my critical awareness of certain things is much better.' (...) Ideas should be... I think they could do a lot more to improve the critical process. I think you could, like again in Sense Space [elective] when you pin things up and you have to talk about it in a group it creates identity in the group. And it also, it encourages the critical process. I think that was a lot more mature there.
Student i3

- Become aware of their own constructs;

So you have those kind of bad perceptions about those people, and so, I was quite scared in the beginning, especially in the research process, you have to get contact with those people, you have to talk to them, and you will have to find them on the street.
Student i5

- Reflect on new ways of seeing the world;
- Reflect on the consequences of chosen philosophical approaches in their practice;
- Become more confident with less formulated, emerging areas such as design innovation.

On a professional level, continuing to breakdown disciplinary boundaries within my own work in the search of a better way to approach design will be central to my future practice.

Student i2

I expected that the research process I've learned here would be more systematic, more organised, but I think the fact is, it's not. It's kind of chaos. Sometimes I'm curious is that the nature of the research process? After this programme, being involved in so many projects, I start to understand it. There's always something out of your expectations, so it's more about how you deal with the problems you met during the research process.

Student i5

Overlaps with other codes/themes

Design research and design practice were seen in this programme as socially engaged, user led, and collaborative. This raised ethical issues that students were asked to consider, which could foster students' self-reflection regarding their identity. Moreover, a close relationship can be established between the students' development of identity and the collaborative work developed in this Masters programme. The intensity of this one-year programme, where students were immersed in live-projects that address complex issues, and where they explored and reflected on theory (design innovation, ontological and epistemological matters, for example) in relation to their practice, also contributed to the development of the students' identities as designers and increased the likelihood of further development of their identity as practitioners in the following years. It should be noted that not all students went through an impactful transformation during the programme, which arguably has to do with the degree of trust and commitment to the programme.

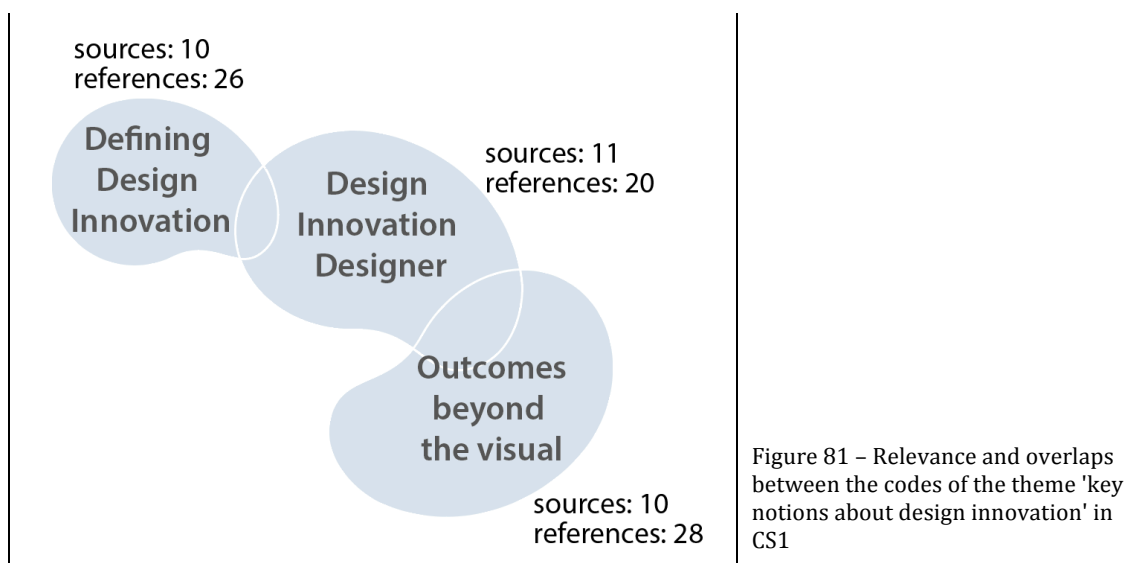
– **Key notions about Design Innovation**

Parallel to the guiding principles just presented, the analysis of CS1 identified the 'key notions about design innovation' ('defining design innovation', 'design innovation designer' and 'outcomes beyond the visual') that inform the MDes Design Innovation. These are the foundational notions that guide the programme's approach to teaching design innovation. A summary of the main characteristics of each key notion is offered in Table 25, indicating the number of data sources and references used to establish the significance of each notion in this case. The significance and overlap of the 'key notions about design innovation' are depicted in Figure 81, showing that the notion of the 'design innovation designer' bridges the definition of design innovation and the outcomes that are produced.

<p>KEY NOTIONS ABOUT DESIGN INNOVATION</p> <p>Data sources: 11 / References: 74</p>	<p>This theme represents a set of foundational notions about Design Innovation that guides the programme's approach to teaching Design Innovation.</p> <p>This theme and the theme 'guiding principles' provide the foundation for the work developed in the Masters.</p>
Codes	Summary

Defining Design Innovation Data sources: 10 / References: 26	<ul style="list-style-type: none"> – Strategic – Dynamic: a practice that reinvents itself – Cross-disciplinary
Design Innovation Designer Data sources: 11 / References: 20	<ul style="list-style-type: none"> – Operates between disciplines – Reinvents their practices – Facilitator
Outcomes beyond the visual Data sources: 10 / References: 28	<ul style="list-style-type: none"> – Research-informed and conceptually driven – Reflect an adaptation to contexts and people

Table 25 – Summary of the key notions about design innovation in CS1



Key notion: Defining design innovation

Design innovation was found to be defined in this Masters programme as strategic, dynamic, and cross-disciplinary.

Design Innovation as strategic

The notion of design innovation as strategic in CS1 is reflected in the programme's focus on creating (social) value, and on seeding cultural shifts and shifts in worldviews.

'Design is a process, a way of approaching challenges which designers and non-designers alike can learn to use to create positive change in the world.' (Diego Rodriquez of IDEO, Business Week.)
 Study Guide

Here, the use of a social sciences orientation served to augment the impact of designers' work socially, culturally and commercially in wider territories.

Also, to understand a different perspective of design from what I had. So it was very good to [pause] understand how design could be impactful in the world, like how something so small can – if you make a small change in something then it can be impactful on other people.

Student i4

Design Innovation as dynamic

Design innovation is seen as a dynamic practice that reflects an attitude more than an outcome; a way of seeing, thinking about and acting upon the world.

The design practice of CS1 sought to reinvent itself, adapting and changing to contexts and people by having no fixed way of exploring and responding to complexity.

Design innovation presents the unique opportunity to focus on examining questions of innovating practice and discipline across various types of design.

Personal Process Journal, Student i2

We don't just say this is Design Innovation full stop or this is Service Design full stop. It's about saying these skills are themselves transferable and they will evolve and really what's most important is that people learn how to learn.

Academic staff member h2g

Students reflected and developed through a shared learning experience, signalling the presence of experiential learning in the programme. In the words of the programme leader, this dynamic approach to design innovation was intended to pave the way for an epistemological practice by examining, critiquing and suggesting contemporary definitions of design practice.

So I think, again, especially in Citizenship, but across all the programmes, I would like to see more of that marriage between the sociological and design practice as an emerging epistemological practice, as a way of creating knowledge or finding a new form for knowledge to be generated in and communicated in.

Academic staff h2g

Design innovation as cross-disciplinary

A cross-disciplinary approach to design was seen in this programme as a way of tackling the complexity the world.

Design Innovation is a discipline that creatively engages people in co-producing solutions to complex problems.

Degree Show Booklet, academic staff member h2g

This notion reinforced the programme's aspiration to seed pluralistic thinking in its students (expanded on the previous section) taking into account the social, economic, technological, and ecological aspects of an issue.

Using design skills/thinking/processes/methods to be socially engaged and understand the context (as stated in the programme specifications), such a vision of cross-disciplinarity intended to surpass traditional disciplinary boundaries as is illustrated by the several data extracts below from students, academic staff and official documents of this Masters programme.

But maybe, actually, maybe that's why I would fit in as an Innovation Designer because I feel like I'm in between disciplines and not in something specific. But I think that's the really exciting, valuable thing about Innovation Design, because you don't need to and you shouldn't sit in your silo, so it's just [...]

Student i2

Our subject matter is quite challenging. It brings in the social, political aspects and it makes us think much more as citizens actually, so I think we design much more with an understanding of our status as citizens than you would necessarily do from traditional design backgrounds where you were maybe just designing an outcome that was born of your own ideas and your own thoughts.

Academic Staff b3i

[...] the issues and situations designers are called upon to practice within are becoming more complex, ever-more intermingled with social and economic considerations, ecological consequences or simply competing voices and opinions

Degree Show Booklet, academic staff member h2g

Key notion: Design Innovation Designer

The design innovation designers are understood in CS1 as facilitators of change that work between disciplines with a systemic view, crafting their approaches to specific contexts and people.

Facilitator

As a facilitator, the designer connects and establishes a dialogue with people to explore and understand their context.

I guess that that tends to draw me towards policy-making, maybe a kind of designer as a facilitator looking to creating dialogues, creating communication, more so than product or service design.

Student i1

From a student's perspective a designer-facilitator works with co-designed solutions in a non-prescriptive way, enabling others to produce change in their lives through a designerly approach.

Yes, I think the part where we worked with other people who are not from our field is something really important in the real world, because we are going to work with companies that are from other areas and it's very good to learn how to deal with them and how to talk to them in the easiest way.

And I think, right now, the role of the designer is more like that of a facilitator. So, it's to talk to the people who don't have such a facility to develop something, and develop their thinking in a certain way. And I think what a designer can do now is to help them think in a certain way and help them develop their dream project, rather than the company just give the designer the brief and they solve it and then design it.

Student i4

Operate between disciplines

To be a design innovation designer in this programme means to operate between disciplines and hold a systemic view regarding responding to both local communities and multinational corporations. For this programme, design

innovation designers reflect, conceptualise and communicate complex problems to others (programme specifications).

But even as a designer it's something that you need – you need to be able to communicate your project to other people, like your clients. So it's something very important.
Student i4

As one member of academic staff explained, design innovation designers are: “somebody who can re-frame their discipline. (...) Who can challenge, if you like, the tenets of the discipline and in actual fact engage with their own discipline in a different way or in fact evolve into new disciplines.” (Academic staff b3i)

This “boundary-less” orientation can be interpreted as the value designers bring to a project and to interdisciplinary work.

The task of transcending one's personal and professional past is a core part of Masters study, of re-imagining the individual's relationship to the discipline and to one's peers.
Degree Show Booklet, Academic staff member h2g

Crafting design approaches

Aligned with the definition of design innovation as a dynamic practice, this programme sees being a design innovation designer as being about reinventing design practices to respond to specific contexts and people. Design innovation designers are seen in this programme as having a portfolio of methods to craft design processes.

It was possible to identify a sense of mission in the notion that design innovation designers work towards empowering people to design their preferred futures. This sense of mission relates to the strategic focus of design innovation as a discipline, and the (social) value-based approach aspect from the guiding principle ‘informed by social sciences’.

Outcomes beyond visual

As a result of the key notions about “design innovation as a discipline” and “design innovation designer”, the outcomes of this practice go beyond the visual and the aesthetic.

Instead, when we imagine “the designer” we must understand someone who practices negotiation, collaboration and co-operative creativity, in addition to giving form to images or materials.
Degree Show Booklet, academic staff member h2g

The outcomes of a design innovation project are diverse, reflecting the programme's focus on adapting to people and complex contexts. They are artefacts/products, environments, tools, methods, processes, experiences, services, and strategies. The following examples from the data set illustrate the previous:

- “Climbing roundel”: a climbing wall to encourage imitative learning in climbing (Project Report, Student i3);
- “Educational workshop as an approach to challenging young adults to be more active in society” (Personal Process Journal, Student i4);
- Retail food service to bring meaningful changes that better fit people’s lives (Personal Process Journal, Student i5);
- “[C]ross-disciplinary method to design for walkability and the pedestrian experience in the urban, public realm.” (Personal Process Journal, Student i2).

– To inspire the creation of a Masters programme

The findings offered in this section include the main challenges found in this programme and specific teaching methods that could contribute to the development of the layout of a Masters programme for an amplified mindset of design, which is the final aim of this thesis. These findings are of a different character from the previous findings, which were aimed at providing the foundational characteristics of the MDes Design Innovation. The focus here was not on the case itself, but on specific elements of the case study to be used by this research. Therefore, it was not intended to find a coherence or relationship between these different codes, whose organisation under a common theme fulfils the instrumental intentions of this case study.

TO INSPIRE A MASTERS PROGRAMME <small>Data sources: 12 / References: 156</small>	This theme aggregates codes that can inspire and that cover aspects to bear in mind when developing this research’s Masters programme for an amplified mindset of design.
Codes	Summary
Challenges <small>Data sources: 8 / References: 105</small>	<ul style="list-style-type: none"> – Personal process journals – Collaborative work – Communication issues
Teaching methods/approaches <small>Data sources: 11 / References: 51</small>	<ul style="list-style-type: none"> – Group based discussions – Course “Ways of Seeing” – Embodiment activities – Ontological exercises – Knowing the students

Table 26 – Summary of the theme “To inspire a Masters programme”

Challenges

This code represents aspects of this case study with which students and teaching staff struggled, and includes reflections on the students' personal process journals, collaborative work and communication issues.

Personal Process Journals

Regarding the layout and content of a Personal Process Journal in this Masters programme, there was a planned lack of definition, to let students develop their own personal reflective writing style. However, this lack of clarity was challenging for the students especially for non-designers, art students, and students from outside the institution as this tool was something rooted in the studio culture of this school of design. As one lecturer pointed out:

And then there are just the expectations around outputs as well. I think there's a huge difficulty around that. Students – and this has come up on a number of occasions actually, they are expected to produce PPJs. They aren't offered examples of what these Project Process Journals are. They're not supposed to see them because that would of course influence – they may imitate them, that's the danger, which means they're not shown them. And there's no formal structure around what they should look like, so no word count is offered, again no examples as I said in terms of design. They don't understand why they're being asked – this is my own reading of the situation, they don't understand why they're being asked to create them.(...) For example, that PPJ exercise I think would be of immense value if that's an expectation that there is some explication around that early on; examples.

Academic staff member d1b

Collaborative work and communication

This challenge within the MDes Design Innovation resulted from the practice-based approach to teaching and the diversity of people, disciplines and sectors that converged in this case. This challenge is not exclusive to this programme, but affects all settings characterised by such diversity.

The diversity of students' backgrounds and nationalities was referred to by the students as a challenge to communication with the academic staff and within the working groups, and as something that could benefit from more attention in the programme, as seen in the extracts below:

Even if they were fantastic designers, even if their work is really well researched they struggle to communicate and they only get 10-15 minutes to present and after that, that's it. I felt that with a group that is multicultural, the course didn't take that into consideration. I felt that the material that was given to us could have been given to us in written format so that the international students might go back home and look through it.

Student i1

Almost everyone comes from different backgrounds, because in studio one, my teammates come from marketing and engineering background, and the other three team members are from a design background. So I think there's a strong tension there, that people fight with each other.

Student i5

Yeah, I think that would actually be useful, even just a discussion, that it is uncomfortable because a lot of the time, when people brought up that they were

uncomfortable with something, it was dismissed, like that's not a thing. But a lot of people were feeling that and so it's important to sort of acknowledge that people are coming from different backgrounds and different comfort levels of dealing with individuals or with a group or with the thing about how to run a workshop. Like that it's pretty key in a lot of approaches but we— with most people never having done that, it's difficult to know what's right or what's appropriate. Especially when you're dealing with actual groups of people that are giving you their time, their obligation to— I mean you can test things but it has to be professional and not wasting their time.

Student i2

It was also a challenge for students to work in groups where individuals had different levels of proficiency in English. The native English speakers or those with better language skills felt they had to work harder to compensate for their colleagues.

I remember that one of my friends, she was in a groups where she was the only one who spoke English as her first language and she ended up having to do all the writing: scripts for everyone for their final presentation.

Student i1

This way of working presented itself as a (cultural) surprise for some students and it was difficult for them to engage and gain access to real communities, because for the majority of students it was the first time they had worked like this. As one member of academic staff reflects:

So that access thing of groups in order for them to test and get a sense of what they could do if they have really good engagement with others, can actually achieve. I think that's the big difficulty. I think we've to some extent, unless it's an organised project where we can provide someone to collaborate and talk with, I think students do find that difficult and I find that aspect to the research is quite thin.

Academic staff b3i

Furthermore, reflections from students and staff on aspects to improve the communication within the programme included the following suggestions:

- Weekly feedback sessions on the projects and individual tutorials;

I think that maybe in stage one or stage two we could have benefited from having individual tutorials so that students who did struggle had some time to catch up on that. And also to have more things written and— — So instead of placing the burden on the student's themselves or placing it on their colleagues. (...) I think I would have liked to see the weekly feedback sessions that we had, especially during stage two, to have more than one tutor.

Student i1

- Formal discussions on key learning moments at end of each term;

I mean, I guess, thinking back to the stage one and two projects. It would have been nice to have a wrap up from those, maybe just began a discussion as a class together of what those learning moments through that term were together, and different than a PPJ, because that's just you talking about your own process because it's useful to hear from other people what their learning moments were because sometimes that could have happened in you and you didn't realise it either. Especially shifting between terms, it would be nice to have one of those discussions.

Student i2

- Formal sessions to explore graphic design principles and visual representation parameters to level up students with no design background.

So obviously some of them won't be a graphic designer but there is the expectation that they come to the course with that skill and of course some will, but many won't. And so perhaps it's on the one hand offering a series of principles around that that can easily be followed, whilst on the other hand, providing them with a set of parameters that they can work outwards from and perhaps adapt.

Academic staff member d1b

Teaching methods/approaches

This code represents teaching methods and approaches that this research found useful to teaching an amplified mindset of design: group based discussions, the course entitled “ways of seeing”, embodiment activities, ontological exercises, and a tool to get to know the students. At the end of this section, the relationship between these findings and their value to teaching an AMD will be examined, bridging this section with the following section which will explore the “guiding principles” and “key notions about design innovation” from an amplified perspective.

Group based discussions

Group based-discussions were a norm in the studio projects and group tutorials. These were recognised by the students as a useful format also in theory courses where theory was used to launch group debates followed by plenary discussions. This was seen by the students, as well as myself while acting as a visiting lecturer, as an effective method to engage students with theory.

The questions that triggered the debates were a very important starting point that brought more structure to the discussion. (...) Everyone's opinions are taken in consideration. (...) We get immediate feedback, which is good. (...) we remember the content because we engage with each other

Focus group on Design Theory course, students' feedback

Course: “Ways of Seeing”

These were short sessions aimed at exploring multiple views on complex questions, such as “What is the afterlife?” Students explored the topic of the session individually and in writing, and communicated their views to the group. There was no debate, only a few explorations of each student's idea. Additionally, the lecturer brought examples from design practice into dialogue with the question being explored, to seed the development of the student's critical thinking on the topic from a design perspective.

Embodiment activities

At the end of the Design Theory Course, each student was asked to produce a simple artefact that demonstrated a theory/theories that they saw as relevant to their own practice, as a starting point for the development of the final essay for the course. The artefacts were discussed in show-and-tell circles of ten students

and one tutor, to help students discuss and develop their ideas for the course assignment. It can be argued that this format and type of activity has the potential to help students engage deeply with the content of the course by allowing them to express themselves in ways other than writing. As I experienced while acting as visiting lecturer for this course, the artefact itself generated more input from the student's peers and tutors. By explaining the artefact, the theories behind it and the relationships with their practice, the students also developed their reflective skills, leading to more productive discussions.

Ontological exercises

In the context of theory-based lectures, there were a number of ontological exercises (based on dialogue), which were experienced by the students as impactful, leading them to reflect upon theory in relation to their practice and their position as designers.

Yeah, and its just sort of giving— to actively reflecting through the whole thing, not just on what your process is, but on where, I fit into it as a designer.
Student i2

Like [lecturer's name] asked in one of the first design theory classes, or maybe it was the elective, I can't remember. I did electives as well in my first term. 'How many of you would want to be a designer? Or think it's a good thing?' I can't remember quite what the question was, 'How many identify with this word?' And I was, 'Not really.' And then, I caught myself doing it when I was chatting to him in the spring, about the final process. So we are using first person pronoun in terms of a designer, so obviously I co-opted this identity to some extent because of the experience of being here and not disliking it.
Student i3

Knowing the students

In the first days of their programme, the third cohort of students investigated in CS1 was asked to fill in a card about themselves (see Figure 82). The cards served to gather useful information about the students' expectations of the Masters programme, their knowledge about design research, and assisted the creation of the first working groups. With this, teaching staff could shape their initial interventions towards what motivated that specific cohort of students.

		Why I chose this course...
Name:		
		Design research is...
3 words to describe you...		
2 hobbies...		

Figure 82 – Student's presentation card in CS1

Linking with an amplified mindset of design

The group-based discussions, the pluralistic thinking developed in the course Ways of Seeing, and the embodiment activity developed in the Design Theory course, can be said to have the potential to develop the social skills and integrative behaviours referred to in this research's conceptual framework of an amplified mindset of design. Additionally, the type of ontological exercises referred to above can lead to the development a human-centred and synergistic worldview if used first to help students position themselves as designers, and later by connecting them with an amplified mindset of design. Finally, the use of the presentation cards can be interpreted as an integrative behaviour from the academic staff, providing a starting point for developing a working relationship with the students.

– **Overlaying the amplified mindset of design**

This section explores relationships between the themes “guiding principles” and “key notions about design innovation” in CS1, and the conceptual framework of an amplified mindset of design (see section 7.1 for a detailed account of the framework). These themes in CS1 were identified in this research as distinct characteristics of this case study that answer the sub-research question: “What characterises these postgraduate programmes?” These characteristics will now be interpreted from the perspective of an amplified mindset of design to partially answer this research's main question focused on identifying distinct approaches to postgraduate design education which help future designers develop an amplified mindset.

Guiding Principles of CS1 and an Amplified Mindset of Design

Figure 83 illustrates through visual proximity the stronger points of contact between the guiding principles and the four dimensions of the conceptual framework of an AMD, indicating secondary points of contact through the connector-lines.

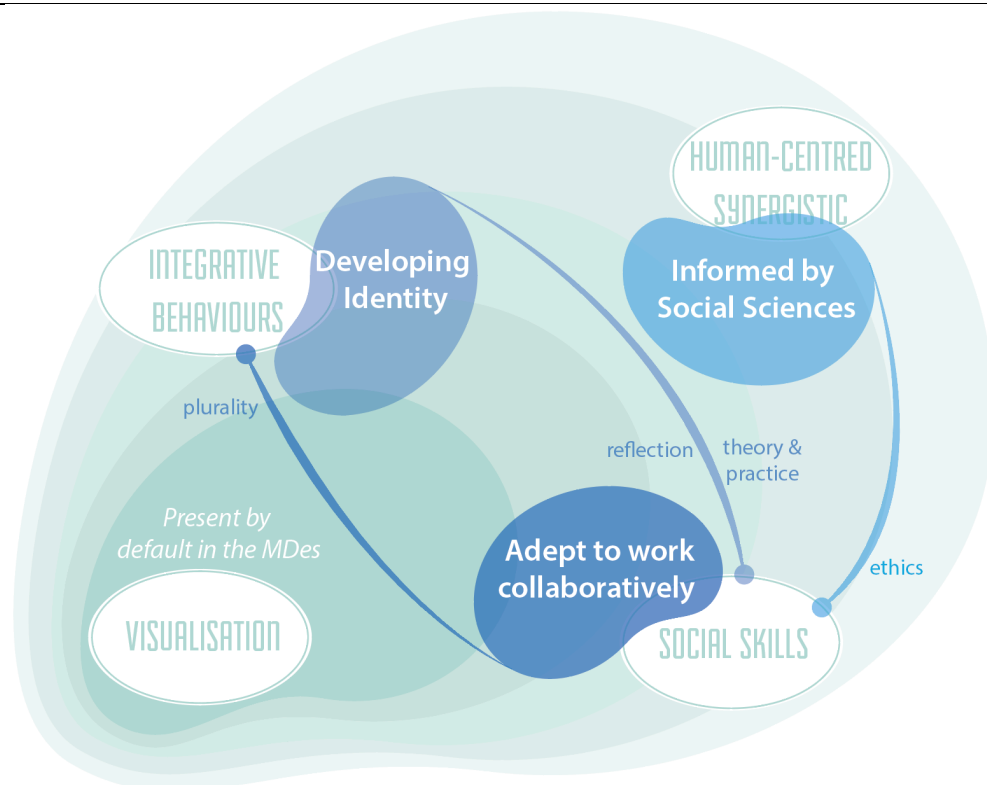


Figure 83 – Guiding principles of CS1 superimposed onto the amplified mindset of design

Informed by social sciences and a human-centred and synergistic Worldview

A relationship was established between the guiding principle ‘informed by social sciences’ and the ‘human-centred and synergistic worldview’ aspect of the conceptual framework, based on the following parallels:

- The (social) value-based approach in CS1, and the strategic role of designers as agents that seed change in the AMD,
- The consideration of the ethics of a social approach to design in CS1, and the ethical concerns inherent to a human-centred focus in the AMD.

In CS1 there was a less evident focus on the worldview of the AMP, which includes a quadruple-bottom line perspective on sustainability (Sherman 2013, Fleming 2013).

Adept at working collaboratively and social skills

The guiding principle “adept at working collaboratively” was placed closer to the “social skills” aspect of the AMD, connecting with the framework’s “integrative behaviours”. This dominant link with “social skills” was drawn based on a parallel between the practice-based approach in CS1 that includes diverse levels of collaborative work, and the interpersonal skills of designers that include the mediation and facilitation of processes and relationships from the AMD. This guiding principle also has a connection with the AMD’s “integrative behaviours” established from a parallel between the development of pluralistic

thinking in CS1 and the cross-fertilisation and exploration of boundary spaces in the AMD.

Developing the student's identity and integrative behaviours

Figure 83 shows a dominant relationship between the guiding principle “developing the student's identity” from CS1 and the “integrative behaviours” of the AMD, with a secondary link with the “social skills” aspect of the AMD. A parallel was recognised between CS1's focus on bridging practice and theory, which leads students to become aware of their own (and others') constructs and reflect on their identity as designers, and the focus of the AMD on the creation of synergies that includes openness to the designer's personal development through their practice. Another relationship was found with the “social skills” aspect of the AMD, based on the relationship between students' reflections on their collaborative design processes and their roles, and the interpersonal skills addressed in this aspect of the AMP.

Visualisation

These guiding principles do not show evident links with the visualisation aspect of the AMD. It was recognised in the previous section that for non-designers it is difficult in this programme to master visualisation skills. However, this is a core aspect of this design Masters programme, which is visible in Figure 84 which refers to the type of design innovation outcomes in CS1.

Key notions about design innovation from CS1 and an Amplified Mindset of Design

The stronger points of contact between the “key notions about design innovation” in CS1 and the four dimensions of the conceptual framework of an AMD are depicted in Figure 84, which also shows secondary points of contact. The key notions are spread throughout the conceptual framework without a dominant relationship with specific aspects of the AMD.

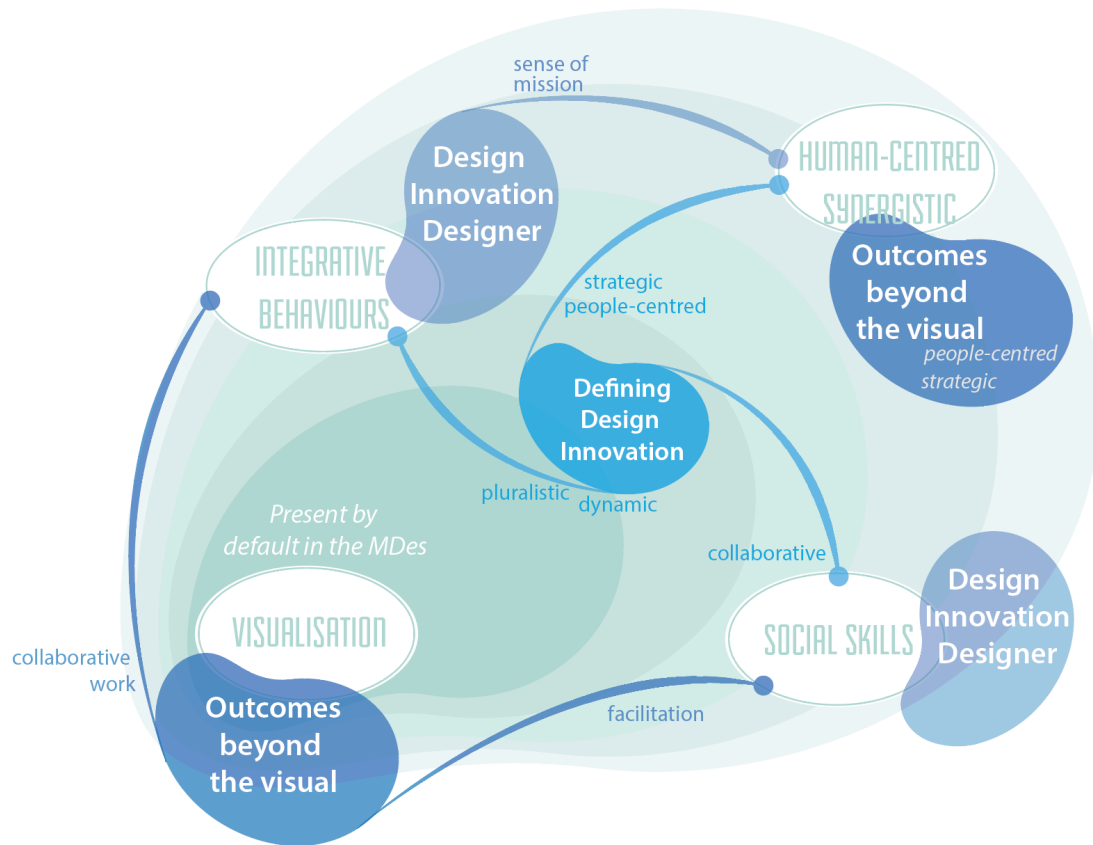


Figure 84 – Key notions about design innovation from CS1 superimposed onto the an amplified mindset of design

Defining design innovation and the amplified mindset of design

The key notion “defining design innovation” from CS1 was placed in the centre of the conceptual framework due to its connection with three aspects of the AMD, based on the following parallels between:

- Design innovation defined as strategic and people-centred in CS1, and the “human-centred and synergistic worldview” aspect of the AMD where design is seen as strategic to achieving social and sustainable solutions;
- Design innovation defined as collaborative and people-centred, and the “social skills” aspect of the AMD which includes interpersonal skills and facilitation and mediation of processes and relationships.
- Design innovation defined as cross-disciplinary, dynamic and aligned with pluralistic thinking in CS1, and the “integrative behaviours” aspect of the AMD that refer to the creation of synergies through the connection of different disciplines and design interventions in boundary spaces that imply the need for pluralistic thinking.

Design Innovation Designer and the Amplified Mindset of Design

The key notion of the “Design Innovation Designer” from CS1 was placed in close connection with the “integrative behaviours” and “social skills” aspects of the AMD. These parallels were established based on the following:

- The design innovation designer operates between disciplines in CS1, which relates with the creation of synergies and the work in boundary spaces signified by the “integrative behaviours” aspect of the AMD;
- The design innovation designer is seen as a facilitator that is person-centred and that works collaboratively, which connects with the focus on designers as mediators and facilitators of processes and relationships in the “social skills” aspect of the AMD.

Moreover, this key notion has a secondary point of contact with the “human-centred and synergistic worldview” aspect of the AMD, based on the ethical concerns and strategic sense of mission found in CS1’s notion of the design innovation designer.

Outcomes beyond the visual in the amplified mindset of design

The notion of “outcomes beyond the visual” in CS1 is shown in Figure 84 as having a direct link with the “visualisation” and “human-centred and synergistic worldview” aspects of the AMD, based on the following:

- The outcomes in CS1 go beyond the visual including not only artefacts but processes, methods and tools, which relates with the “visualisation” aspect of the AMD which refers to the use of visualisation and aesthetics to steer social processes of dialogue and insight.
- The outcomes produced in CS1 are people-centred and strategic, making it possible to connect this key notion with the “human-centred and synergistic worldview” aspect of the AMD.

Additionally, another connection could be drawn from this key notion and the “social skills” aspect of the AMD as the creation and facilitation of processes is also considered an outcome of design innovation in CS1. The adaptive nature of the collaborative work developed in the processes designed in this Masters programme make it possible to infer a connection with the “integrative behaviours” aspect of the AMD based on the adaptive nature of the synergies referred to.

5.3 – Case Study 1: interim conclusions

From the findings presented above it is possible to conclude that the MDes Design Innovation can be characterised as a networked programme informed by social science principles which enables students to develop in a way that continuously amplifies their practices. Seen through an educational lens this amplification requires students to have a deep learning disposition (Crick and Goldspink 2014), a growth mindset (Dweck 2006), and epistemological orientations closer to what William Perry (1970) called relativism and commitment to relativism, and what Belenky et al. (1986) called procedural knowledge and constructed knowledge. The need for students to develop these epistemological positions is encouraged by the complex set of collaborations found in this case study. Moreover, the need to include literature from the field of education resulted

from the identification, in this thesis, of an absence of this approach in design education. Section 6.2 intends to fill this gap by discussing suitable theories for an amplified mindset of design. Conclusions from the overlay of CS1's findings and the AMD will be discussed in section 5.6 together with CS2 because of the similar type of findings (namely, their guiding principles, key notions about their design specialism, and teaching methods), but also to compare and contrast the two cases.

– *A networked programme, informed by principles from the social sciences*

From the guiding principles of the MDes Design Innovation found during this research analysis, it can be said that this is a networked programme informed by social sciences (mainly sociology) principles. The programme shows a networked structure that is international and cross-cultural, a complex set of collaborations and topics, and the use of a sociological approach as the vehicle to navigate this complexity, all of which results in the programme's transformative potential.

A networked structure that is international and cross-cultural

Prior to the analysis of CS1, this research identified the distributed structure of the MDes Design Innovation through its three specialisms: Service Design, Environmental Design, and Citizenship. After this case study was conducted three more specialisms were added to the programme's portfolio (see Figure 85), highlighting a collaborative orientation that promotes networked ways of working whether by focusing on creative collaboration itself (specialism: Collaborative Creativity), by responding to the complexity of modern life through collaborative practices (specialism: Transformation Design), or exploring collaboratively the interplay between society, culture and technology (specialism: Interaction Design). Figure 85 depicts the historical evolution of this programme into its six specialisms, revealing that this programme's approach to design innovation can be applied to many different sectors. Adding to this networked structure, the programme is taught on two campuses across the country and in collaboration with HE institutions from other countries, hosting international cohorts of students, which brings a cross-cultural characteristic to this network.

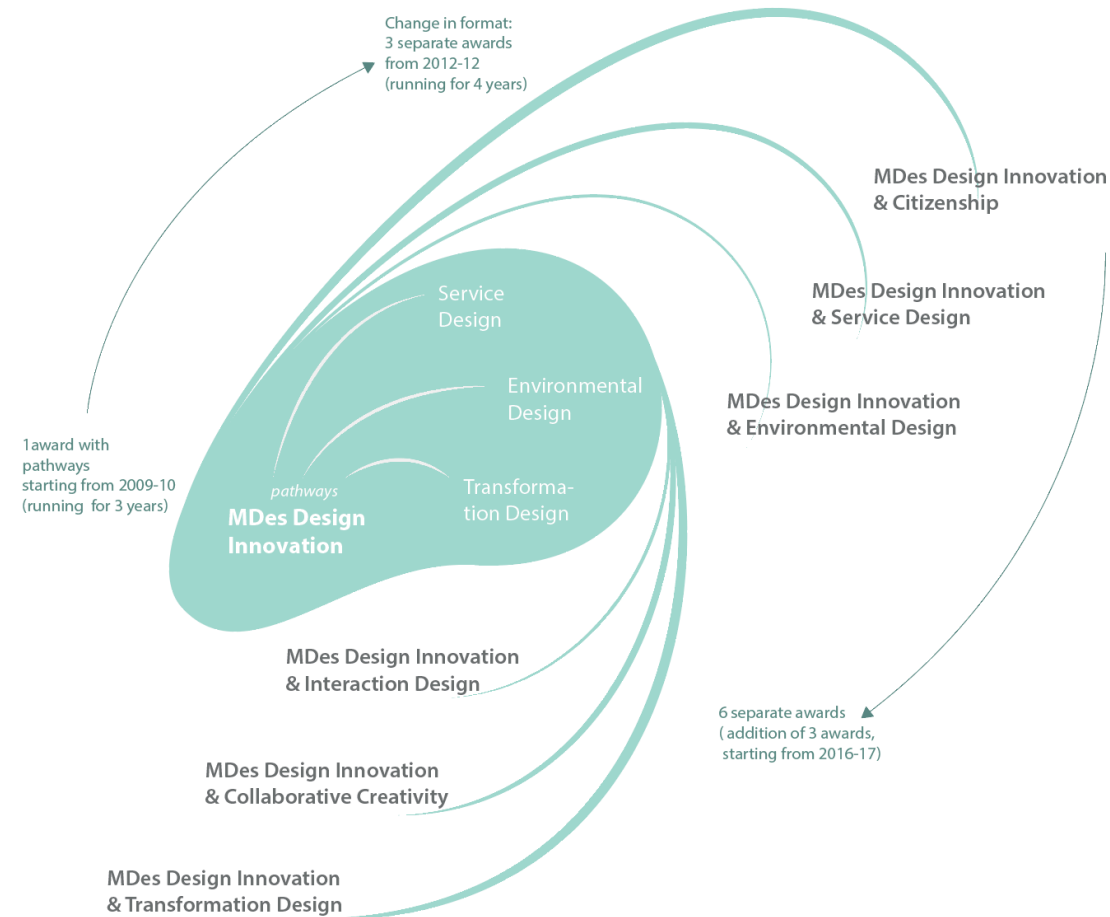


Figure 85 – Historical evolution of CS1 into its six specialisms

A complex set of collaborations

From the findings of this case, the notion of a networked programme was inferred from:

- The diverse forms and levels of collaborations;
- The live projects that promote close working relationships with organisations and professionals from diverse sectors and disciplines, and
- The focus on the subsequent development of the pluralistic thinking in the students that is needed to work in complex networks such as this Masters programme (and with future complex networks encountered by the students).

Anticipating section 6.2, it is important to note that the development of pluralistic thinking as a goal of HE has a long history in HE literature and can be linked to Perry's (1970) commitment to relativism and Belenky et al.'s (1986) constructed knowledge.

Social Sciences as a vehicle to navigate through complex networks

This research found that the social sciences were the vehicle chosen by this Masters programme to navigate its networked structure and the complex issues it explored. The projects developed in the MDes Design Innovation were centred

on co-creating (social) value for people and society, using research methodologies from social sciences which include concerns with the ethics of such a design innovation approach. This encompasses what was found to be an underlying sense of mission in design innovation to create value from the perspective of others, which signals an implementation of Belenky et al.'s (1997) concept of connectedness in education to develop more mature epistemological orientations in students. In CS1, the use of social sciences can be interpreted as a set of tools and skills that the programme's graduates could transfer to the challenges they will meet in their future careers.

Transformative potential of this programme

Such a networked and intense programme can be said to have had a significant impact on its students due to the learning experiences it promoted, the links between theory and practice, and the importance given to the Personal Process Journals. Therefore, the graduates from this programme can be identified as equipped to work in complex contexts, adapting their interventions and roles, which signal an *amplified mindset of design*.

– Developing designers who can continuously amplify their practices

From CS1's "key notions about design innovation" it can be said that design innovation in this programme is understood as an emerging practice in constant amplification, which reveals a growth mindset (Dweck 2006) regarding its discipline, and expectations of deep learning dispositions (Crick and Goldspink 2014) from the students. This conclusion was drawn based on the following aspects that amplify design innovation's potential to enter new territories:

1. The notion of design innovation as cross-disciplinary, open to the intersection of different disciplines;
2. The notion of design innovation as dynamic, adapting its interventions to different people and contexts;
3. The notion of design innovation as strategic in creating socially valuable solutions that derive from the investigation of a variety of views on what is meaningful and valuable for a project;
4. The role of the designer expanding from traditional prescriptive roles towards the facilitation of processes and relationships;
5. The variety of design innovation outcomes that address tangible and intangible aspects of a project through the use of visual and non-visual means;
6. The engagement with global and local social, economic and technological issues;

7. The language for examination and critique of design practices offered by the social sciences.

Points 1 and 3 can be said to be informed by more complex epistemic beliefs or the will to develop these (section 6.2 explores this further). Points 2 and 4 reinforce the relevance of the teaching approach for connectedness found in Belenky et al. (1997), and the use of such approaches to inform the development of an educational approach for an amplified mindset of design. These aspects are implicit in CS1, and reinforce the need to harness education literature to support and strengthen design education approaches.

5.4 – Case Study 2: interim findings

The following findings were derived from 20 data sources (see Table 19) which included a triangulation of interview transcripts, field notes and official and public documents in order to gather a diverse sample of documents and sources. Similarly to CS1, these findings from CS2 identify distinct aspects that were foundational in this case (guiding principles, and key notions about the ecological design thinker), and which were later interpreted from the perspective of an amplified mindset of design to determine the amplified character of this programme. Additionally, these findings informed aspects of the development of the Masters programme developed in this research.

The presentation of this case's findings, as in CS1, uses the voices of the participants as evidence/counter-evidence of the claims made in the programme's documents, and the aspirations expressed by the programme leader. Moreover, and for consistency, after the analysis was conducted, I verified the themes that had been generated, and revisited the data sources, thematic maps and code descriptions. The findings will be presented in the following sections.

– Guiding principles

During the analysis of CS2, this research found the guiding principles of the MA Ecological Design Thinking to be: follow a holistic approach to learning and teaching; be adept at interdisciplinary work; produce transformation strategically; seed and/or develop an ecological worldview; pursue qualities of flexibility and resilience. These principles and the characteristics of the ecological design thinker, to be presented in the next section, form the foundation of this programme.

Table 27 offers a summary of the characteristics of each guiding principle which, as in CS1, indicates the number of data sources and references used to establish the significance of each principle in CS2.

GUIDING PRINCIPLES Data sources: 12 / References: 243	This theme represents a set of foundational principles of this Masters programme that guides the programme's approach to teaching ecological design thinking. This theme and the notions included in the theme "ecological design thinker" provide the foundation for the work developed in the Masters.
Codes	Summary
Follow a holistic approach to learning and teaching Data sources: 12 / References: 48	<ul style="list-style-type: none"> - Students are seen as a whole self - World seen as a series of relationships - Immersive and experiential learning process
Adept at interdisciplinary work Data sources: 12 / References: 93	<ul style="list-style-type: none"> - Interdisciplinary position - Interdisciplinary system
Produce transformation strategically Data sources: 8 / References: 43	<ul style="list-style-type: none"> - Produce transformation in the students - Produce transformation in the world
Seed and/or develop an ecological worldview Data sources: 9 / References: 30	<ul style="list-style-type: none"> - Basis to intervene in the world: <ul style="list-style-type: none"> o Expands the college worldview o Acknowledges the existence of other worldviews
Pursue qualities of flexibility and resilience Data sources: 4 / References: 29	<ul style="list-style-type: none"> - Found on four levels: <ul style="list-style-type: none"> o Programme structure o Living and working community o Students o Programme's approach to problem-solving

Table 27 – Summary of the guiding principles of CS2

Additionally, Figure 86 highlights the relationships between each principle, and the relevance of the guiding principles "following a holistic approach to learning and teaching", and "adept at interdisciplinary work".



Figure 86 – Relevance and overlaps between the codes of the theme “guiding principles” in CS2

Guiding principle: Following a holistic approach to learning and teaching

Following a holistic approach to learning and teaching in CS2 included seeing the student as a whole self and seeing the world as a series of relationships, through an experiential and immersive learning process.

Firstly, seeing the student as a whole self in this Masters programme meant that students were encouraged to bring their whole self to the process of problem-solving. The focus on student development was found to be a mixture of academic and personal support. Students were supported during the exploration of new intellectual concepts and models, and during their inner journeys to develop their identity in relation to the programme’s subject, as explained in the following data extracts:

I think probably that the students gain most from their engagement in practical projects so I think it’s participatory, I think it’s practical, I think it’s experimental and I think it’s to do with a process of iteration, so attempting different projects from different standpoints and different...changing by shifting the criteria, exploring how students develop and develop skills through practice, through developing relationships, by focusing on ways of relating and different ways of knowing so that the student is able to bring their whole self into the process of problem-solving and is also able to relate well to other people and to their environment.

Academic staff member R1

That was a design project, yes. But apart from that, we really believe in the whole person learning, which includes experiential learning as well as intellectual learning.

Academic staff member M1

This holistic approach in CS2 sought to encourage its students to address complex issues, by:

- Exploring diverse ways of knowing that included reason, intuition, the senses and imagination in relation to the programme's content.

So using different ways of knowing, not just using your rational mind, using your intuition, using your feelings, using your senses, using your imagination to guide you and to trust in that process.

Student e2

This was informed directly by the college's community experience rather than from the Masters programme;

The ethos of ----- College is head, hands, and heart.

Student e4

The ethos of the college is living and working in community.

Fieldnotes-16-02-15

- Seeking to integrate theory and practice, using lived experiences as prompts to make sense of theoretical content;

It's experiential learning. So to make sense of these concepts, we're given a space to live that experience, so it's not just theory, you're actually finding your own way to put it into practice.

Student e2

So, the first semester is dominated by the notion of theory; but we shouldn't try to distinguish between theory and practice, we should constantly be weaving them together.

Academic staff member S1

We cover a lot of philosophy, we try to cover a lot of theory of philosophy, and we try to make a balance between theory and practice, so is three months of mostly theory dominated. We try to definitely add practice into theory, but the second semester is more practice dominated, although it will have theory in it too.

Academic staff member M1

- Intending to seed the notion of the student as both participant and observer in any given situation;

Because for me the Holistic Science is kind of the foundation for the way that new design thinking has gone. When you do talk about complexity you talk about systems, you talk about the chaos theory, you talk about when you're an observer or a designer as such, you're a participant as well and all the quantum, biology and physics that's super-interesting stuff and that's kind of that's the foundation of how you go into design thinking and I don't think we really cemented that enough in our thinking.

Student e1

Secondly, and to address complex problem-solving, students were asked to see the world as a series of relationships in order to develop a pluralistic understanding and an awareness of the diverse ways in which problems could be solved;

So this, to me, was my way into other ways of knowing and they reference science and the wholeness of nature, and then we start to look at complexity and we spend some time there as well (laughter), trying to experience what that... Yeah, what that [the whole interwoven of things] really looks like, which led us on to relationships, and seeing the world as a series of relationships, in a sense examining relationships instead of objects.

You know, a collection of objects, it's...what's the quote? It's seeing it as a communion of subjects, rather than a collection of objects. So yeah, it is trying to change your world view.

Student e2

And in terms of the ways of relating, we introduce facilitation techniques, we introduce artistic practice, we bring in people who've worked on community development and engagement projects. So we try and introduce them to creative ways to build relationships and ask questions, I think.

Academic staff member R1

Thirdly, the holistic approach of CS2 resulted from the intensity of living and working in a residential community that provided an immersive learning process and from an intention to seed an experiential learning process.

Learning by doing, but really it needs to be guided as well in the ecological design thinking programme, and other similar ones because we just don't know how to do things sometimes. We've lost that ability to listen to our intuition that ability to listen to our inner voice.

Student e1

We should thread more assignments throughout the course. Mainly as learning experiences. This makes it easier to meet the learning outcomes.

Academic staff member S1

Guiding principle: Adept at interdisciplinary work

The MA Ecological Design Thinking positioned itself as an interdisciplinary programme, working between ecological design, ecological thinking, and design thinking. This position was evidenced by the interdisciplinary system that was found to characterise the programme and its college. Elements of such a system included:

- The College defining itself as “an interdisciplinary centre for ecological studies” (Masters’ overview document, 2016);
- The variety of topics covered by the programme’s content which exposed students to a multitude of perspectives aimed to equip them to seed change and transformation for ecologically sustainable futures. Examples of the topics and research methodologies covered included:
 - Alternative economic models;
 - Bioregionalism, biomimicry, ecosystems dynamics, ecology, deep ecology;
 - Complexity theory, systems thinking, Gaia science, Goethean science, holistic science, Jungian psychology, theory of philosophy;
 - Design theory, design thinking, open design, transition design;
 - Empathy, practices of social change;
 - Action research, phenomenology, and ethnography.

- Academic staff members and students from a variety of disciplinary backgrounds.

Doing Ecological Design Thinking, coming at it from a psychology background and a mind background [neuroscience] and a well-being background, because professionally I branched out into well-being and meditation and therapy and that kind of stuff. So I was able to bring that into the Ecological Design Thinking.

Student e4

Students being encouraged to work in areas outside their own, for the development of their interdisciplinary skills, which was also recognised as a challenge:

In all of our assignments the students can submit an essay, a piece of artwork, or a design study. [...] you will get students who, need to learn how to write better but who are good designers. And they will just take the easy route... They'll submit the design exercise. So that's not a good thing to do. (...) But what I'm saying is, then we're not giving them the best opportunity to learn new things. What I should have been saying to that student is, 'No, you must write an essay.' (...) Now, some of them are very good. So we had a student, a Japanese student who was a trained architect. She chose a subject that she's never had before. She didn't get as high a mark as the other guy but she chose the thing that was harder.

Academic staff member S1

- Sustaining – with intentions to build further – interdisciplinary relationships with other programmes and courses within the college, and other universities and organisations.

We should engage with students including those from Holistic Science and Economics for Transition in deep, natural conversations regularly.' In other words, we should pull as many students as we can in, not just our own students.

Academic staff member S1

So the courses that already exist here as Master's at the college are Holistic Science and Economics of Transition, so when I came into it, because of the way the modules are set up, it was like Holistic Science combined with Economics of Transition under a design umbrella, that then encourages you or skills you to go out into the world, taking all of that with you.

Student e4

This interdisciplinary position was seen in CS2 as a path to producing strategic transformation in the world.

Guiding principle: Produce transformation strategically

For this programme to produce transformation strategically means to produce transformation on two levels: in the students, and in the world, which was found to be similar to transformative learning (Mezirow 1981). See section 6.2 for more detail on the usefulness of this theory to this research. To produce transformation in the students was, for CS2, as a first step in producing change in the world, which was seeded by the learning community.

And I think that's probably the biggest change of the lot – how does it change the person. I don't think changing the world – everybody is trying to change the world. The

problem with changing the world is that it's changed in a very fragmented way. It's simply just too big to handle. But you can change the person. And that is the value of the [learning community] experience.

Academic staff member S1

Firstly, student transformation included a will in CS2 to develop the whole person academically and personally in the programme, which overlaps with the guiding principle "Follow a holistic approach to learning and teaching"

So you'll have multiple perspectives on what this ecological design thinking is and then in the end, most of the important internal effects will be about how does the course change the person.

Academic staff member R1

Through CS2's immersive and intense learning experience the students were guided towards questioning and developing their worldviews:

- The community environment was found to be one of the most impactful elements in student transformation throughout the programme:

Weirdly I think my biggest transformation came in the one-week course that I did when I came to [the College]. (...) So that was quite transformative and just being in a place, I'd never been anywhere like this before.

Student e4

I think I was coming [pause] for me particularly, which are my own drives for doing the course, I think a lot of it was to do with wanting a sense of community. That sense of wanting to be ensconced in a place where I could feel what it was to be a community.

Student e3

Students are encouraged to explore not only new intellectual concepts and models but also, and in parallel, to embark on an inner journey of transition. This involves explorations on two levels. The first is an investigation into how existing belief systems and worldviews are challenged by the experience of being a member of the learning community at ----- College. In many cases, this involves a process of 'unlearning' previous belief systems to make way for the new.

Handbook, 2016

- The programme's wide content of the programme exposed students to concepts (looked at from an ecological lens) that were aimed at fostering their future transformation. This aspect links this guiding principle with the guiding principle "Seed and/or develop an ecological worldview".

I think the modules...the content of the modules plants seeds in your awareness, so they are planting seeds and over the course of the year, depending on what you're drawn towards, you feed that and you're sort of finding your...you're finding what you're drawn towards. So for me, because we've been introduced to so much on those five modules that it feels like I haven't fully processed all of it yet.

Student e2

Students were also encouraged to find their role in the process of change (inner and outer) to become agents of change, which related to the notion of designer as a change agent, by:

- Building a personal transition plan supported by the programme's staff. Students were expected to be active participants in the co-creation of their path within the programme;

As far as you are doing, you are dynamic, you're not just sitting at your desk and reading, or looking at something, or listening to something, you're part of the whole process.
Academic staff member M1

This journey involves an exploration of areas of dissonance between values, lifestyle and the paths that the students have chosen in their lives to date.
Handbook, 2016

- Reflecting on their practice and actions, through holistic learning journals, for example, to develop ownership over their projects and understand objectively and subjectively the personal meaning they attributed to these;

So that first part of the course is really about laying a foundation, an ecological foundation, to understand the problem but also find your own philosophy on what ecological design means to you, and then use that as a starting point from which to act. [...] Then lastly, making a commitment to being...making a commitment to yourself and to the world to actually be part of the solution, if you like.
Student e2

[...] we encourage them to keep a learning journal which interrogates their own perception of how they're learning and what they're learning. We encourage them to value their own experience, so to think about their experience subjectively and not just objectively. [...] So we bring those people in to set up the context in which, so we use a learning journal as a reflective method, we use sketch booking as a complement to that.
Academic staff member R1

- Recognising their change throughout the programme

People who got quite lost and found it very difficult to apply themselves to their studies, who then produced really deep, thoughtful and genuinely [pause] challenging work in their dissertations.
Academic staff member R1

And I think that speaks to the approach that ecological design thinking, if any such thing exists, actually is, because it does recognise that we all have a role to play in shaping the world. And it's given me a new direction and a chance to start a new career and to really change my life.
Student e1

Secondly, for CS2 to produce transformation in the world that is meant to:

- develop strategies for sustainable change on a social (high wellbeing), ecological (low carbon) and financial level (resilient communities)

- use practices of social change and alternative economic models
- explore from a design thinking perspective, ecosystems dynamics, trends and behaviours, and social-cultural dynamics and systems (Handbook, 2016)

Ultimately, the aim of the programme is:

[...] to inspire, skill and support a new generation of design activists and thinkers to catalyse the transition to a future where we use far less of the Earth's resources, and where all can flourish.

Handbook, 2016

Guiding principle: Seed and/or develop an ecological worldview

In CS2, to seed and/or develop an ecological worldview was about developing a basis to intervene in the world, expanding the holistic/eco worldview of the college, while acknowledging the existence of other worldviews. This ecological worldview, as a basis for intervening in the world, is seen as contributing to ecological, economic and social sustainable futures, which is evidenced with the following data extracts:

A focus on economic growth tends to increase the problems of poverty and social inequality and does not necessarily lead to more happiness or enhance those factors which add to the quality of our lives. It is time to do something about it, and ecological design thinking can help catalyse that process.

Handbook, 2016

So for me, after looking at the ecology and looking at human systems and understanding economics is really important, before going into the community to try out some of these design tools that we were learning, because it gave it some context.

Student e2

This new postgraduate programme is rooted in deep ecological understanding and an appreciation of socio-political dynamics. It provides key design insights, tools and methodologies as an approach to using ecological design to facilitate system transformation.

Master's overview document, 2016

I mean I think that that's something the college is meant for, is the worldview aspect and I think that's foundational to all of the courses at the college, but I think what the Ecological Design Thinking course does is to then say given the shift in worldview, how do we now approach real world problems?

Academic staff member R1

The programme's ecological design foundation expands the college's holistic/eco worldview by bringing in a designerly dimension.

So one answer is that it's building on what is already being taught at [college] and bringing in an element of design and design thinking.

Student e4

This ecological worldview acknowledges the existence of other worldviews and it embraces concepts of complexity, uncertainty, interconnectivity and pluralism to tackle a complex and interconnected world.

Ecological Design Thinking is a multi-disciplinary subject, that allows us to navigate a complex...I can't remember it...complex, uncertain interconnected world.

Student e4

That's how you will be useful in the world, is when you can see all aspects of the world through different lenses and one of those lenses will be ecological design thinking [...] But we also teach them that – again going back to the thing we did with ----- – we also teach them through 'pulsing and lensing' that as they step back, they remove their lens and they insert another lens through which to view the world. But the default position is to see the world through the ecological design thinking lens.

Academic staff member S1

These quotes highlight the fact that the work developed in CS2 requires deep learning dispositions (Crick and Gosldpink 2014) and a need to develop more mature epistemic orientations such as constructed knowledge (Belenky et al. 1997). In these advanced epistemological positions there is a unified sense of self where individual transformation can be fully realised.

The reference to the use of an ecological worldview as a basis to intervene in the world relates with the previous guiding principle concerned with producing transformation strategically. Additionally, the students' knowledge on Deep Ecology led them to reflect on their perspectives about understanding reality, themselves, and the role of design

I would say this particular programme is really about changing your point of view about design, the role of design and the potential to...the course, the way it's currently designed, as you know, you're introduced to the Anthropocene, so you get an understanding of what we're dealing with as a society and as a culture. At the same time, you go on a very deep inward journey into understanding what it means to be human, but also what it means to be you.

Student e2

Guiding principle: Pursue qualities of flexibility and resilience

In the MA Ecological Design Thinking, to pursue qualities of flexibility and resilience was found on four levels: the structure of the programme, the living and working community, the students, and the programme's approach to problem-solving.

So that means that we really need to develop a course that is very resilient and very flexible. But it's not just that the course should be that – the students should be like that, as well as the teachers. [...] Everybody and everything has to be resilient. The students wouldn't understand a resilient course if they themselves are not resilient.

Academic staff member S1

CS2 was found to be a programme that pursues a flexible structure, by:

- Adapting to their institutional context, revisiting and altering teaching and assessment methods, and;

So in a sense, what we did was we worked our way through that first year, that was last year – the first cohort – being guided, or constrained, by what somebody else had designed. [...] But trying to stretch the constraints without breaking them, because we wouldn't be allowed to break them under the rules of the game, but stretching them.

Academic staff member S1

– Adapting to each cohort of students.

We then intervene quite organically across the year to support the development, so that there's a structure and a foundational practice that we hopefully established at the outset of the course and then we intervene dynamically and responsively over the course of the programme and to a degree shape some of the learning around the needs of the students. But also then there is quite a formal standard process of assessments and feedback, which is also part of that and tutorials that also provide something of a structure.

Academic staff member R1

We should not pack the programme too tightly, nor should we leave too many open spaces.

Academic staff member S1

The living and learning community can be said to have contributed to the development of flexibility and resilience in the students of CS2.

The resilience in students works well here. The very fact that they have the [college name] Experience is great for that. They learn to talk to one another. And we have a high proportion of international students – Brazilians and various other nationalities, so they become very good at that.

Academic staff member S1

The students were directly encouraged in their Masters programme to:

– Embrace tensions within the Masters programme, and;

Yes, you should always have tension in the programme. Tension in the programme is always consistent with developing constructive scepticism. 'I [pause] love you as a colleague but that doesn't mean that I can't disagree with you on this sort of thing.'

Academic staff member S1

– Deal with uncertainty and adapt to emerging conditions, also recognised as a challenge.

I think what's interesting for me is that actually I came away from the Master's thinking, I don't know specifically what– I couldn't name specific tools, I just came away with more confidence to deal with uncertainty and the key thing for me is personal resilience. [...] Although it was not a specific tool that helped me, that's helping me now. It's more the overall, the whole year, the whole process of learning a whole load of different things. Like learning about complexity as well and learning about the relationships and how they relate to one another. The dynamics, how important those are and how those are always unfolding. That was more– Yeah, I guess it was more context than tools that helped me.

Student e1

I think trusting the process (laughter) was really hard, just to let go and trust.

Student e2

It can be established that the aspects above contributed to the students' transformation discussed earlier in this section.

These qualities also form part of CS2's approach to problem-solving which emphasises the ability to adapt to changing contexts and is intended to prepare students to deal with a variety of different contexts.

The way that, I think what we're trying to do is teach an approach and a practice, an approach really rather than to teach people how to apply ecological design thinking to a particular sector, we're trying to develop in people an approach to problem-solving that can be applied in a range of contexts.

Academic staff member R1

– **Ecological Design Thinker**

This theme represents the main characteristics of an ecological design thinker for CS2, which in conjunction with the guiding principles provide the foundation for the work developed in the MA Ecological Design Thinking. A summary of the characteristics of an ecological design thinker is offered in Table 28, indicating the number of data sources and references used to establish the significance of each characteristic.

ECOLOGICAL DESIGN THINKER Data sources: 10 / References: 54	This theme represents the main characteristics of an ecological design thinker in the MA Ecological Design Thinking This theme and the theme of guiding principles provide the foundation for the work developed in the Masters.
Codes	Summary
Facilitator Data sources: 5 / References: 15	<ul style="list-style-type: none"> - Builds relationships with groups and their environment using a designerly approach visualisation - Aware of group dynamics - Flexible and open - Manages open-ended processes of problem-solving
Agent of change and transformation Data sources: 7 / References: 15	<ul style="list-style-type: none"> - Sense of mission to build a more ecologically sustainable world
Pluralistic perspective Data sources: 10 / References: 22	<ul style="list-style-type: none"> - Handling diversity - Openness to diverse perspectives

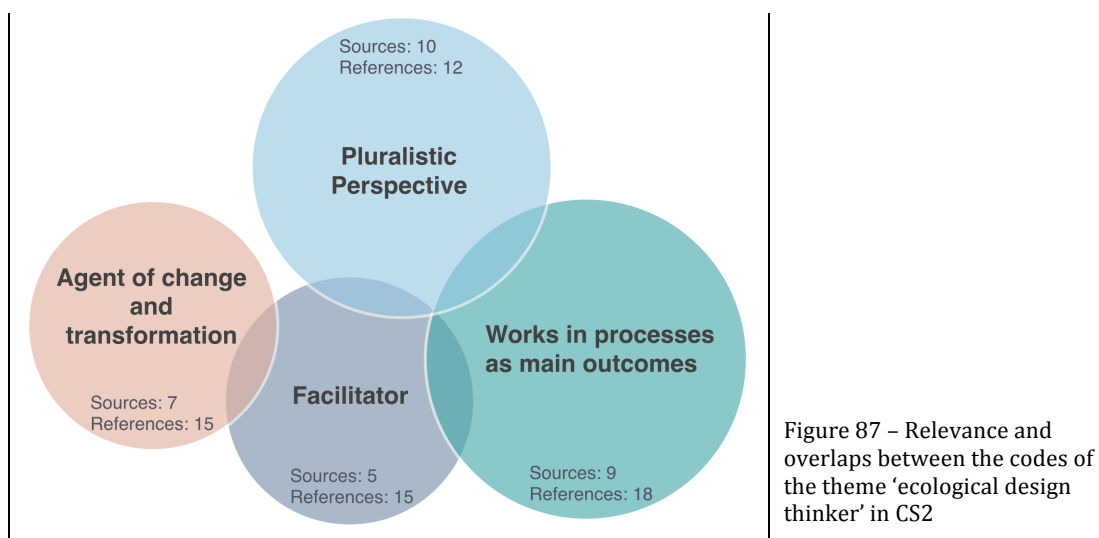
Processes as main outcomes

Data sources: 9 / References: 18

- Co-designing projects with communities
- Open-ended solutions
- Running processes and mediating relationships within those processes
- Examples of themes
 - Reconnecting civilisation with nature
 - Education Strategy
 - The design of settlements

Table 28 – Summary of the characteristics of an ecological design thinker in CS2

Also, Figure 87 depicts the overlaps between these characteristics, which will be highlighted in this section.



Ecological Design Thinker as a facilitator

To be an ecological design thinker in CS2 was found to include a search for creative ways to engage with others, by being flexible and open to different ways of thinking and relating, and by learning about group dynamics.

Firstly, for this Masters programme the ecological design thinker seeks creative ways of building relationships with groups and collectives and their environment, eliciting their stories.

[...] and I guess in terms that the tools that come up for me, are just basically how do we elicit the stories from people. So there were different methods that we came up with some from past knowledge and some that we came up with on the spot. Things like mapping and– I think it's probably tools relating to engaging people to speaking to people and recording what they said in a certain way. [...] So that's why that's coming up for me now, but I think, it will focus very much on social design practices I guess. Community engagement. Getting different people's opinions in different views, different stories and for a certain project for example, so develop that further, and I guess in the process we recognise that– In the process of our different projects that we have

throughout the year, one of the key realisations was that; first of all, you can't impose what you think is right onto a project, onto other people as a result.

Student e1

Over the course of our journey together, we will focus on the skills and approaches you will need to encourage and facilitate others in groups and collectives, to address problems through a new ecological and social lens.

Handbook, 2016

Secondly, as a facilitator the ecological design thinker is described in the data as flexible and open to different ways of thinking and relating, from which a connection can be established with the ecological design thinker's pluralistic perspective.

[...] exploring how students develop and develop skills through practice, through developing relationships, by focusing on ways of relating and different ways of knowing so that the student is able to bring their whole self into the process of problem-solving and is also able to relate well to other people and to their environment. [...] So we try and introduce them to creative ways to build relationships and ask questions, I think.

Academic staff member R1

Thirdly, students in this programme learnt about facilitation skills and group dynamics to manage open-ended processes of problem-solving.

We wanted someone to come in and help us work between together as a group and improve our group dynamic. But actually they were really interesting teaching sessions as well, where I learnt a lot about groups and facilitation, which are really valuable skills for taking Ecological Design Thinking forward as well.

Student e4

For lack of a better descriptor, I would just call myself an ecological design thinker. [...] Yeah! [laughing] I guess it's a way of approaching problem-solving that recognises that you can direct a course of action, you can direct a solution, but you can never control it. So, and that means accepting that whatever programme you come up with, whatever solution that you come up with its going to change, and then so it's about how you deal with that change.

Student e1

Ecological design thinker as an agent of change and transformation

This research found that in CS2 the ecological design thinker was seen as an agent of change and transformation; a catalyst for social and economic transition to building a sustainable world.

The aim is to inspire, skill and support a new generation of design activists and thinkers to catalyse the transition to a future where we use far less of the Earth's resources, and where all can flourish. [...] We will be there to support your learning journey, collectively and individually, and will be working with you to ensure this pioneering programme meets your aspirations and helps create a platform for your ongoing life journey as an effective and empowered change agent.

Handbook, 2016

[...] the module of the course that's to do with social and economic transformation, so it's looking at the ways in which both designers can play a role in the broader social and economic transformations that need to take place if we're to learn to live sustainably

within planetary limits [...] also look at the tools and approaches from ideas and practices of social change and from alternative economic models to look at the ways in which some of those approaches and some of those models might be of use to designers.

Academic staff member R1

Here, to be a catalyst for change and transformation meant to:

- Actively seek and build opportunities to create change

The programme aims to enable students to plan an active and transformative role in communities as we meet the challenge of transitioning to low carbon, high well-being and resilient places and systems.

Masters overview document (2016)

It has taught me so many things that I'm using already. So I'm part of the neighbourhood plan team and just an opportunity to bring what are quite big ideas and quite different ideas to normal, everyday thinking. I'm lucky to have an opportunity to test the waters out in the real world, outside the bubble of [the college].

Student e4

- Have a sense of agency and leadership in regards to change and transformation:

I guess there is a vision in the sense that the course is designed to encourage people to become actively involved in social and ecological change in whichever way suits them.

Academic staff member R1

Then lastly, making a commitment to being...making a commitment to yourself and to the world to actually be part of the solution, if you like.

Student e2

This mindset of change and transformation is a part of the learning community in which this Masters programme is seeding a perceived sense of mission in its students.

[...] but some of the things that are more to with the social life of the college through to things that are to do with catalysing projects, creating initiatives and/or discussing and debating with other students. So it's creating the conditions in which they can experiment with what it means to be a change agent.

Academic staff member R1

Ecological design thinker: a pluralistic perspective

According to this programme, ecological design thinkers were expected to have a pluralistic perspective that allows them to handle diversity, and keep an open mind regarding to other perspectives. First, to handle diversity in this context meant to conduct work in a range of different contexts, and having the skills to deal with uncertainty and complexity on many levels including ecological, social, ethical and financial.

But through the course, in a way, I almost began to see how complicated and complex – well how many different perspectives there are on things. And it's not as simple. There's not going to be any one way of solving any problems.

Student e3

And you have to accept that you can't control it. You can't control what's going to happen and you're drawing insights from all different people and working with those and then you see what emerges from that. So, it's really bad to start with a preconceived idea of what the outcome is going to be, because it's always going to change, and you have to be open to that change.

Student e1

Secondly, and importantly, a pluralistic perspective meant to keep an open mind and consider other perspectives with a constructive scepticism, empathic and ethical awareness.

Designers, especially designers who work on a kind of ecological level or sustainable level or social innovation level, I think they have a big responsibility, which very much concerns the ethical values. And obviously they need to be very empathic people. But being empathic could easily be...what's the word?...influenced by their own biases. So I think designers, more than anything else, need to be unbiased and none-judgemental.

Academic staff member M1

So changing your point of view on what a problem is, is really important, and that's something I've learnt here, is to not see it as a problem, see it as a complex system that behaves in this way and look for creative ways to intervene in that system to create change.

Student e2

Whereas I come here and I'm like, I started exploring the concept of nature and being a part of nature and looking at the bigger picture and being a bit more pragmatic and was trying to move away from like urgency and fear and all those kind of things. And also just not dismissing things.

Student e4

I see our students as being able to take a wider perspective and constantly challenging the specialists within the community group.

Academic staff member S1

This type of work led this research to establish a relationship with the ecological design thinkers' facilitation work and the type of outcomes they create.

Finally, the diversity of environment in the college and in the Masters programme naturally fostered the development of a pluralistic perspective in the future ecological design thinkers.

Ecological Design Thinker: processes as main outcomes

The outcomes of the work of an ecological design thinker were understood in this programme to be co-design processes closely related to the role of facilitator, including:

- Open ended processes with communities, and:

Things like mapping and– I think it's probably tools relating to engaging people to speaking to people and recording what they said in a certain way. And for me that was

valuable because you started on a project not knowing anything at all and not knowing...knowing that there was a problem that some people wanted to solve[.]
Student e1

And so I got the sense that I would – when I think of design I think of designers and the vocational aspect of designing products, or something. But this is more around designing our processes, how we interact. And that’s what I was quite interested in, in the stuff that I was doing[.]
Student e3

- Mediation of relationships through running public consultation processes or taking part in neighbourhood plans, for example.

So that was with the local town, working with them. We picked a site in the town and then just came up with ideas of how they might use the site and improve the site based on what they wanted[.]
Student e4

However, for one student with a design background there was still a need to maintain the ‘making’ of design attached to creative processes.

So I’m exploring how the relationship between thinking and making can inform the design process, and I am bringing that into my dissertation. Because I think making is a really important part of the creative process.
Student e3

– **Teaching methods**

The findings presented in this section include specific teaching methods identified for their potential to inform the development of this research’s outline of a Masters programme for an *amplified mindset of design*. As in CS1, these findings from CS2 are different in character to the previous findings because the intention was not to find a relationship between these different codes; rather, their organisation under the common theme of “teaching methods” fulfils the instrumental aims of this case study. This is to say that these methods were found useful to informing the development of an educational approach for an amplified mindset of design.

TEACHING METHODS Data sources: 15 / References: 102	This theme aggregates codes that can inspire the development of this research’s layout of a Masters programme for an amplified mindset of design.
Codes	Summary
Living and working in a community Data sources: 15 / References: 56	<ul style="list-style-type: none"> - Informal teaching method - Contributes to an immersive academic experience - Tendency to be closed off from the world
Dialogic teaching Data sources: 10 / References: 22	<ul style="list-style-type: none"> - Cements learning experiences and increases student engagement with theory - Used to develop cohesion and a culture of support
Live-projects	<ul style="list-style-type: none"> - Part of the experiential learning in the Masters programme

Data sources: 6 / References: 10	
Embodiment methods Data sources: 6 / References: 14	- Examples of the exploration of academic content through experiences that use body awareness and body movement.

Table 29 – Summary of the theme "Teaching methods"

Living and working in a community

The living and working community in which this Masters programme was run can be considered an informal teaching method that seeks to foster a sense of trust in the students to explore diverse ways of knowing; it is one that contributes to an immersive academic experience that complements the students' learning in their programmes. However, a tendency was also identified in this community to be closed off from the rest of the world.

Firstly, the living and working community set up an informal and emotionally safe environment so that students could explore other ways of knowing. This was evidenced by:

- The academic philosophy behind the college/community that contends that human qualities are important to consider in science. The ethos of the college is "Hands, Head, and Heart";

So Schumacher began about 25 years ago, initiated by the idea that science can be done in a different way. But the scientific discourse was about separating objective reality from the observer, and it was trying to bring back the observer into it and saying that our qualities as human beings are important in science.

Student e2

- The estate setting which is a farm with one main building where students and staff gather for their meals, general meetings, leisure activities, and some classes:

- o People sit relaxed in meetings; also, wearing no shoes is very common indoors, and

A few people bring their breakfast bowls to eat during the meeting.

16-02-15-Fieldnotes

- The general sense of trust in the community (and particularly in the Masters programme).

Just working at doing the morning meetings and the cleaning together, cooking together; the structure of the day. Those things are very good. And warm and inclusive and made you feel safe to be able to explore and [pause] yeah, made you feel safe. That safety of being ensconced in a way of life.

Student e3

However, because students and staff developed close relationships there was an underlying tendency to assume that everyone should be friends.

Everybody was very excited to get to know each other, you know when you see like-minded people and you get so excited, but then, after they get to know each other...it happens in any kind of community, you start knowing each other's differences and that's

the beginning of conflicts. But because they had such a good start, they couldn't handle this conflict...

Academic staff member M1

Secondly, the College community contributed to an immersive academic experience, which complemented the learning of all its Masters programmes.

But then there is the broader learning environment of the college, in which people work together to create the community, so they work together in the gardens, cleaning, so quite mundane tasks, but I think they learn something about one another by working alongside one another that's quite pivotal to their learning.

Academic staff member R1

It was quite intense having ten, twelve students eating, working and learning together, often from very different angles, looking at what Ecological Design Thinking was from very different aspects, and with very different personalities.

Student e3

Examples of how the immersive experience complemented learning included:

- The diluted boundaries between the postgraduate programmes, short courses, the community of volunteers, and academic staff;

I think the Masters can't be separated from the context of ----- College. It's very much connected to this place and to its history. And so you have to understand that context.

Student e3

They live together and that's a significant element, because it means that we can afford to say to ourselves, 'Look, we can't put anymore into the formal course, it gets too packed and people don't cope with it, but we can allow material to leak out or in from the informal environment.' [...] The MA and the college complement each other[.]

Academic staff member S1

- The development of social skills such as empathy and non-judgment;

Yes. It helps to develop particular social skills. [...] Like it helps with empathy and I think it helps a lot. Ideally a lot of it...you know how you need to be un-judgemental to be able to empathise with people? It probably helps with that, but also...it's difficult for me, because I haven't lived here, so I don't know how they feel.

Academic staff member M1

- The peer learning seen in activities started by community members, and informal discussions about the classes' topics

They're encouraged to organise the life of the college, so to run workshops for one another, to show film screenings for one another. So from some of the things that are purely to do with the social, nothing is ever pure, but some of the things that are more to with the social life of the college through to things that have to do with catalysing projects, creating initiatives and/or discussing and debating with other students. So it's creating the conditions in which they can experiment with what it means to be a change agent.

Academic staff member R1

A good thing about this type of environment is that as they leave a class and come to dinner or for a snack...students keep debating the topics they've discussed in class and

that peer learning even between different courses is very important in my opinion to achieve a deeper level of learning.

16-02-19-Fieldnotes

- The coffee breaks in the Masters programme, around home baked cakes, where students and staff discuss the class topic bringing in their personal experiences (16-02-16-Fieldnotes).

Thirdly, this immersive experience was found to encourage a tendency (not always desired) to be closed off from the outside world, revealing the tension of working in *echo chambers*.

We haven't really – that's quite interesting. Because people who come here, come from a particular mindset, and I know that when I was deeply involved in this space the rest of the world seemed unreal. Even going to [town], I felt disconnected.

Student e3

I feel that it makes it very easy for people here to communicate with one another, but as a designer, I think you can't just rely on that, you should be able to communicate with people who are not willing to communicate with you. [...] Is deep and transformative, but it's quite inward looking. So it then becomes a problem when the students leave this environment because they sometimes feel a bit lost.

Academic staff member R1

However, this immersion helped students reflect on non-mainstream concepts and notions in order to effect change.

This environment provides a safer space for you to do that. I think it would be difficult to do that in a city, because of the...I'm talking about my experience of living in the City of London. There are a lot of distractions and I think because these concepts aren't mainstream, or some are only becoming mainstream now, you kind of need to step away from the mainstream just to change your point of view.

Student e2

The Master's students and staff worked at being critically open-minded, and found the need to be more open to the outside world, to move away from any form of perceived indoctrination.

And here it's very open and of course, I don't take everything– I take things with a grain of salt so I don't believe everything that I'm told here so I still keep an open mind and so do others and I love that.

Student e1

So you feel the need to have more things that feed from the outside world.

Student e4

It's very possible at [the College] to get so wound up into what I think is almost a form of indoctrination, and my view is that you must remain sceptical, you must always challenge all of these sorts of things.

Academic staff member S1

Dialogic teaching

A dialogical approach to teaching was a significant aspect of CS2, used to cement the experiential learning, and develop cohesion and a culture of support in the programme by encouraging collective constructive conversations. A dialogical approach is an intrinsic aspect of this programme, where academic content is delivered in a conversational manner, sometimes during walks outside the classroom, which was found to result in higher student engagement.

You will learn collaboratively through seminars, workshops, and conversations, outdoors, in studios with local partners and around the coffee table. This will be a truly immersive learning process.
Handbook, 2016

Firstly, the use of dialogue in CS2 served to introduce and explore theory with the students (another challenge included in the programme) and to cement the learning experiences in the programme.

The conversations were a very big aspect of the course, I guess.
Student e3

I think one of the challenges that we faced was that because of the nature of the course, the students weren't necessarily spending much time reading in preparation for sessions, which then meant that we ended up doing quite a lot at delivery, but then that's not a very rich approach to learning.
Academic staff member R1

However, it was recognised by one lecturer that the context and educational level can affect this conversation method; for Master students this approach could not dominate the programme.

Well, it's very different, because it's very varied. ----- has been working with PhD students for fifteen years at least. His teaching method...he doesn't teach, he just converses, and as a PhD student, that's all you need basically. [...] With Masters students, it doesn't really work that way, although that's a brilliant way, so with ----- and ---- that works, because there are just two of them.
Academic staff member M1

Secondly, this approach, using collective constructive conversations, was used to promote cohesion and a culture of support within the programme.

We hadn't really understood where are we positioning ourselves here, as individuals, or as a group or as a college you know? And so there was a lot of debate about that. So I guess that's part of the methods, where you give a group time to get to know one another and to really understand the context of where they're in, or where we're positioned here?
Student e3

These conversations were used to deal with tensions within the cohort and were supported by circle techniques (sitting in circles) where there was no perceived hierarchy, which helped to balance active and passive participants.

[...] and there were always some people who just wouldn't speak up because there were some very dominant people in discussions and, I think, there's value in hearing everyone's voice. Even if that person just says well I don't have anything to add at the

moment, at least you know that they haven't been hiding or they haven't been suppressed. And again, a circle thing makes that more clear because you see everyone, you can also read their body language.

Student e1

Live projects

Live projects are part of the programme's experiential learning and were supported by action learning groups. These included the development of co-design projects in local towns and work placements in real organisations.

That with this course they have a project placement in the local area, so they do go out and work away from the college and we set up an action learning group for that process, so that they still have a support, they are still supported in meeting the challenges that they're meeting in their live project placement.

Academic staff member R1

The third module was half taught and half live projects with the local town. The fourth module was part taught, part live project based on the estate, and the fifth module was a work placement, so working on the project with an actual live company.

Student e4

Embodiment methods

This code offers examples of embodiment exercises found or referred to in CS2, referring to their value in helping the students explore academic content through an experience of body awareness and body movement. Examples of this include the following:

1. 'Walking and talking with the dead' was the title of one assignment in CS2. It was defined as a non-classical form of essay to explore theories from a historic personality (in this case: Johann Wolfgang von Goethe and Carl Jung). Students had to write the script of a play where they had a dialogue with the chosen personality and experience/perform that dialogue in a path of their choice within the college estate. This type of exercise covers literature review and writing skills, and it develops the student's imagination.

Walking and having a conversation with this dead person, [...] they go into nature, experience, at least partly, experience the route they are taking, and being present in that environment and then imagining, using the imagination that someone else is walking with them. But that's part of the experiential learning as well.

Academic staff member M1

[...] the very first exercise our students did, which was the Walking with the Dead and Talking with the Dead. And I looked at the marks that they got on that and I judged that assignment as being the kind of assignment that would give you a reliable estimate as to how that student was likely to perform on the course, because it contained writing skills, imagination, [pause] literature reviewing – it was all blended into that without giving it the classical format of an essay.

Academic staff member S1

2. 'Medicine Walk' was an exercise performed by one student in CS2 where by walking in nature with a question in mind for an assignment, the student was

aware of both the surroundings, and personal thoughts and sensations related to the question. This helped the student to see things from an ecological perspective.

[...] with a question, yeah, and just reading the signs. [...] And it was very insightful for me. Extremely insightful, and if I had— funnily enough I'm just drawing a parallel with what came up for me, which was only just a few weeks ago and the assignment I did. It was a lot about edges and boundaries [...] In my assignment, I started realising that boundaries are very important edges. At the edge of learning, like for diversity and so on and then I was looking at the land and how it was sectioned off and all these fences everywhere, and I was drawing parallels with that, and then what boundaries and fences are in the organisation between people and between different units in the organisation.
Student e1

3. “Deep time walk” was an exercise done across the College, where a walk in nature is used as a metaphor to explore the major events in planet Earth’s lifetime and the impact of human presence on the planet. The distance walked represents the duration of Earth’s existence.

Every 50cm covered during the walk referred to half a million years...our existence was only addressed in the last 20cm of a 4.6km walk.
16-02-19-Fieldnotes

4. ‘Hunger Banquet’ was an exercise used by one student to explore and bring awareness to the abundance/lack of food in each Continent.

This was from the class on Ethics, on Monday morning. The hunger banquet exercise included to organise a meal for students where each table represented a Continent, and had a different menu based on the abundance/lack of food available in that continent. There were tables only with rice, or bananas and others full of tasty food. The student that organised this exercise told us that the table with less food shared their food and the ones with plenty didn’t even pay attention to the other tables and ate without being aware of what was happening in the other tables. We were discussing empathy.
16-02-16-Fieldnotes

5. “Empathy museum” was given as an example of an empathy project on knowing and experiencing people’s life stories

There was an interesting idea on the creation of an empathy museum where we can borrow people to hear their stories or experience other people’s environments.
16-02-16-Fieldnotes

6. Systems games were used to experience systems dynamics and better understand theoretical content related to systems thinking.

I think it leaves them with something of an embodied experience of a complex and dynamic and integrated system. And at some points we use systems games which encourage students to experience system dynamics rather than simply to accept the content of the material they’ve been introduced to.
Academic staff member R1

Link with an amplified mindset of design

The living and working community of CS2’s college was discussed in this section due to its transformational effect in the students caused by an intense and immersive experience, which could help to develop the ‘human-centred and

synergistic worldview’ aspect of the AMD. It was also observed by this research that the dialogic type of teaching in CS2 has the potential to generate higher levels of engagement in students and help to build group cohesion in a cohort, signalling the development of the “social skills” aspect of the AMD. The use of live projects, which were collaborative in CS2, can also assist in the development of the “social skills” and “integrative behaviours” aspects of the AMD.

Finally, embodiment methods can be seen as way to create an inclusive pedagogy (Graham 2014), which increases student engagement with their education. These methods have the potential to develop “integrative behaviours”, by exploring other ways of knowing, which is one aspect of the creation of synergies in the conceptual framework of an AMD. Additionally, these methods can also be used to explore worldviews and, thus, contribute to the development of the “human-centred and synergistic worldview” aspect of the AMD.

– **Overlaying the amplified mindset of design**

This section is devoted to exploring relationships (illustrated in Figure 88) between the distinctive characteristics of CS2 and the conceptual framework of an *amplified mindset of design*. This section intends to partially answer this research’s main question of identifying distinct approaches to postgraduate design education which help future designers develop an amplified mindset.

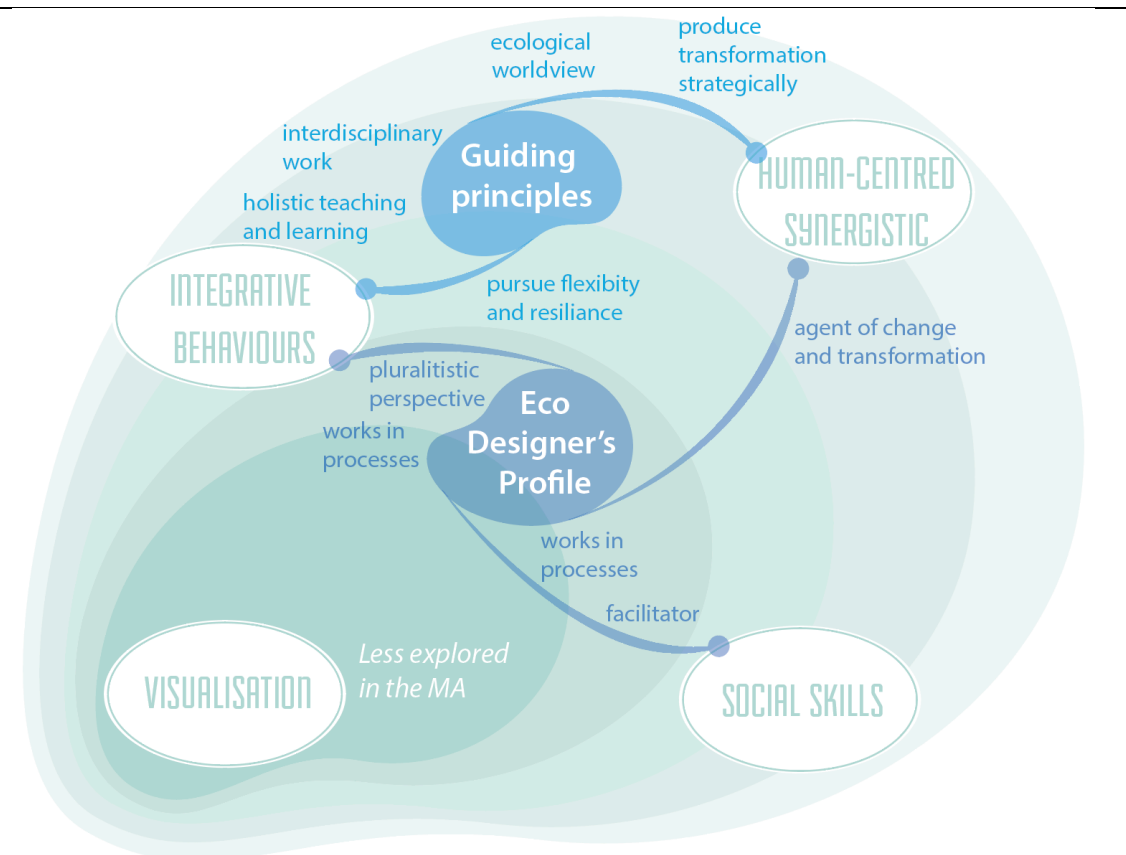


Figure 88 – Guiding principles and characteristics of the ecological design thinker from CS2, superimposed onto the amplified mindset of design

Guiding principles of CS2 and an amplified mindset of design

The guiding principles of the MA Ecological Design Thinking are shown in Figure 88 to have closer relationships with the “integrative behaviours” and “human-centred and synergistic worldview” aspects of the AMD than with “visualisation” or “social skills”.

The relationship with the “integrative behaviours” was established based on the interdisciplinary work developed in CS2, its holistic approach to teaching and learning, and the pursuit of the flexibility and resilience needed to undertake such interdisciplinary work and hold such a holistic stance, which relates to the creation of synergies and work in boundary spaces suggested in the AMD (see section 7.1 for details).

As for the relationship with the “human-centred and synergistic worldview”, CS2’s ecological worldview echoes this aspect of the AMD due to its main focus on ecology and environmental sustainability over a person-centred approach. To “produce transformation strategically” in CS2 was found to relate with this aspect of the AMD based on the focus in CS2 on developing strategies for sustainable change in social, ecological and financial systems.

Ecological Design Thinker in CS2 and an Amplified Mindset of Design

As depicted in Figure 88, the characteristics of the ecological design thinker found in CS2 were placed in the centre of the AMD conceptual framework, revealing equal relationships with three aspects of the AMD: “social skills”, “integrative behaviours”, and “human-centred and synergistic worldview”. Firstly, the notion of ecological designer as facilitator can be seen as having a direct relationship with the “social skills” aspect of the AMD. Secondly, the sense of mission found in the characteristics of the ecological design thinker as an agent of change and transformation fit into the strategic concerns of the “human-centred and synergistic worldview” of the AMD. Thirdly, the remaining characteristics of the designer in CS2 include a pluralistic perspective – that is, handling diversity well and welcoming new perspective – and a focus on co-design processes as main outcomes. It was possible to establish a parallel between these characteristics and the “integrative behaviours” aspect of the AMD based on the references in the case to interdisciplinary work, joining different types of knowledge, and the collective ownership of designs solutions. The outcomes of an ecological design thinker can also be placed within the ‘social skills’ aspect of the AMD based on the mediation and facilitation aspect of this type of work.

Moreover, the lesser emphasis in CS2 on exploring visualisations, compared to the development of interpersonal (over visual) facilitation skills is believed in this research to result from this Masters programme orientation towards design thinking rather than design, and a host institution without an arts and design tradition. This was a programme that showed characteristics of adult education (Knowles 1984) in its focus on developing integrative behaviours and social skills mainly supported by the experience of living in a learning community. However, it

is in the intellectual exploration of the synergistic and eco-centred worldview that this programme fulfils the HE goal of epistemological development (MacLellan 2015).

5.5 – Case Study 2: interim conclusions

From the findings presented above, this research concludes that the MA Ecological Design Thinking can be characterised as an immersive programme informed by ecological principles and that uses a holistic approach to navigate the world's complexity, and in which students learn to take an active role in facilitating sustainable change.

– *An immersive programme informed by ecological principles*

The immersion provided by the living and working community in which CS2 operates was identified as an impactful aspect in this case. Students live, work and study together, which can lead to the creation of strong emotional and intellectual bonds between them. It can be argued that the community life forms an extension of the academic approach of this college, on the grounds that students debate their academic topics outside the classroom, and this culture of exchange and debate can be said to augment the academic experience of the Master programme. The explicitly ecological stance of CS2 was witnessed in this research, and the programme in question was found to be informed by ecological principles as a basis to intervene in the world and produce sustainable change on the social (high wellbeing), ecological (low carbon) and financial level (resilient communities).

– *Holistic approach to navigating complexity*

The holistic approach found across CS2 and its surrounding context led to the conclusion that such an approach was used in this Masters programme as a vehicle to navigate the world's complexity and to seek out sustainable solutions that are ecologically informed. This was observable in the college ethos (“hands, head, heart”), and in its founding principle of incorporating human qualities into science. In CS2, this holistic approach was found on different levels, such as:

- The student seen as a whole, taken as an observer and participant of the learning journey, receiving both academic and personal support;
- The world seen as a series of relationships;
- The interdisciplinary position of the programme, the integration of theory and practice and the development of pluralistic thinking, and
- The exploration of diverse ways of knowing, evident in the use of embodiment teaching methods.

– ***Developing design thinkers to facilitate sustainable change in the world***

The will to develop the whole person and the focus on developing change agents and design activists was at the heart of the transformative learning (Mezirow 1981) that characterised this case. For CS2, the role of the ecological design thinker reveals a sense of mission – the mission to facilitate change – and shows signs of a facilitation practice that is widening its interventions to a vast array of areas and contexts that demand sustainable change. This reflects more of an attitude informed by design, rather than a skilful practice of design.

Students were encouraged to question and develop their worldviews and frames of reference (Kegan 2009) in this Masters programme, which was supported by the intensity of living in a learning community. The sense of retreat in this community provided an emotionally safe space for students to reflect on non-mainstream concepts, and search for a personal and professional meaningful path, away from the demands of the outside world. The potential, discussed earlier, of the community experience to contribute to the development of flexibility and resilience and deep learning dispositions can moreover be said to contribute to the transformation of the students into agents of change in the world.

5.6 – Comparing and contrasting the cases

While sharing a number of characteristics which fit into an *amplified mindset of design*—collaborative ways of working, interdisciplinary orientation, international cohorts of students, focus on navigating complex scenarios, strategic orientation, a transformative potential—these programmes are distinct both in context and in format, comprising a rich sample that exemplifies distinct approaches to postgraduate design education with an amplified character.

– ***The format***

Although both cases have an innovative approach to design, CS1 can be described as having a more conventional HE setting in comparison with CS2. When I first engaged with CS2, I was expecting to find more openness to less conventional design practices in comparison to CS1. However, it was CS1 that showed more innovation in its design practices, which can probably be attributed to the arts and design history of its art school and the fact that this is a mature programme, which reinforces the importance of maintaining design education within HE.

In comparison with CS1, CS2 looks static from the visual representations offered in Figure 89. This is a programme in its infancy with two editions so far. The openness of CS2 happens internally in its holistic approach to teaching which is less conventional than the one in CS1. Due to its early life, it is too early to conclude whether CS2 is an inward-looking programme, when fieldwork shows aspirations for a more outward looking programme that wants to explore live projects further.

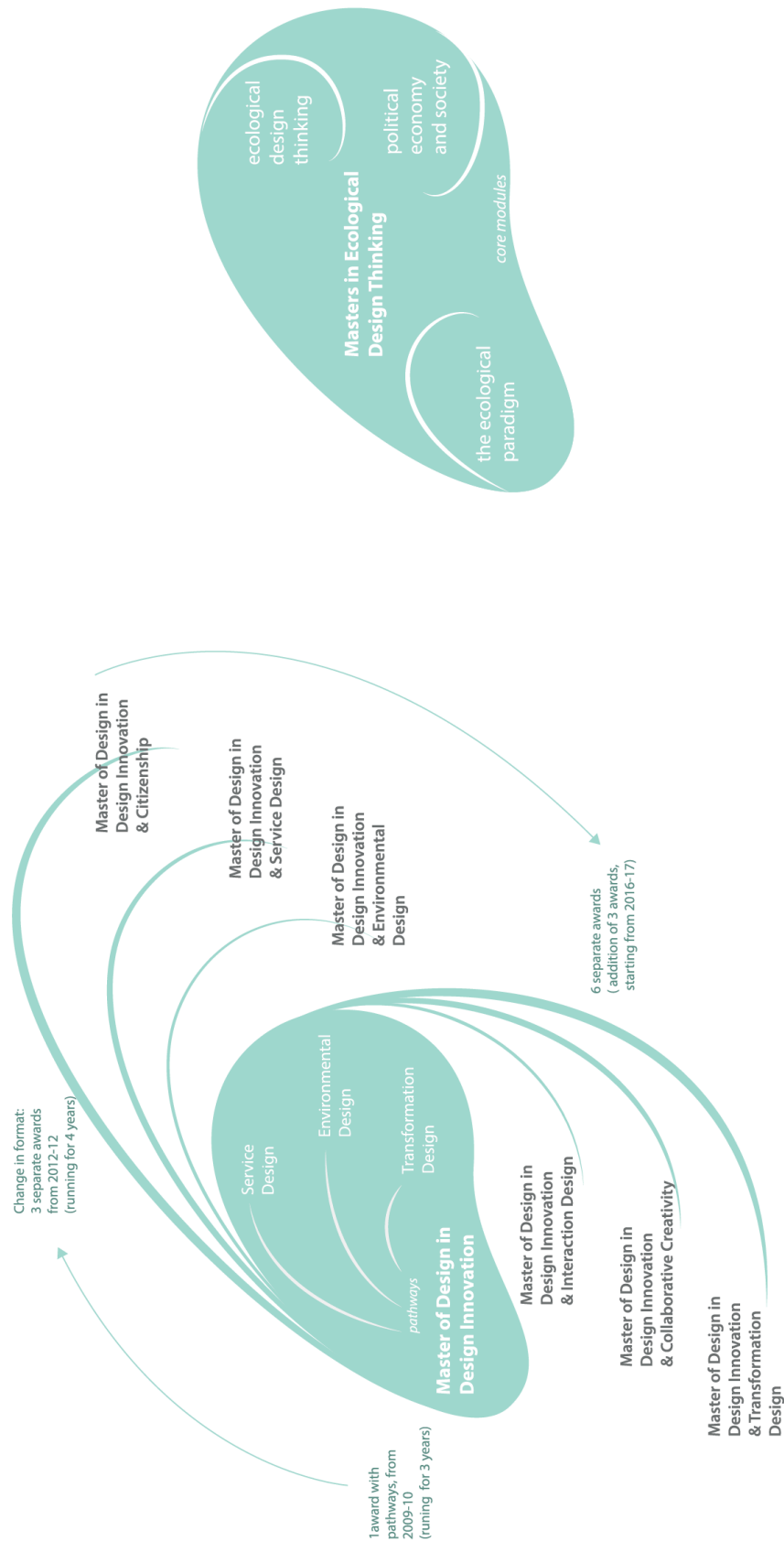


Figure 89 – Diagrams illustrating the format of CS1 (left) and CS2 (right)

– ***The type of findings***

The analysis of the data gathered and produced for both cases resulted in the definition of the characteristics of each Masters programme in the form of their guiding principles, and the key notions regarding their design specialism. These cases initially indicated the presence of an amplified design approach, and the characteristics of the cases identified in this research evidence such a relationship. Another type of findings, which required less interpretation, focused on identifying specific aspects and teaching methods in both cases that could inform the development of this research's Masters programme for an *amplified mindset of design*.

In comparison with CS1, findings from CS2 resulted from a smaller data set and a shorter period of involvement with the case. Figure 90 offers a comparison between the findings from both cases, highlighting three main relevant aspects. First, the recent history of CS2 in comparison with CS1 led to the generation of themes and codes with less variations and nuances. This is evident in Figure 90 which shows the three guiding principles of CS1 with more variables and codes, against the five guiding principles of CS2 which had significant differences. Secondly, regarding the characteristics of each design specialism, CS1 includes references to design innovation's definition, designers, and type of outcomes, while CS2 refers only to the characteristics of the ecological design thinker. This can be attributed to this being a programme that is seeking to consolidate its approach, reinforced by the recognition in CS2 that more investigation needs to be done to define ecological design thinking. Thirdly, the findings used to inform this research's development of a Masters programme referred to teaching methods and challenges identified in CS1 (a more abstract case based on documents and interviews more than on observations), and teaching methods found in CS2. The larger amount of detail on the latter resulted from the type of case with which I was more engaged (micro-ethnography), and which allowed a deeper understanding of its teaching methods.

Finally, the distinctive characteristics of each Masters programme are offered in Table 30. CS1 was a networked programme seeking to develop its students for continuous amplification, and CS2 was an immersive programme seeking to develop its students to be agents of sustainable change.

CS1 MDes Design Innovation	CS2 MA Ecological Design Thinking
Networked programme	Immersive programme
Informed by social science principles to navigate the world's complexity	Informed by ecological principles and a holistic approach to navigating the world's complexity
Develops its students for constant amplification of their practices	Develops its students to have an active role in facilitating sustainable change.

Table 30 – Distinct characteristics of CS1 and CS2



– ***The amplified character of each case***

The connections between the case findings and the conceptual framework of an amplified mindset of design offered in sections 5.2 for CS1, and 5.4 for CS2 were partial, as expected, because these programmes were not created to fit the AMD. Both cases showed close connections with the “integrative behaviours” and “social skills” aspects of the conceptual framework. However, the differences observed in the remaining two aspects of the AMD complement each other. CS1 had a person-centred and socially oriented approach, and CS2 showed a synergistic and ecologically oriented approach, regarding the “human-centred and synergistic worldview” aspect of the AMD. In the visualisation aspect of the AMD, this was present by default in CS1 but partially addressed in CS2. The core definitions of design innovation in CS1, and the ecological design thinker in CS2, were placed at the centre of the framework as seen in Figure 84 and Figure 88, reinforcing the amplified character of each case.

The amplified mindset of design, as defined in this thesis, is a reflection of an emerging take on design that includes many partial views that together form a whole. These programmes are part of this amplified mindset of design and their investigation was aimed not at confirming its existence but at finding the specific aspects that relate these cases with the AMD to further inform a specific educational approach to design education centred on developing an amplified mindset of design.

CHAPTER 6 - A SHIFT FROM PRACTICE TO MINDSET AND ITS CONSEQUENCES

This chapter explains the shift in the conceptual framework of an amplified *practice* of design into an amplified *mindset* of design which gained significance between CS1 and CS2. This change impacted both the research questions and outcomes of this thesis which will be discussed in section 6.1. Consequently, it was recognised that design education literature could benefit from fundamental concepts and theories of learning to assist in shaping and conceptualising new approaches. Section 6.2 discusses educational literature used to inform the development of a Masters programme for an *amplified mindset of design*.

6.1 – From design practice to design mindset

From further reflection on what qualified an amplified practice of design (in Chapter 2), and by revisiting the parallel made earlier in section 2.5, between the amplified practice of design and Michlewski's "design attitude" (Michlewski 2015) and Inn's (2013) extended role of design, it became clearer that the AMD conceptual framework offered by this thesis reflected a wider mindset that can be said to encompass design roles and a design attitude.

The change from *practice* to *mindset*, chronologically documented in section 4.8, reflects a wider notion of design as more than an activity or a profession, to include a worldview, emerging design goals and concerns, ways of working and design roles. In the conceptual framework of an amplified mindset of design, the term "mindset" highlights the ontological character of this perspective of design, already reinforced in the growing focus of emerging design practices on exploring ways of being (using McAra-McWilliam's (2010) RW model)

– **The notion of mindset**

To introduce the concept of mindset, the notions of global and growth mindset and habitus were used to clarify this research's use of the term, and to expand further on the definition offered by the Oxford Dictionary Online (2015): "established set of attitudes held by someone".

Mindset

The concept of mindset was found to be associated with areas such as business, education and psychology. First, in the field of business and organisational studies the study of mindset was found in Argyris (2004), McGrath (2000), Owen (2015), and Bechler and Javidan (2007), for example. The last of these explored the notion of global mindset as a business leader's cognitions or primary attitudes that determine personal beliefs, influence personal choices, and drive behaviours and outcomes. This notion of global mindset can be readily related to an amplified mindset of design as a wider notion of design. Second, while Bechler and Javidan focus on defining mindset as a concept, which is useful to clarifying this notion for this thesis, Carol Dweck (2006) offers a contribution from the field of

psychology and education that can take the use of this concept in this thesis further. The notion of a growth mindset (Dweck 2006) will be further explored in section 6.2 as a learning disposition due to its value for the development of an educational approach to developing an AMD. Anticipating section 6.2, a growth mindset as an internal set of beliefs about learning is taken by this thesis as a pre-requisite to developing an AMD due to its ontological character.

Looking at the elements of the AMD conceptual framework offered in section 2.4—acting at human-centred and world-centred strategic levels; showing integrative behaviours; mastering social skills; visualisation of the intangible for insight and communication—it is possible to identify a set of beliefs and attitudes that guide designers intrinsically towards showing an amplified perspective.

Habitus

Another concept that usefully reinforces the notion of mindset used in this research is Bourdieu's concept of *Habitus*, explored by Costa and Murphy (2015) as a research tool to assist researchers in understanding the social world. This view aligns with the social constructionist approach of this thesis and with the social and collaborative characteristics of an AMD. Habitus is a rich term, which this research refers to in a brief manner only to better explain the concept of (amplified) mindset (of design). Costa and Murphy (2015) differentiate habitus from habits, defining the former as accumulated experience and describing it as “a complex social process in which individual and collective ever-structuring dispositions develop in practice to justify individuals' perspectives, values, actions and social positions” (Costa and Murphy 2015: 4). To this definition, Costa and Murphy add that these interrelations between individuals and collectives are “establish[ed] in the social spaces to which they belong” (Costa and Murphy 2015: 7). Similarly, as designers are increasingly showing and exploring social and collaborative ways of working, they are exploring *habitus* as their working territory, and in their ways of working in communities of practice (Wenger 1998). This last concept from educational theory will be further explored in section 6.2 for the development of a Masters programme informed by an AMD.

Additionally, section 2.3, which covers emerging changes in design, discussed the current discourse on design by presenting different conceptual perspectives and experiences from designers and design researchers. In light of *habitus*, it can be said that the content of section 2.3 described an emerging habitus of designers, especially if the following quote is considered:

...Bourdieu tried to access internalised behaviours, perceptions, and beliefs that individuals carry with them and which, in part, are translated into the practices they transfer to and from the social spaces in which they interact.
Costa and Murphy (2015: 3)

Costa and Murphy (2015) point out that although this dynamic concept includes an element of tradition, it encompasses an element of continuity enabling the production of “new ideas, views and approaches”, such as those found in metadesign, design innovation, and in an amplified mindset of design.

– **Final research questions and objectives**

The shift from practice to mindset impacted the research objectives and research sub-questions, resulting in changes in the methodology and in the research outcomes. Table 31 shows the final research questions, aim and objectives, with slight alterations from their initial version, offered in chapter 1. Changes include the replacement of the word “practice” with “mindset” to refer to an amplified mindset of design, and a refinement of sub-question 1c to focus on discovering the characteristics of each case study, which were realised in the form of guiding principles (see Chapter 5). The most significant change, however, was the shift from the development of work packages into the development of a Masters programme in sub-question 1d. This change was a consequence of the shift from a focus on *practice* to a focus on *mindset*, which led to a shift from the development of education work packages towards a Masters programme for an amplified mindset of design. To use work packages as isolated interventions on a larger design education context would fail to meet the need to convey and explore an amplified mindset. As a consequence, designing this Masters programme demanded another methodological process distinct from the case studies that were covered in section 4.9. The objective of this methodology was not to explore an existing reality (such as the case studies) but to produce a research outcome informed by findings from the case studies (see sections 5.2 to 5.6) and from educational literature (see section 6.2 below).

This research produced two outcomes (see Chapter 7): a conceptual framework of an amplified mindset of design as an open framework to be appropriated and adapted by designers and design educators to advance design practices and design education, and a Masters programme (MDes in Adaptive Design Practices) able to pedagogically explore an AMP.

FINAL RESEARCH QUESTION	FINAL AIM
1. How can distinct approaches to postgraduate design education help future designers develop an amplified mindset?	Identify distinct approaches to postgraduate design education, which can help future designers develop for an amplified mindset.
FINAL SUB-QUESTIONS	FINAL OBJECTIVES
1a. What can be defined as an amplified mindset of design in the literature, and in the field?	1. Define the characteristics of an amplified mindset of design, from literature and in the field.
1b. Where are there examples of design education for this type of mindset?	2. Look for examples of education for this type of mindset.
1c. What characterises these postgraduate design programmes?	3. Explore the characteristics of each postgraduate programme, and relate them with the conceptual framework for an amplified mindset of design.
1d. How can these approaches to design education be developed further into a new Masters programme?	4a. Develop an outline for a Masters programme which exposes students to this amplified mindset. 4b. Gain feedback on the relevance of such a programme.

Table 31 – Final research questions and objectives

6.2 – Closing the gap on design education

In light of the shift just described, it is pertinent to situate this section within the overall development of this research. After Chapter 3, which outlines the methodology for this research, the fieldwork activities were discussed, in Chapter 4, and included the development of a Master programme for an amplified mindset of design, in section 4.9. This section anticipated relevant practical and theoretical elements that informed the development of the Master programme, which included specific interim findings from the case studies covered in Chapter 5, and relevant elements from educational literature that will be developed below.

The end of Chapter 2 covered emerging views of design education and identified a need to go beyond the discipline and build a stronger bridge with educational literature. Although the detachment of design education from educational literature gives freedom to design educators to develop innovative approaches, to fully realise the aspirations found in design education literature (section 2.1) and in particular to develop an educational approach for an amplified mindset of design (see sections 4.9 and 7.2), it is important to identify relevant educational issues to support the development of curricula and educational activities for new approaches of this kind. An extensive discussion of these theories would be the subject of another type of research. This research sits between an exploration of emerging design practices and design education. Therefore, a short account of educational theories will serve to address the gap identified in design education, and establish the theoretical framework that informed the development of a Master programme for an amplified mindset of design. Additionally, these contributions will be used to identify educational aspects already at play in the implemented approaches found in CS1 and CS2.

– *Developing a mindset in HE requires epistemological literacy*

The conceptual framework of an amplified mindset of design emerged from the exploration in this thesis of design's expanding and ambiguous territory which sits within a global context of complexity. As a complex mindset, the AMD incorporates, for example, collaborative practices and openness to diverse ways of knowing. This requires an educational approach that focuses on developing students' epistemological awareness and critical thinking (Maclellan 2015) regarding their own learning beliefs and dispositions (Crick and Goldspink 2014). Maclellan's view of an educational approach for a context of complexity points to four foundational aspects of teaching in HE:

- surfacing learners' epistemic beliefs, as these are the bases of new learning;
- actively engaging learners' views of knowledge so that their refinement can be the objective of educational practices;
- emphasising and evidencing critical thinking;
- foregrounding teachers' own epistemic beliefs in their reflections on practice. (MacLellan 2015: 171)

Building on MacLellan's contribution, this thesis argues that the process of developing more sophisticated epistemic stages needs to be fostered by a social mode of learning (Wenger 1998) that encourages dialogue and interaction between diverse accounts, which brings to the classroom a sample of the world's complexity and the growing collaborative practices of designers. Additionally, the exploration of epistemic beliefs in the learning and teaching relationship must be reciprocal (MacLellan 2015, Wenger 2009) between students and educators. Educators seeking to identify their own conceptions of learning, epistemological beliefs and learning dispositions, reflect on the consequences of these, and can better partner with students to develop knowledge and skills. This is particularly important in a programme like the one developed in this thesis which aims to develop a mindset that is inclusive and synergistic.

This exploration will be done in three stages. First, an introduction and discussion of theories of learning that cover epistemological development and social modes of learning. Second, a focus on how learning develops in students, focusing on epistemological development and learning dispositions. Third, discussing the integration of adult and formal education as suitable to developing an amplified mindset of design.

Learning and epistemological development

To introduce the discussion on epistemological development in students, Table 32 uses Maclellan's definition of teaching to foreground definitions of learning connected to the pragmatist views of Dewey (1916/2011) and Marton and Booth (1997), and the constructivism-oriented views of Mezirow (1981, 2009), Kegan (2009), and Wenger (1998, 2009). These were found suitable to assist the development of a Masters programme for an AMD in this research. Regardless of their different positions these authors share the assumption that students are active in constructing their knowledge, and apart from Wenger who offers a social perspective on learning, all these contributions address epistemological development and student transformation.

Teaching	Learning			
MacLellan (2015)	Mezirow (2009)	Wenger (2009)	Dewey (1916/2011)	Marton and Booth (1997)
"Reduced to its essentials, 'teaching' enables learners to acquire knowledge and to use such knowledge at different time points, in different contexts and for different purposes from those in which the knowledge was	"Transformative learning is defined as the process by which we transform problematic frames of reference (mindsets, habits of mind, meaning perspectives) – sets of assumption and expectation – to make them more	Learning as social participation, which includes: - finding meaning through experience - belonging to a community (of practice) - practice as mutual engagement in	"Learning is coming to know, it involves a passage from ignorance to wisdom, from privation to fullness from defect to perfection, from non-being to being (...) [E]ducation as a deliberately practice to	"Learning as a change between qualitatively different ways of experiencing something, that is, gaining knowledge about the world." (1997: 142)

first acquired.” (2015:172)	inclusive, discriminating, open, reflective and emotionally able to change.” (Mezirow 2009: 92)	action - developing personal identity in the context of a community	accomplish such transformation.” (Dewey 2011: 180-1)	
Students are active in the learning process Knowledge is constructed				

Table 32 – Definitions of learning foregrounded by MacLellan’s (2015) definition of teaching. (Marton and Booth 1997, Dewey 1916/2011, Mezirow 2009/2012, Kegan 2009, Wenger 2009)

Mindset development requires transformation

The issue of epistemological knowledge is addressed in transformative learning (Mezirow 1981), which focuses on changing students’ problematic frames of reference (assumptions, beliefs, mindsets) into more inclusive and empowering ones to generate personal transformation and social change (Mezirow 2009). As Kegan (2009) later synthesises: effecting epistemological shifts in the students. Similarly, to educate for an amplified mindset of design has a transformational intent because it covers a non-traditional emerging position in design that is strategic and adaptive. This strategic and adaptive position was found in CS1 and CS2 with the added potential for student transformation from the exposure to new design practices and designer’s roles with an implicit sense of mission.

Transformative learning encourages critical self-reflection on the origins and structure of personal assumptions (Mezirow 1981), and dialectical discourse around the student’s experiences. This informed the development of a Masters programme in this research as one method to develop an AMD (see Dialogue sessions, in section 4.9, Figure 49 and Figure 50). However, the emphasis on individual accounts of experienced events in transformative learning overlooks the potential of using the context as a mediator of experiences (Taylor and Cranton 2013), and the value of collective meaning construction found in Wenger’s (1998) social theory of learning, which favours social participation over epistemological development.

Figure 91 shows the triangulation of the education theories used in this research, showing how Wenger’s social theory of learning relates and complements other theories that cover epistemological development. Wenger’s approach together with transformative learning was found suitable for the development of an AMD, which is heavily focused on collaborative and interdisciplinary design practices. Of particular importance for designers that wish to design transformative processes, and design educators that want to design transformative learning approaches, is the ethics of such activities. As Taylor and Cranton (2013) point out, while transformative learning is seen as a theory for *good* aiming to generate social change, inclusiveness and personal empowerment, the process of individual transformation is often painful for students, and needs to be thoughtfully facilitated.

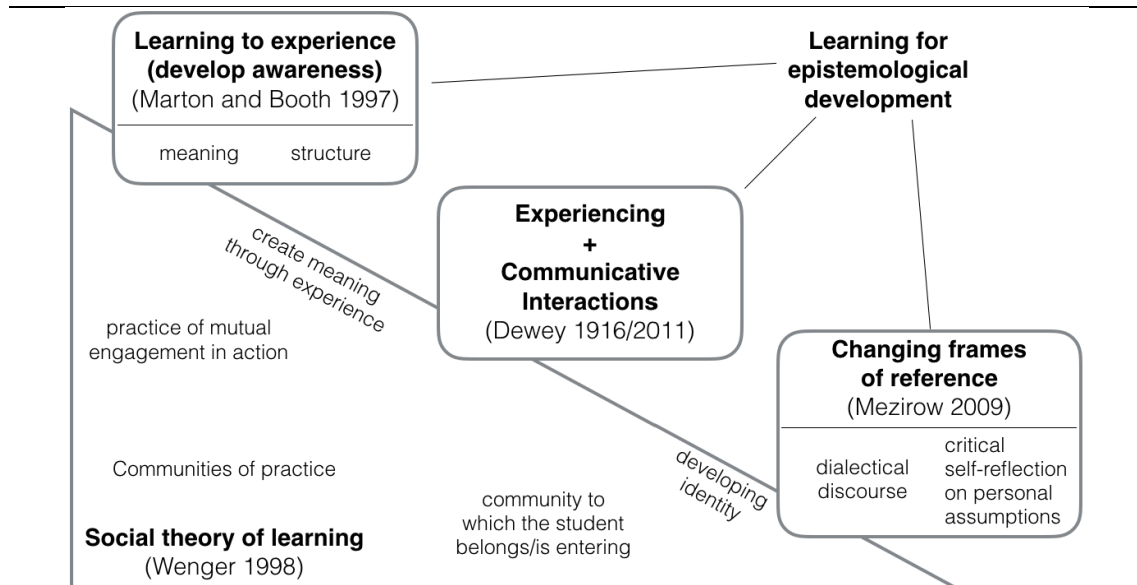


Figure 91 – Theoretical educational framework used in this research. (Marton and Booth 1997, Dewey 1916/2011, Mezirow 2009, Wenger 1998)

The relevance of experience for design

As a discipline of *making* with the intent of producing certain outcomes and strategic changes, as found in Metadesign and Design Innovation, for example, design education is also an area in which a pragmatic approach to learning that focuses on experience is relevant to consider. The transformation of problematic frames of reference through transformative learning is also addressed by Dewey (1916/2011) and Marton and Booth (1997), but from a pragmatist instrumentalist stance focusing on experience. As with Mezirow, these authors speak of changes in the person-world relationship, but using experience as a process to trigger the renewal and reconstruction of meanings, which can effect the epistemological changes needed to develop the relational and synergistic aspects of an amplified mindset of design. However, and as noted above, these theories need to be balanced with a social theory of learning to support the emerging collaborative practices and growing social and cultural focus of design projects discussed in Chapter 2.

Dewey (2011) and Marton and Booth (1997) address *experience* in different ways. First, Dewey focuses on experience as the *process of inquiry* (Stoller 2013) which is followed by communicative interactions. These theories establish a learning process of transformation with the general purpose of growth and change (Reich 2009). Dewey's (1938/1997) theory of experience includes the principles of *continuity* and *interactions*, meaning that each experience is kept, and it influences future experiences and present situations. Similarly, Marton and Booth (1997) address the same issues when referring to changes in person-world relationships as being driven by pre-existing interests and skills, which implies previous knowledge. This is true for designers in their development of processes and solutions that inevitably carry remnants of previous approaches. However, this thesis recognises a critique of Dewey's instrumental view of knowledge as lacking

the recognition that knowledge is not only related to practice and will, but it is also contemplative and intellectual (Barron 1931, Bittle 1936). More than experience is needed to build knowledge. The critical self-reflection gained from transformative learning, and the development of awareness of experiences, based on Marton and Booth's work, can contribute to the intellectual development of knowledge, and balance a purely experiential learning process. Secondly, Marton and Booth's (1997) contribution enriches Dewey's theory by adding a focus on *learning to experience*. This adds an emphasis on creating the conditions for new learning to occur regarding a project or situation, which consequently produces changes in the person-world relationship. Individual awareness is key for learning to experience. It entails a dialogue between *meaning* as the reference for learning, and *structure* as distinguishing the reference from its context, examining the whole, its parts and existing relationships. Marton and Booth argue that this dialogue leads to the reconstitution of meanings, and this close examination of experience can undoubtedly improve Dewey's approach to communicative interactions.

For this thesis, Dewey's theory of experience and Marton and Booth's focus on learning to experience contributes to amplifying Schön's (1987) reflective practice for the emerging design practices (see page 21). This is to say that encouraging this awareness in design students has the potential to foster new ways of seeing experiences and to improve reflections on ways of being, to recall McAra-McWilliam's (2010) deeper dimensions of the RW model. The promotion of a deep awareness of experiences in students, and subsequent individual and collective reflection and communication activities, it is argued by this thesis to enhance the reflective exchange with a positive impact on the development of the student's criticality and epistemic beliefs.

Collaborative practices ask for a social mode of learning

Wenger's (1998) social theory of learning defines learning as an activity of social participation that fosters deep learning when successfully engaging with a community of practice, and the development of learning to work together (Harris and Shelswell 2005). Although Wenger's social theory of learning does not cover the epistemic growth of students, its focus on communities of practice balances the individual focus of the previous theories discussed, complementing the theoretical framework that this thesis presents for the development of a Masters programme for an amplified mindset of design.

In Figure 91, above, it is possible to identify points of contact between fundamental aspects of Wenger's theory and Mezirow's (1981), Dewey's (1916/2011) and Marton and Booth's (1997) contributions. First, the collective negotiation of *meaning* and its creation through lived experience relates with the focus on experience found in Dewey (1916/2011) and Marton and Booth (1997), and adds the social layer of mutual engagement in action. Secondly, Wenger's focus on developing identity can be bridged with Mezirow's (2009) focus on personal development and empowerment, and adds to this the context of a community of practice.

This thesis recognises the empowering force of belonging to a community of practice, and the rich debates and interactions it fosters, as found in CS1 and more evidently in CS2. A community of practice is especially important for an emerging approach like the amplified mindset of design in terms of developing a critical mass able to establish, advocate and advance this new position within design. Additionally, the Masters programme developed in this research intends to use this concept of a community of practice to empower potential design students to become skilful in creating their communities of practice for the (interdisciplinary) projects they embrace. This social aspect of learning is particularly relevant for the development of the social skills and integrative behaviours included in the conceptual framework of an AMD. However, it is important to maintain a critical stance regarding the implementation of a community of practice. The complex transition from periphery to full membership to a community of practice is overlooked in the literature, which focuses more on acculturation (resorting to the concept of legitimate peripheral participation) rather than exploring the issues of exclusion (Harris and Shelswell 2005) addressed in Mezirow's transformative learning. This thesis stresses the need to nurture the agency of newcomers and their contribution to such a community (Lea 2005).

Additionally, in the context of formal learning, Harris and Shelswell (2005) point out the limits of the emancipatory potential of a community of practice in that individual achievement has to be measured, which brings issues of power and inequality to the surface in the student-educator relationship. An approach to formal education such as the one put forward in this thesis can only work within these limits by paying attention to the ethics of the student-educator relationship, minimising a perceived hierarchy in crucial moments such as collective discussions and reflective sessions, and by fostering a context of connectedness (Belenky et al. 1997) where students can learn to develop communities of practice and apply this concept further in their careers.

– *Student development and learning dispositions*

Approaching learning in HE through the lens of epistemological awareness and development requires a deeper look into foundational education literature regarding how learning develops. The views presented below represent two different strands: one from the US informed by constructivist and cognitivist views focusing on what this thesis describes as evolutionary stages of development, which identifies epistemological positions (Perry 1970/1999, Belenky et al. 1986/1997); and another mainly from European educators informed by phenomenography that focuses on learning dispositions (Crick and Goldspink 2014, Newble and Entwistle 1986).

Although academic programmes follow predetermined objectives and more or less flexible structures, (design) educators with knowledge on students' developmental stages and learning dispositions can be argued to be better equipped to tailor their learning and teaching approaches to specific cohorts of students. As intended in the Masters programme developed in this research, the curricular structures should be flexible enough to accommodate the needs and

characteristics of educators and students. The suggested Masters programme stands as my approach to the conceptual framework of an amplified mindset of design developed in this thesis, and following my preferred teaching style based on collaboration and egalitarian values, as found in Belenky et al. (1997). Other educators might approach this differently.

Stages of epistemological development

One of the goals of HE is epistemological development, which was explored by William Perry (1970) and Belenky et al. (1986) using interview-based methods. Both models traced students' increased ability to become active generators of learning and to learn with and from their peers. Perry's study used evidence-based interviews with a sample of 336 students, mainly white men from Harvard University. His goal was to understand intellectual development in young adults in an academic setting. The uniform sample used in Perry's study was later contested by Belenky et al. (1986/1997) who aimed to balance it with what they have called "women's ways of knowing", based on their study on women's experiences and problems as learners and knowers which included "past histories for changing concepts of the self and relationships with others" (Belenky et al. 1997: 11). This study included 153 in-depth interviews with women from HE contexts and "invisible colleges" such as programmes for parents, and included questions that enabled identifying the women's epistemological positions. Although the study was only based on women, Belenky et al. (1997) recognised that their findings might also be true for men.

Using different terms, both contributions describe the student's move from silence or dependent thought into agency and independent thought. A parallel between the models is offered in Table 33, which was based on an original table by Hofer and Pintrich (1997) that included other models from Baxter Magolda (1992), King and Kitchener (1994), and Kuhn (1991). Because this review does not intend to be extensive, this research opted to introduce only two foundational models.

Developmental scheme (Perry 1970)		Women's Ways of Knowing (Belenky et al. 1997)	
Polar world. Knowledge comes from Authorities.	Dualism	Silence	Little awareness of intellectual capabilities. Obeying wordless authorities
		Received knowledge	Learning by listening to the voice of others. Paradox and ambiguity are inconceivable.
Diverse opinions and uncertainty about knowledge. Starting to accept diversity and uncertainty. Authority is losing its influence as source of knowledge.	Multiplicity	Subjective knowledge	Listening to inner voice. The quest for self. Awareness of self as knowledgeable but relying on intuitive knowledge alone. Curiosity regarding learning about others.

Knowledge is contextual (even the authority's knowledge), and it implies comparison, criteria and judgment.	Relativism	Procedural knowledge	Learning to acquire knowledge through separate knowing (focus on reason) or connected knowing (focus on empathy and connectedness with others) Multiple sources of knowledge exist.
Commitments used or reconstructed in new terms as (personal) growth. Sense of full identity and independent (from authority) thought.	Commitment to Relativism	Constructed knowledge	Integrating the voices: rational and emotional thought. Knowledge is relative. High tolerance for ambiguity and contradiction. Developed sense of self.

Table 33 – Connecting the Developmental Scheme and Women's Ways of Knowing. (Belenky et al. 1997, Hofer and Pintrich 1997, Perry 1999).

First, Belenky et al. (1997) identified five epistemological orientations: silence, received knowledge, subjective knowledge, procedural knowledge and constructed knowledge. In this last orientation women were found to have developed a narrative sense of self which integrates reason, intuition, and emotion, while embracing ambiguity and contradiction in knowledge. According to Belenky et al. this last orientation triggers a passion for learning and a parallel can be made with a deep learning disposition (Crick and Goldspink 2014), covered below. Although, Belenky et al. do not refer to it explicitly, based on how they posit a journey from silence to voice, it can be said that this study produced a developmental scale comparable to Perry's developmental scheme (Perry 1970). Second, Perry's scheme identified nine epistemological positions, as follows:

1. Dualism,
2. Multiplicity pre-legitimate,
3. Early multiplicity,
4. Late multiplicity,
5. Relativism,
6. Commitment foreseen,
7. Initial commitment,
8. Multiple commitments,
9. Developing commitment (to relativism)

Similar to the constructed knowledge of Belenky et al., the ninth position in Perry's scheme refers to students who have developed a sense of full identity, accepting uncertainty and ambiguity in knowledge, and using their personal experience and knowledge from outside sources to make conclusions. Perry's positions can be synthesised into four main positions (see Table 33), and the remaining ones can be described as transitional. In terms of epistemological development, an AMD requires welcoming ambiguity and paradox, and the recognition of the complex nature of knowledge which requires both emotional and rational thought, as found in the last positions of Perry (1999) and Belenky et al. (1997). According to the last positions of both accounts, developing the student's intellectual growth, and consequentially their identity, can be identified as the goal of HE. Additionally, from the educational approaches found in CS1 and CS2, their focus on developing students' pluralistic thinking can be argued to

fit epistemologically into Perry's (1970) commitment to relativism and Belenky et al.'s (1986) constructed knowledge.

Comparing the two models (see Table 33), one can be seen to highlight the female participants' deep sense of connection (Belenky et al. 1997), and the other can be seen to emphasise the male participants' focus on separation and authority (Perry 1999). These two perspectives on epistemological development strengthen each other, and together can be used for the development of an amplified mindset of design in HE. Both accounts can guide educational practices in different ways and offer valuable detail for design educators regarding how learning develops.

Perry's explanation of the paradox existing during transitions between positions was found relevant to this thesis due to the potential epistemological conflicts and paradoxical perspectives (internal and external) a student might encounter while developing a design practice informed by an amplified mindset of design. Concurrently, the focus of Belenky et al. on applying the concept of connectedness to education was also found valuable to this research because of the social skills, integrative behaviours and human-centred aspects of the conceptual framework of AMD. First, Perry (1999) argues that the movement from one epistemological position to another (duality to multiplicity, to relativism, to committed relativism) requires that a student internally re-organise their own views into new perspectives. The transition between epistemological positions can result in internal stress resulting from dealing with more complex epistemological positions which appear paradoxical to the student. Perry (1999: 59) adds that by opening up to new epistemological orientations, the students recognised and "did not deny in themselves the urge to conserve [the previous position]" while seeking to develop further. It is most likely that to develop an amplified mindset, design students will carry out a similar challenging mental shift, especially those positioned in less complex epistemological positions.

Second, Belenky et al. (1997) explored a connected approach to teaching that this research sees as having the potential to provide a culture of growth and student development supporting more complex epistemological stages, as required for the development of an AMD. Signs of an approach of connectedness can be inferred from the development of facilitator roles in the students of CS1 and CS2, and in the human-centred focus of the design practices developed in CS1. On one hand, Belenky et al. describe Perry's approach as a traditional approach to education, where the student seeks to look at the subject matter through the teacher's eyes. In this approach, traditional teachers create learning projects based on their views in order to develop independent thinking. In contrast, connected teaching (Belenky et al. 1997) seeks to join the objectivity of traditional teaching with the personal views of students. Connected teachers seek to see the subject matter from the student's point of view and craft their approaches from there. The student is taken as being independent, a subject, from the start. In connected classes, for example, students form "groups in which members can nurture each others' thoughts to maturity" (Belenky et al. 1997: 221). In the Masters programme developed in this research, the intention to be *connected* took the form

of dialogue sessions (see Figure 49 and Figure 50) aiming to integrate the practical and intellectual work developed, and foster the epistemological development of students. These connected conversations aim to construct new interpretations instead of debating complete and robust ideas (Belenky et al. 1997), which is relevant for design in search for new solutions for complex problems and for the development of a community of practice. Belenky et al. focused on formal and informal education settings, and their approach to teaching can be easily connected to adult education, as found in transformative learning (Mezirow 1981) and the social theory of learning (Wenger 1998) theories discussed above. However, this thesis asserts the need for both formal and adult education to educate for an amplified mindset of design due to its complexity and integral character.

The student's movement to subsequent epistemological positions is argued by Perry (1999: 58) as being internally motivated whether as an urge to progress or to conserve the current position. This is also the case in Belenky et al. (1997), but with an added emphasis on the relevance of context in the epistemological orientations of the women interviewed. Correspondingly, these epistemological orientations can be associated with Dweck's (2006) fixed and growth mindsets, and self-theories (Dweck 2000). First, in a fixed mindset the belief is that an individual's qualities are already defined, will not change, and there is a continuous urgency to prove one's value. By opposition, a growth mindset assumes that each individual can grow and change through personal efforts. Secondly, on one hand, self-judgement theories are motivated by performance goals that include avoiding challenge and a disposition towards learned helplessness. On the other hand, a self-development theory is associated with a growth mindset in which the individual is motivated by learning goals that seek challenges and further development of knowledge and skills, for example, to face failure. Dweck's contribution on students' goal orientations and mindset sits in the background and are adjacent to European literature on learning dispositions (see Table 34), which can be measured in different ways such as surface learning and deep learning (Marton and Säljö 1976, Newble and Entwistle 1986), and through learning power scales (Crick and Goldspink 2014). A growth mindset and deep learning dispositions were found to be encouraged in CS1's approach to reinventing design practices for new and complex challenges, and in CS2's approach to fulfilling the transformational intention of ecological design thinking.

Learning dispositions

Learning dispositions are achievement orientated and were defined by Crick and Goldspink (2014: 29) as "an individual's orientation to themselves as a learner". While they are unique for each student, the wider social context exerts a significant influence on issues of identity and the individual's perception of future learning opportunities, which reinforces a need to pursue a combined approach to learning that includes a social theory of learning. This thesis will explore two ways in which these dispositions can be measured: Surface Learning and Deep Learning, and Learning Power Scales, which are compared in Table 34 against Dweck's mindsets and self-theories.

	Surface learning	Deep learning	Strategic Learning
Marton and Säljö (1976)	Focus on learning the text (the sign) Reproductive conception of learning	Focus on what is signified Comprehending what the author said	
Marton and Booth (1997)	Focus on the learning task Has an erosion effect, when learning tasks are manipulated in an effort to improve learning.	"Focus on the meaning of the task and the phenomena embodied in it" (1997: 168)	
Newble and Entwistle (1986)	Fear of failure Focus on reproduction Focus on tasks and isolated information No understanding or superficial understanding	Focus on developing understanding Ranging from examining evidence, and relating ideas to integrating both activities.	Focus on achievement of high grades Produces a variable level of understanding depending on the learning requirements
	Learning power scales		
Crick and Goldspink (2014)	low levels << >> high levels – changing and learning – critical curiosity – meaning making – creativity – learning relationships – strategic awareness – resilience		
Dweck (2000, 2006)	Fixed mindset Self-judgment is encouraged by performance goals: - challenge avoidance - learned helplessness	Growth mindset Self-development is encouraged by learning goals: - challenge seeking - mastery-oriented as response to failure	

Table 34 – Diverse perspectives on learning dispositions. (Crick and Goldspink 2014, Dweck 2000/2006, Marton and Booth 1997, Marton and Säljö 1976, Newble and Entwistle 1986)

First, the surface and deep learning approach represents two opposite achievement dispositions. On one hand, surface learning is a reproductive conception of learning, with a focus on tasks and isolated information (Marton and Säljö 1976, Marton and Booth 1997, Newble and Entwistle 1986), which leads to little or no understanding. This is a disposition driven by the fear of failure, which can be connected with Dweck's (2000, 2006) self-judgment and a fixed mindset. Crick and Goldspink (2014) add that the student's disposition to accept uncertainty and ambiguity reinforces surface learning, while the tendency to move from this tendency fosters deep learning. On the other hand, deep learning is driven by personal development if we relate it to a growth mindset (Dweck 2006),

and it focuses on understanding the meaning of what is being studied and the reasons behind it (Marton and Säljö 1976, Marton and Booth 1997, Newble and Entwistle 1986). Additionally, Newble and Entwistle (1986) add to surface and deep learning dispositions a strategic disposition, which depending on the requirements for an academic course can entail surface or deep learning dispositions. As pointed out by Lea (2005), as a way of developing educational approaches, an account of surface and deep learning dispositions on its own fails to acknowledge the broader context of HE, and the institutional context in which the educational approach is implemented. This can be the basis for a critique of the Masters programme developed in this thesis; it is a programme developed in isolation without this context. Nonetheless, this thesis recognises that such a programme would need to be implemented in a HE institution with a culture open to the interdisciplinary, non-specialist character of an amplified mindset of design. Based on this investigation it is possible to say that the institutions that run CS1 and CS2 can be taken as examples of such a culture.

Responding to Lea's critique, the social constructionism approach of this thesis and the work of Belenky et al. (1997) reinforce Crick and Goldspink's (2014) position which stresses that the student's emotional response to ambiguity and uncertainty regarding their academic development and knowledge can be partially "responsive to context and relationships and trust as a social resource" (Crick and Goldspink 2014: 32). Additionally, the diversity found in student cohorts nowadays, their diverse learning dispositions, epistemological positions, and design backgrounds in the particular case of the Masters programme in this research, brings a challenge to creating a community of practice that fosters cohesion in diversity. Whether a cohesive sub-culture can be built within one academic year at the same time as striving for student transformation may depend on the personal characteristics and epistemological self-awareness of students and educators, which reinforces the need for such an awareness to be developed.

Secondly, the learning power scales (Crick and Goldspink 2014) measure the student's orientations to learning using the seven attributes presented in Table 35, resulting in higher or lower levels of learning power. Crick and Goldspink (2014) argue that the use of these scales empowers students to conduct self-analysis, and make their learning decisions from there.

Name of scale	Conceptual definition
Changing and learning	A sense of myself as someone who learns and changes over time
Critical curiosity	An orientation to want to “get beneath the surface”
Meaning-making	Making connections and seeing that learning “matters to me”
Creativity	Risk-taking, playfulness, imagination and intuition
Learning relationships	Learning with and from others and also able to manage without them
Strategic awareness	Being aware of my thoughts, feelings and actions as a learner, and able to use that awareness to manage learning processes
Resilience	The readiness and openness to persevere in the development of my own learning power in the face of challenge

Table 35 – Learning power scales. Crick and Goldspink (2014: 21)

As seen in Table 34, higher levels in these scales can be associated within a growth mindset and deep learning while the opposite can be related with a fixed mindset and surface learning dispositions. Used as a tool in the beginning of an academic year, the learning power scales can be the starting point for developing the students’ epistemological awareness and learning, which can lead them to define their own learning dispositions goals to achieve during their academic activities, and consequently promote deep learning and a growth mindset.

It can be argued that HE journeys aim to lead students to develop a growth mindset; self-development learning goals; a deep learning disposition; high learning power levels, epistemological literacy and sophisticated epistemological positions such as one based on constructed knowledge or relativism. Without a doubt, the complexity addressed in the AMD requires these qualities and capacities to be fully developed due to design briefs increasingly dealing with complex problems that demand tailored approaches, new knowledge and partnerships with other disciplines. However, in a one year programme like the Masters programme developed in this thesis, and depending on the students’ learning dispositions and epistemic beliefs, the development of an amplified mindset of design can only be seeded to be further developed by each graduate during their careers.

– Integrating formal education and adult education

The theories just discussed come from the fields of adult education (Mezirow 1998, Wenger 1981), formal education (Marton and Booth 1997) and education philosophy literature (Dewey 1916/2011). Authors in these fields refer to the need to stimulate changes in the students which have consequences beyond the formal learning environment, entering the territory of what can be formally defined as lifewide learning models (Barnett 2011, Jackson 2011). Aligning itself with Dewey (1938), this thesis stresses the need for an integral approach to design education that brings formal design education closer to life. As pointed out in section 5.4, CS2 can be interpreted as an example of such integration, with lifewide repercussions, due to the intense experience of a Masters programme run within a

residential community. This lifewide orientation is already present in design practices as designers master the skills of deep empathy (Michlewski 2015) by immersing themselves in the lives of other people. The combination of adult and formal educational approaches is needed if education is to be the catalyst for a more sustainable world where students are equipped with knowledge and skills to develop meaningful work in complex conditions, which are becoming the norm for designers.

Three reasons are given for this combined approach. One is the on-going changes in HE such as larger student numbers and less contact hours which can be interpreted as leading to the incorporation of adult education concepts in formal education (Lea 2005). These changes are also likely to have influenced the need for flexible models in design education, discussed in section 2.5. Secondly, these changes and the surrounding global context of complexity are opening up the disciplinary focus to a more adaptive and integral educational approach that merges formal education with adult education. Goals of adult education (see for example Gerver and Jarvis 1997, Spencer 1998, Taylor et. al 2004) such as societal change (key for designers to intervene in an unsustainable world), personal fulfilment and development, and self-learning goals (important for designers to operate in complex conditions) merge with goals of formal education focusing on career, employment and intellectual development. Thirdly, the vocational heritage of design education, and the growing transformative view of design explored in section 2.2, places the discipline in a boundary space where adult education and formal education meet. By revisiting the design education approaches referred to in section 2.5, it can be inferred that these go beyond the discipline and the context of formal education with inevitable ontological consequences in its students. Examples include:

- The transformative aims of Mendoza and Matyok's (2013) holistic global citizenship model, and Fleming's (2013) integral design education;
- McArthur's (2010) Culturally Adaptive Pedagogy which includes cross-cultural literacy;
- Findeli's (2001) arguments for design education models that transform the students worldviews, and
- McAra-McWilliam's (2007) argument for embracing ambiguity and paradoxical realities.

Resulting from the development of epistemological literacy, and new ways of working and seeing design, it is expected that the Masters programme developed in this research will also have ontological consequences for its students, which will extend beyond the formal learning context, contributing to an integral approach to design practices.

CHAPTER 7 – RESEARCH OUTCOMES

This chapter covers the final versions of the conceptual framework of an Amplified Mindset of Design developed during this research, and the Masters programme entitled MDes in Adaptive Design Practices designed to develop such a mindset.

7.1 – Amplified mindset of design

A tentative version of an amplified mindset of design was offered in Chapter 2 and derived from design literature on emerging design practices. After the changes covered in section 4.8, resulting from fieldwork, the conceptual framework underwent further changes before reaching its final version, presented now. These changes derived from conversations during CS2 and during fieldwork to build a Masters programme, and were concerned with the effective visualisation of the complex system that is a mindset. First, while explaining the conceptual framework to design educators during fieldwork, there was a need to clarify each category, and after several iterations these were rephrased to be more descriptive and clear. Changes are presented in Figure 92.

Visualisation	>>	Championing the art of making visual
Integrative behaviours	>>	Adept at building and working within networks
Social skills	>>	Mastering social skills
Human-centred and synergistic	>>	Follow a human-centred and synergistic worldview

Figure 92 – Changes in the names of the elements of an amplified mindset of design

Second, findings from the case studies revealed the guiding principles of the programmes, and influenced the translation of the AMD into guiding principles that reflected the approach of the Masters programme presented in section 7.2. Third, other changes resulted from further reflections on the most relevant connections between the elements of the framework. Consequently, a connecting line was added to indicate that social skills are part of “integrative behaviours” (“adept at building and working within networks”). However, these two elements remained separated due to the importance given to each of them in the literature and in the field. A final diagram of an AMD is depicted below in Figure 93.

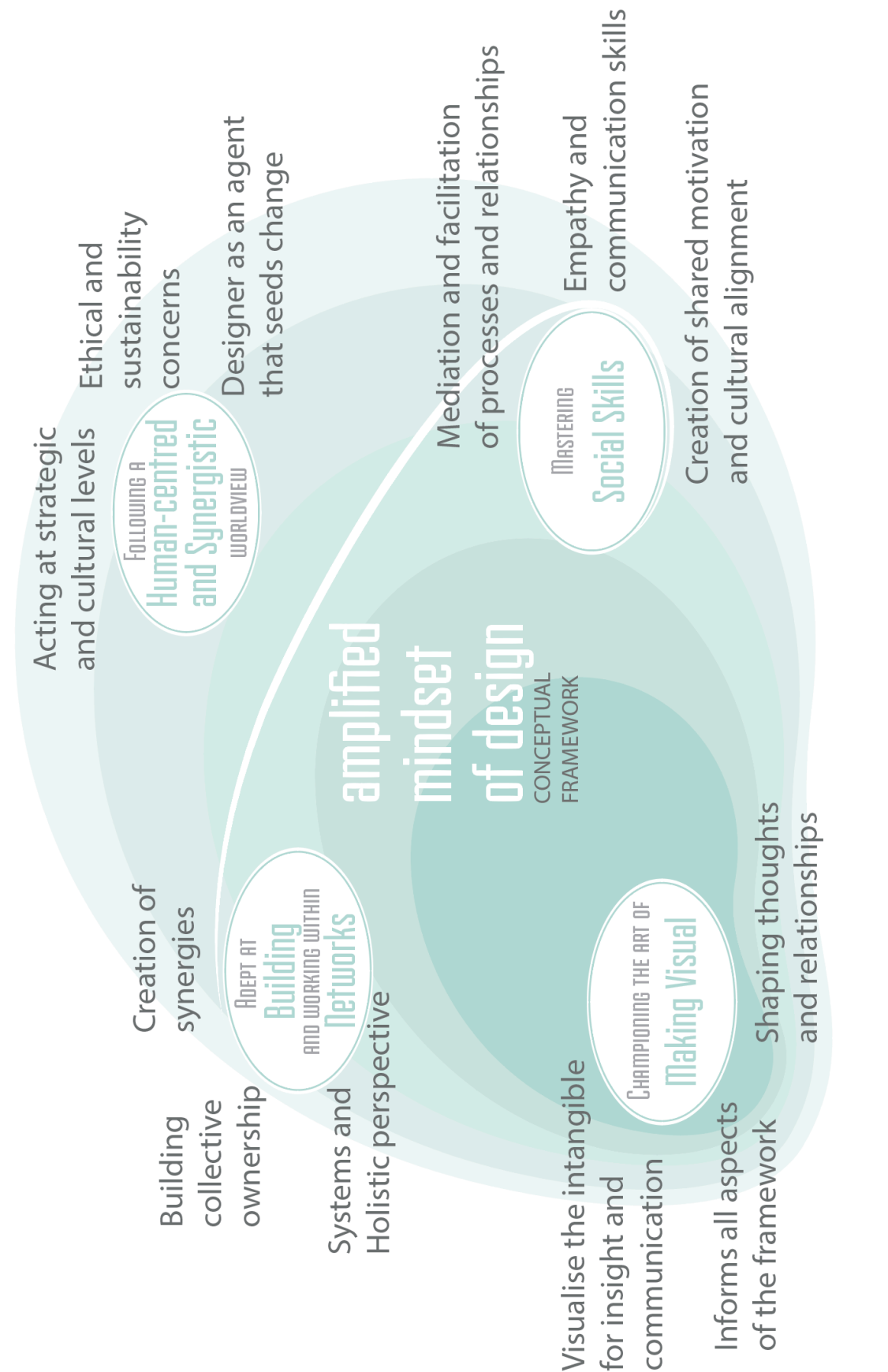


Figure 93 – Final diagram of an amplified mindset of design

Like a system this Conceptual Framework aimed to capture a contemporary and emerging approach that designers are adopting in response to global (and disciplinary) complexity. It is formed by an array of emerging views of design that did not necessarily cover all aspects of the framework, but together formed a whole emerging mindset. The AMD does not intend to be restrictive, but an open framework to foster relational thinking that surpasses the partial and fragmented knowledge of each element, to seed further discussion on the future of design practices, and the development of design education.

An amplified mindset of design is defined by this research as an emerging integral position in design, oriented to addressing complex scenarios through collaborative approaches to generate sustainable ways of working and living. The conceptual framework of an amplified mindset of design comprises core design skills (amplified by), a set of behaviours, attitudes and beliefs about design.

– Final elements of an open framework

Looking at Figure 93 above, the designer's core skills of mastering the "art of making things visual" are foundational for this conceptual framework, and are amplified towards an attitude and behaviours. These include an inclination to "building and working within networks" that demand the "mastering of social skills" by designers that use their core skills to strengthen and advance these attitudes and behaviours. Lastly, the "human-centred and synergistic worldview" represents an umbrella element, a set of assumptions about design that informs the remaining groups.

1. Championing the art of making visual

To *make* things visual is the element of this framework that binds it to the design discipline. It refers to the strategic use of 2D and 3D visualisation techniques to foster dialogue and insight. In particular it refers to the visualisation of the intangible (for example experiences, cultures and complex social systems) to improve processes of shaping thoughts and relationships (see for example, Abbs 2003, Findeli 2001, Inns 2013, Lawson and Dorst 2009, and Manzini 2013). Through their use of visuals as a sense-making medium, designers generate new forms of understanding, discovery and critique (Lawson and Dorst 2009). According to Manzini (2013), by manipulating information designers are moving from visualisation as a display of information to visualisation for visioning, where designers' perspectives come into play through an aesthetic dimension that steers social conversations. In interdisciplinary work and complex contexts, this thesis argues, designers have the expertise of navigating boundary spaces, linking diverse accounts, and can assist in advancing these into new understandings and solutions.

2. Being adept at building and working within networks

This element refers to an all-encompassing approach that seeks cross-fertilisation and the exploration of boundary spaces as creative sites of action (Buscher and Cruickshank 2009). These represent the integrative behaviours of designers, informed by a systems and holistic perspective (Fleming 2013, Giaccardi 2005,

Hobday et al. 2012, Imbesi 2011, Lawson and Dorst 2009, Wood 2010a) to create synergies (Wood 2010a) through:

- Connecting different types of knowledge, people and disciplines (Bridgstock 2013, Buchanan 1998 Friedman et al. 2014, Imbesi 2012, Yee et al. 2013);
- Welcoming objective and subjective perspectives (Hobday et al. 2012; Wood 2010a), and;
- Seeking personal development through the practice of design (Lawson and Dorst 2009; McAra-McWilliam 2010, Wood 2010b).

This element accepts the presence of paradox and ambiguity, and the principles of emergence, evolution and adaptation (Murphy and Baldwin 2012, Tham and Jones 2008) to conduct interdisciplinary work where solutions are created to be collectively owned (Sangiorgi 2011; Wood 2010a).

3. Mastering social skills

This element arises from the growth of interdisciplinary and co-design approaches in design, and is closely connected with the previous element of the conceptual framework. Here designers are taken as empathisers and social initiators; terms found in Cooper and Press (2003) and also used by Myerson (2010), and in the context of education by Mendoza and Matyók (2013), and Murphy and Dixon (2016). Interpersonal skills are part of the designer's culture (Michlewski 2015) and are referred to in the literature (Han 2009; Inns 2013; Wood 2010a) with a particular focus on the mediation and facilitation of processes and relations, and the creation of shared motivation and cultural alignment between stakeholders. Moreover, the inherent subjectivity of social skills calls for more intuitive and emotional reasoning to balance the dominant intellectual and objective reasoning in design processes (Dorst 2011; Hobday et al. 2012; Wood 2010).

4. Following a human-centred and synergistic worldview

Within the aforementioned global context in which design operates, this element recognises that society is changing its concerns and behaviours. It can be interpreted as a worldview that expands a user-centred focus towards a focus on human beings as part of the natural, economic and social worlds. By acknowledging the interplay of different dimensions and components it seeks sustainability in processes and solutions. Achieving more social and sustainable solutions is recognised in literature as an important part of the role of designers (DeKay 2011, Fleming 2013, Manzini 2013, Tham and Jones 2008, Wood 2010b). This can be attained through designers' strategic role (Lawson and Dorst 2009, Murphy and Baldwin 2012, Yee et al. 2013) as agents that seed change (Manzini 2010) with strong ethical and sustainability concerns (Imbesi 2012, Gamman and Thorpe 2006, Wood 2010b).

– Discussing the framework

The elements of the AMD will now be discussed in relation to design education literature and the educational literature that informed the contribution made by

this thesis. Additionally recent research will be highlighted to corroborate the emergence of an amplified mindset.

First, the element of the framework that focused on making things visual was found in application in Murphy and Dixon's (2016) approach to postgraduate design education which identifies four key areas in teaching design innovation, including bringing form to the intangible complex, as in the AMD. Also, the focus in this thesis on experience, following Dewey (1916/2011) and Marton and Booth (1997), can augment the potential of this element of the AMD and its effect on collaborative working.

Second, seeking for a networked way of working in design accords with a view of design as integrative, which has transformational consequences. To work in such a way requires the more advanced stages of epistemological beliefs that are pursued in the MDes in Adaptive Design Practices (which is also advocated by Tschimmel 2006, 2010 from a constructivist perspective on design education, but without a specific reference to epistemic development). To develop epistemological literacy successfully in an educational context, students should possess or develop a growth mindset (Dweck 2006) and deep-learning dispositions (Crick and Goldspink 2014) which come from an intrinsic motivation to embrace this strategic amplified design position. Furthermore, a link can be established between the networked element of the AMD and an educational context of connectedness advocated by Belenky et al. (1997), which informed the development of the MDes in Adaptive Design Practices. It is argued here that the pursuit of this element in design education can meet the aspirations for design education found in Findeli (2001), Fleming (2013), Gornick and Grout (2008), McAra-McWilliam (2007), Murphy and Baldwin (2012).

Third, it is argued here that teaching social skills and a networked way of designing fits into the sociological approach to design found in Buscher and Cruickshank (2009), which this thesis aims to fulfil by following a sociological approach to teaching (Trowler 2005) informed by social constructionism, and a social theory of learning. As discussed earlier, the theory of connectedness and the notion of the connected teacher (Belenky et al. 1997) was seen as suitable if not necessary to developing an amplified mindset of design.

Finally, other recent research in the field has corroborated the emergence of an amplified mindset and the widespread discussion on such amplification, offering practical approaches that can consolidate and advance knowledge on this phenomenon:

- A parallel can be made between the framework put forward by this thesis and the framework of competencies identified by McMahon and Bhamrab (2015) aimed for practical applications to achieve social sustainability. The authors argue for flexibility, engagement, dialogue, and reflection, which can be found in the AMD, mainly in its second and third elements. The final aim of the framework of competencies can also be included in the AMP's human-centred and synergistic worldview.

- Wilson and Zamberland's (2015) paper "Design for an Unknown Future: Amplified Roles for Collaboration, New Design Knowledge, and Creativity", covers similar ground to this thesis, providing a rich set of examples that can be said to evidence the existence of amplified mindset of design in the field. However, it lacks a clear explanation of the amplification aspect that was explored in this thesis. This can be inferred from its discussion that mentions collaborative work between different fields and different people such as educators, practitioners, and researchers. On the element of the AMD concerned with mastering social skills, Wilson and Zamberlan (2015) offer examples from design consultancies and organisations such as DESIS, UsCreates, TACSI, Ziba, and Design Against Crime Research Centre (some of them also mentioned in Yee et al. 2013), evidencing this thesis understanding of design as integrative and as an emerging way of working in design that is "highly collaborative and [includes] interdisciplinary processes" (Wilson and Zamberlan 2015: 10). In a subsequent paper Wilson and Zamberlan (2017) cover the issue of educating designers for an unknown future by offering practical advice on how to develop and assess creativity in the design studio. Although valuable, this account overlooks the importance of other elements such as those in the AMD to prepare students for an unknown future.
- The growing role of designers as facilitators of ideas in strategic planning and decision-making processes is being recognised in business and policy-making sectors (Muratovski 2015, Maeda 2016). In the Design in Tech Report, Maeda (2016) focuses in the technology business area in which design is gaining relevance not only to drive innovation in business, but to do so with empathy, while offering bold solutions in the design of living systems and cultures. However, this thesis argues it is not only empathy that designers' bring to it. Maeda's study (2016) derived from a designerly mindset that can be observed in companies like Airbnb, foresees that designers will embrace roles of venture-capitalists and investing partners amplifying even further the roles of designers explored in this thesis. These emerging roles of designers are argued by Maeda to require a new education model for the 21st century that prepares designers to be 'skilled self-learners', and one that merges Business, Design, and Technology. The amplified mindset developed by the MDes in Adaptive Design Practices can foster this merger, and add to Maeda's account the importance of including relational theoretical contributions, such as complexity theory, systems theory or holistic sciences in the curriculum.

– Adapting the AMD to design education

The transition from the conceptual framework of an AMD to the development of a Masters programme was as an exercise into the applicability of this framework to educational settings.

First, the conceptual framework was looked at as criteria to build the MDes by taking each element of the AMD as educational guiding principles from where ILOs could be extracted and later matched with assessment activities (see Table 36, page 276 and Table 37, page 277). Additionally, the development of the MDes was informed by:

- Educational literature relevant to the development of the AMD focusing on epistemological development and on a social approach to learning (see Figure 91, page 244);
- Examples of activities and approaches of both case studies that reflected the elements of the AMD (see pages 118-119), and;
- A cohort of fictional personas as an exercise to scope the programme's audience and make it more tangible (see page 120).

Second, the methodology used for this transition included a series of qualitative individual interviews supported by the use of visuals and principles of low fidelity prototyping. With this methodology I wanted to involve the participants in a richer discussion using the visuals to trigger the co-development of the Masters programme and gather the participant's reflections.

Each interview (see script in Appendix 4) had two moments. A first moment followed an evidence-based approach to discuss the AMD and gather the design educator's thoughts on the presence of such a mindset in their programme(s). This helped to refine the framework itself (see Figure 92, page 255). A second moment of the interviews followed a more grounded approach aimed to reflect with the educators about possible educational approaches for the development of an AMD and discuss early designs of the programme. As shown in 94 below, this series of interviews followed a cyclical and iterative and process of conversations and collaborative reflections.

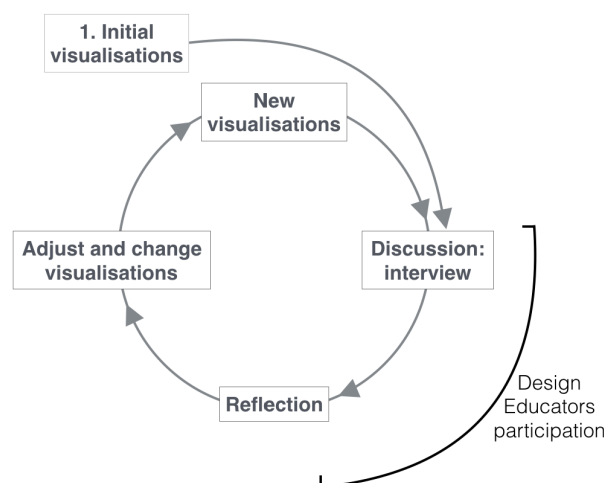


Figure 94 – Iterative cycle of interviews

Each cycle started with the use of initial/new visuals to prompt the discussion with the interviewees. The reflection that followed included hearing the recordings of the interviews while reading its transcriptions. Then the relevant inputs from

each design educator were recorded and synthesised in annotated diagrams (see Appendix 6). In each cycle the supporting visuals were adjusted based on the responses of the design educators. Main alterations to the visuals used in the interviews can be reviewed in Table 17 (page 130). One significant change in the visuals was the creation of a diagram that integrated the key elements of the MDes into the AMD, as depicted in Figure 52 (page 131).

Finally, it was interesting to observe that the design educators that conceptualised design closer to materiality, were further away from grasping and supporting this Masters programme (see in Figure 53, page 134, the variations in the views of design educators). This corroborates the non-specialist nature of this Masters programme oriented to develop a mindset. As a result of this process, a final version of the MDes was developed in more detail and it will be presented next.

7.2 – MDes Adaptive Design Practices

To respond to the need for distinct approaches to design education, and as an example of the adaptability of the AMD, this framework was to be appropriated as a set of guiding principles for the development of the MDes in Adaptive Design Practices to equip students with knowledge and skills to situate themselves in the current expansion of design practices, and to explore new territories of design. An adaptive design practice is defined here as an adaptable expertise in developing strategic, interdisciplinary, and collaborative design approaches across different sectors.

The approach presented below represents my approach to operationalising the amplified mindset of design into a postgraduate programme, and is derived from the literature review, fieldwork, and my background as a designer, design educator, and career coach. Keeping the same curriculum, other educators could suggest other methods or even formats for a programme (Marton and Booth 1997). This section will justify the focus on postgraduate level education, and covers the programme's distinctive aspects, the intended student profile, a visual representation of its curricular structure, its aims and ILOs, a provisional schedule, and closing considerations.

– ***Why postgraduate level? Why visual arts?***

To fully explore an AMD in an educational programme, students should be familiar with the core skills, techniques and practices of design in order to further explore and develop those skills while focusing on the amplified aspect of design. The AMD has strategic qualities as well, which are commonly found in more experienced or *competent* designers (Dorst 2010) as opposed to the novice designers that tend to be found in undergraduate levels. The focus of this research's proposal for design education will not be on developing design skills, but further developing existing ones, which justifies the choice of developing a postgraduate proposal for an audience that is visually literate. There are three key reasons why postgraduate level design students were selected. First, developing an amplified mindset of design requires that students have

previous knowledge of how to create visual grammars and representations (still or moving 2Ds or 3Ds). An amplified mindset of design goes beyond design thinking to include at its core a mastery of making things visual. Design is used here as an epistemological practice, a way of creating knowledge that is embodied and experiential.

Second, opening the MDes in Adaptive Design Practices to students from other areas without a proven record of visual expertise (such as a portfolio developed independently of one's academic background) would limit the development of an amplified mindset of design as envisioned in this research. This limitation was documented and corroborated by findings from CS1 (see section 5.2, page 197 on the need to level up students without design background, and page 201 on visualisation). In CS1 the students from a design background working in multidisciplinary teams, saw themselves as being loaded with activities related to visualisations because their non-designer peers could not deliver postgraduate quality designs. These students saw the amount of time devoted to such routine design activities as time that could be used, instead, to pursue new knowledge and skills.

Third, it was a conscious choice not to adhere to the educational trend that indicates a growth of mixed academic backgrounds in Masters programmes (Davies et al. 2011). I recognise that higher student numbers mean more investment in HE institutions. Also, cohorts of students from mixed backgrounds in design thinking programmes, for example, are beneficial to innovate in other disciplines. However, such type of programme will develop design thinkers but not an amplified mindset of design. For this development it is needed an environment that, while exposing students to interdisciplinary ways of working in complex settings it has clear disciplinary boundaries (within the visual arts) to further develop an epistemological practice to create synergies and cross-fertilisation between disciplines.

– *Distinctive aspects*

This programme intends to foster a networked and social way of working through a combination of content and methods, and a strategic design approach that is human-centred and synergistic, as follows:

- Content: Exploration of relational theories associated with the concepts of complexity, systems, holism and sustainability as a theoretical background for the development of more complex epistemological perspectives, and to support interventions in a global complex scenario.
- Methods: Collaborative and interdisciplinary ways of working; formal and informal moments for dialogue and reflection across the programme.
- Design approach that is strategic: A focus on visualisation as a comprehensive medium to explore complexity, expressing and bringing together different types of information to enrich written or spoken mediums.

The teaching activities and assessment methods used in this Masters programme will be explored more thoroughly in the section below referring to the aims and ILOs.

– ***Student profile***

Resulting from section 4.8's initial creation of personas to simulate a potential cohort of students for this programme, this exercise was revisited in terms of the age range and background of the students, including visual clues regarding the type of environment each persona frequently inhabits as an additional prompt to enrich each profile. This reviewed exercise presents each persona using cards with mint-green backgrounds to display information about their major project or dissertation, and their possible future employment. Figure 98 depicts a persona with more personal details. These fictional personas/students show a relevant portfolio and interest in exploring collaborative work across different disciplines, with a strategic focus. They also express interest in exploring collaborative and individual reflective methods, and theoretical knowledge associated with the concepts of complexity, holism, sustainability and systems thinking.

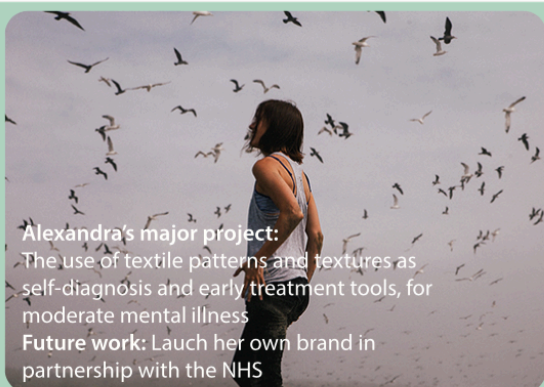
The final version of this exercise, shown below in Figure 95 to Figure 98, depicts a fictional cohort of students that is international, from areas such as: architecture, graphic design, fashion design, filmmaking and virtual reality, graphic design and business, illustration, interior design, photography and biology, product design, sculpture and product design, and urbanism. Although this final exercise expanded the disciplinary remit of design, it kept the audience of this Masters programme within the visual arts as justified before.



Bruno, Spain
28 years old
Academic Background:
Communication Design /
Design Innovation
Experience: 5 years as
designer in a multinational
communications company



Jean, Canada
37 years old
Academic Background:
Graphic Design / MBA
Experience: 7 years working in
advertising agencies, 7 years as
innovation and design thinking
consultant for the third sector



Alexandra's major project:
The use of textile patterns and textures as
self-diagnosis and early treatment tools, for
moderate mental illness
Future work: Launch her own brand in
partnership with the NHS



Alexandra, Italy
27 years old
Academic Background:
Fashion Design
Experience: 5 years working
in Fashion Industry



Camille's dissertation:
Nature photography as a
methodology to increase social
agency and awareness
Future work: Designer at World
Nature Organisation



Camille, France
23 years old
Academic Background:
Product Designer
Experience: 1 year internship
at Phillips Design

Figure 95 – Personas-students (part 1)



Nicola, Greece
24 years old
Academic Background:
Filmmaking, Virtual Reality
Experience: 2 years as Junior
Game Developer
6 years as a new media artist



Mark, The Netherlands
25 years old
Academic Background: Product
Design
Experience: 4 years working at
Electrolux



Sonia, China,
22 years old
Academic Background:
Architecture
Experience: 6 months
internship



Sarah, United kingdom
25 years old
Academic Background:
Illustration
Experience: 1 year as Intern in
a book publishing company
and Freelancer

Figure 96 – Personas-students (part 2)



Joanna, United Kingdom
23 years old
Academic Background:
Interior Design
Experience: 1 year as junior
interior designer



Zikri, Malaysia
27 years old
Academic Background:
Graphic Design
Experience: 3 years
working as user interface
designer in IT sector



Rakesh, India
30 years old
Academic Background:
Product Design
Experience: 7 years working
in prototyping and
packaging design



Franz, Germany
34 years old
Academic Background:
Graphic Design /
Photography
Experience: 10 years
working in the radical sports
sector as photographer and
graphic designer

Figure 97 – Personas-students (part 3)



Tina, Hong Kong
31 years old
Academic Background:
Communication Design
Experience: 9 years working as
freelancer for design agencies
and private clients in Asia and
the UK

Tina's major project:
Strategies to communicate bureaucratic
and legal language to lower level education
audiences.
Future work: Consultant at local
government agencies to improve
communication strategies

Tina travels often. She's always under the pressure of deadlines and hates complicated emails. For her, if people could learn how to write telegram-like messages and be transparent about what they mean, it would be perfect!

Tina likes to draw as a way to decompress from work and reflect on herself. She seeks to read books and see movies that are visually exciting and believes that appreciating beauty makes her feel better and more in tune with herself. For her being a communication designer is not a profession, but a way of life.

Goals in life: She wants to have an active voice and do her part to improve people's lives, easing some of the contemporary anxieties at some level. Especially making the world more accessible, she says.

Frustrations: Working for seven years as freelancer for design agencies between Hong Kong, Taiwan, and the UK, she feels that her work should evolve to another level. Bounded to aesthetic work and brand briefs only, she feels restrained.

Motivations: Everything is complex and full of details and connections that are waiting to be discovered. Once, Tina cracks the code of a complex issue or situation through her designs, she's fulfilled.

"I see my grandfather puzzled and worried anytime he gets a letter from the Council regarding his incapacity benefit. The letters look like coded messages and that causes lots of anxiety. As a communication designer I should do something."

Figure 98 – Persona-student extended (part 4)

Moreover, although design is expanding its boundaries, this does not mean that the discipline will lose its identity. This thesis argues that emerging areas of design demand reflection and care to build their identities and make clearer for designers, their partners or clients the purpose and value of their activities. Through exploring further the use of disciplinary skills, designers will naturally offer innovative ways to co-produce insight, improve working processes and increase the impact of projects, being better equipped to advocate their value.

– ***Visual representation of the programme***

Figure 99 (below) shows the structure of the programme embedded in the AMD, highlighting the main guiding principles addressed in each stage of the programme. Thicker lines express a dominant focus on a specific principle, and thin lines a lesser focus. Term 3 does not have any links so that students can define the topic and format of their individual major project or dissertation. Informed by the curricular structures found in the case studies, the proposal of this thesis followed a structure of three terms, not as a closed approach but as a departure point for this exercise of designing a Masters programme for an AMD. The content of each term will be now explained, adding to the detail offered in section 4.8. Each term is represented by a circular diagram to illustrate how the diverse curricular activities integrate with each other, and to offer a temporal idea about when each activity happens in relation to others following a clockwise movement that starts at the top of the circular diagrams.

As made explicit in Figure 100 to Figure 102, studio work is at the centre of each term's work and the remaining activities revolve around it and are expected to contribute to the theme explored in the studio. In this thesis studio is defined using Patera's (2009) account. It is seen as a multifunctional place for individual and group training, teaching and learning that takes place formally and informally. It is also a project space where students develop work resembling professional practices.

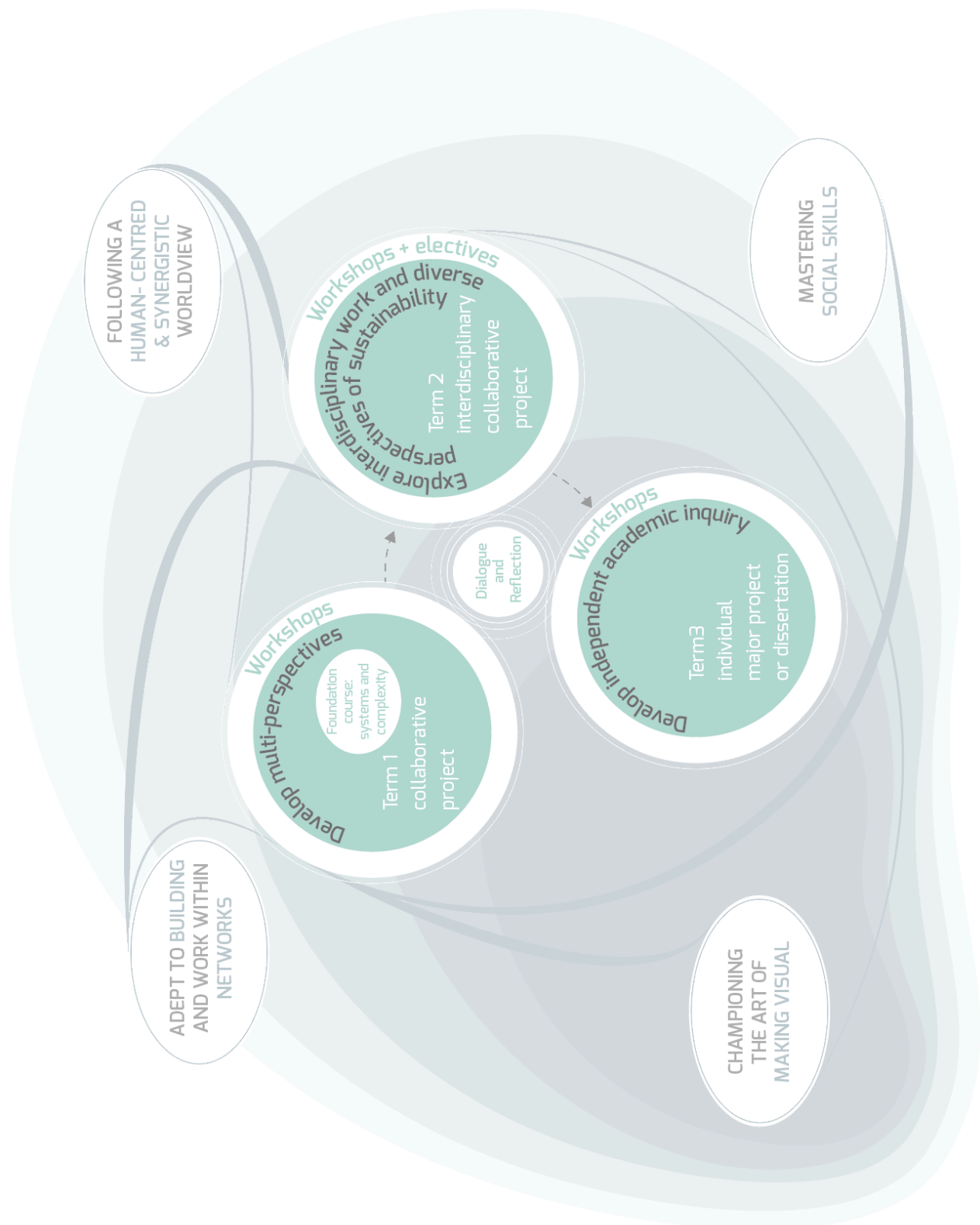


Figure 99 – Basic structure of the programme embedded in the AMD

Term 1: Developing multi-perspectives

In term 1, the studio project was designed to be a collaborative live project to explore the theme of social interactions for the development of pluralistic thinking or constructed knowledge (Belenky et al. 1997), and to prepare students for the next term's interdisciplinary studio project.

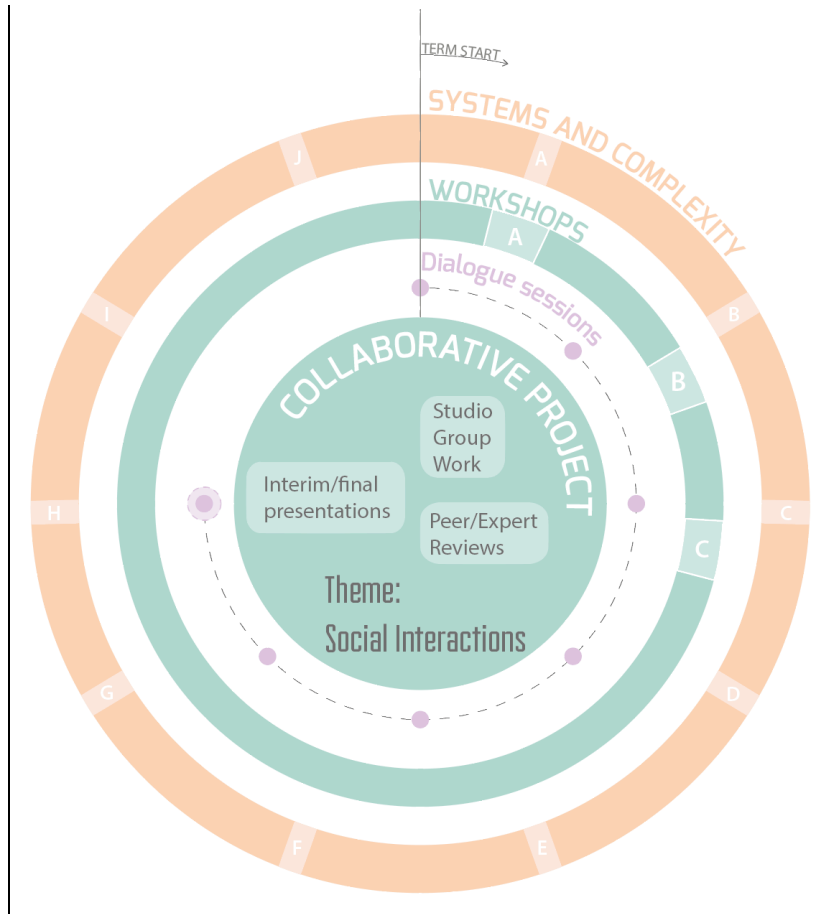


Figure 100 – Term 1: integration of the different curricular activities

As seen in Figure 100, to support the studio project, during the first half of the term, three different workshops were planned to last for two days each, as follows:

A. Research

- part 1: Introduction to research
- part 2: Ethics and Ethnography

Because the term's project focuses on social interactions an introduction to research would start with the ethics related to research and human participants, and ethnography, as engagement methods relevant to investigating social interactions.

B. Visualisation and Pattern Finding

- To further develop the relational thinking of students, and their ability to use visualisations to aid individual and collaborative thinking processes, and to support the design process and outcomes. It is also aimed to assist the foundational course (introduced next) in exploring the theories explored.
- As a discipline of embodied imagination (Abbs 2003: 57) designers develop meaning visually and this workshop intends to improve the student's ability to develop visual grammars to be applied in research and in collaborative interdisciplinary work.

C. Cross-cultural collaboration and team dynamics

- Intends to provide formal training in these areas to amplify students' awareness and sensibility regarding the various aspects that play out in cross-cultural teams, which are becoming the norm in emerging practices of design.

The outer ring of Figure 100 shows the programme's foundational theoretical course, "Systems and Complexity", which aims to develop students' relational skills and contribute to their epistemological development. It explores theoretical contributions from complexity theories, systems thinking theories, holistic sciences and integral theory, for example. It intends to be a place for students to scope areas of interest to be developed in their Term 3 individual projects. Its methods are envisioned as a mix of seminars and short practical exercises to consolidate the theory, using visualisations and embodiment techniques to explore both tacit and theoretical knowledge.

Finally, there are the dialogue sessions, intended as a bridge between all curricular activities, a place where experience, practice and theory meet. These sessions intend to use circle techniques, and dialogue methods inspired by Bohm (1996) and Shaw (2002), for students to develop constructive dialogue skills, critical and pluralistic thinking, and self-awareness. These techniques intend to surpass perceived hierarchies and the topics will be defined with students regarding emerging issues during the academic year. This might imply pre-reading for the sessions.

Term 2: Exploring interdisciplinary work and diverse perspectives of sustainability

In term 2 and based on the work developed in term 1, the studio live project is intended to be collaborative and interdisciplinary to explore sustainability issues from a number of perspectives using a Quadruple Bottom Line (Sherman 2013, Fleming 2013) as an integral and amplified approach to sustainability because it covers the social, economic, environmental, and experiential lines of sustainability. Outcomes of this project could range from a book, website, artefact, service, or experience, for example, depending on the live-project. As depicted in Figure 101,

two-day workshops support the studio work with knowledge introduced in the first half of the term, covering themes such as:

- D. Sustainability, to explore different views on the topic.
- E. Research overviews regarding methodologies in day one, and analysis in day two, to build an awareness of research skills that students need to develop for their last project in term 3.
- F. Storytelling and Communication, building on the previous workshop on visualisation, and focusing on effective communication of ideas and solutions.
- F1. Transdisciplinary Practices, a potential addition to this range of workshops to further develop students to work beyond their discipline.

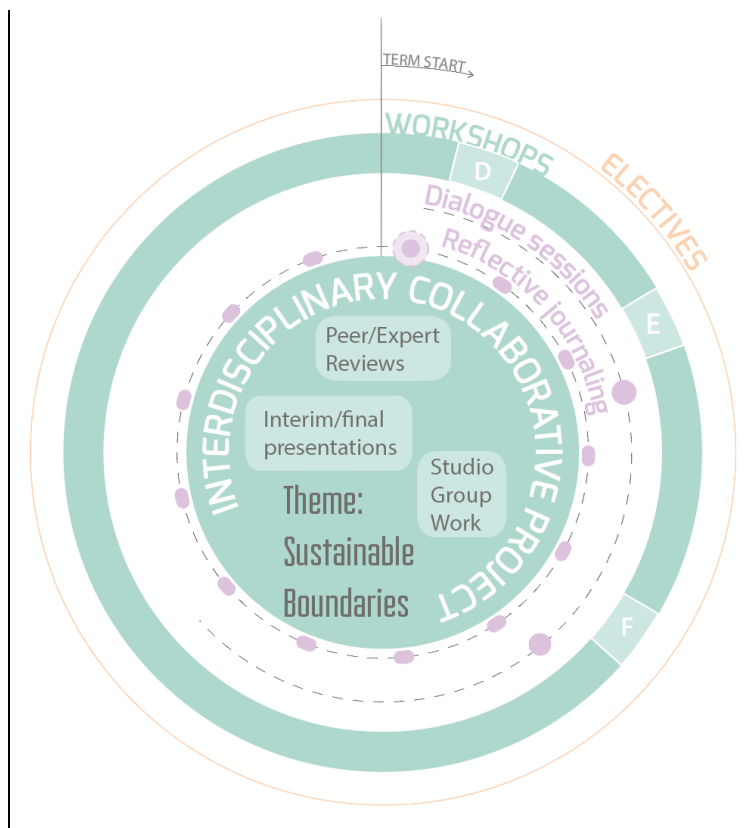


Figure 101 – Term 2: integration of the different curricular activities

The dialogue sessions in this term have the same format as term 1, but are informed by the quadrants of integral theory (Esbjörn-Hargens 2010a) in order to develop the integral thinking and analytical skills needed to find patterns and relations between different perspectives, and to further develop students' epistemological orientations. There will be fewer of these sessions in this term with the introduction of individual journaling activities related to the studio project, also informed by integral theory. This is also intended to be a reflection and an insight tool for the students' professional development. Finally, the outer

ring of Figure 101, refers to Electives, intended to enable students to craft their learning experiences around their personal interests.

Term 3: Developing independent academic inquiry

In term 3, students create individual proposals for a major project or dissertation and will conduct their individual projects with the aid of a supervisor. One initial research workshop (G in Figure 102) intends to help students to further develop their proposals using a mix of theory, practical exercises and peer discussion. In this term, the dialogue sessions will serve to create check-in moments for students and balance the very different pace of this term. Short reflective moments are introduced and are inspired by the reflective project entitled PhD Behind the Scenes conducted during fieldwork in CS1 (see section 4.5 in Other Opportunities). Each student builds a reflective archive of single words as personal responses to the developing work, with interim and final extended written reflections on the research/project process.

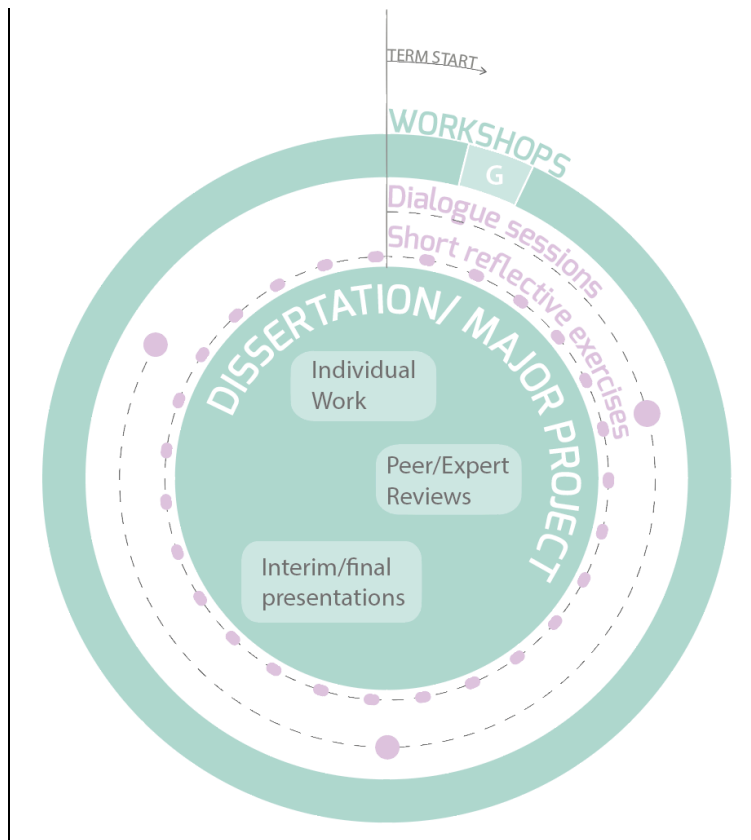


Figure 102 – Term 3: integration of the different curricular activities

– ***Aims and ILOs***

This thesis defined the Masters programme's aims and its ILOs based on the guiding principles offered by the AMD. Consequently, this programme aims to equip its students to:

- Engage critically and develop expertise in navigating complex and shifting circumstances, from a design perspective.
- Explore their own strategic role in seeding and supporting change, through innovative and appropriate processes and solutions.
- Deepen their knowledge of making use of visual means to explore and express tangible and intangible information, to promote interdisciplinary and collaborative ways of working.
- Become flexible and resourceful in applying theoretical and practical knowledge from different disciplines, and address the concept of sustainability from a variety of perspectives (varying from environmental, economic, social to experiential) to develop an adaptive design practice useful for a dynamic career.

The ILOs presented in the next pages in Table 36 were developed using supporting literature from Biggs (2003), Bloom et al. (1956) and Davies (2002). For a better association with the AMD and with the literature, the ILOs in Table 36 are placed next to the dominant guiding principles they refer to, and to Bloom's taxonomies suitable for postgraduate level education. Also, the SCQF level 11 was taken into consideration to create the ILOs. Table 7 (below) outlines how these ILOs will be implemented, and proposes learning activities and associated assessment methods.

– ***Schedule***

Based on an example from CS1's schedule, a tentative schedule of the terms of this Masters programme is offered in the following pages, and it includes the exit award of each term, the credits of each curricular activity and the associated dominant guiding principles.

GUIDING PRINCIPLES	BLOOM'S TAXONOMY	INTENDED LEARNING OUTCOMES By the time the students finish this programme they should be able to:
Championing the art of making visual	Analysis Synthesis	1. Investigate and develop a significant range of original bi-dimensional/tri-dimensional visual representations that assist in finding and making explicit tangible and intangible contextual structures, relations and patterns of a design project or theoretical exploration of knowledge.
	Synthesis Application Evaluation	2. Develop, make and critically evaluate appropriate bi-dimensional/tri-dimensional visual representations individually and collaboratively to shape and communicate processes and/or outcomes, support collaborative work and enable the creation of empathy with those associated or relevant to a project or assignment.
Following a human-centred and synergistic worldview	Analysis Synthesis Evaluation	3. Critically explore, develop and consider the concept of sustainability from social, environmental, economic, and experiential perspectives in addressing a design project's brief, during the project's process and its delivery.
	Analysis Synthesis Evaluation	4. Examine critically, plan and consider the strategic role of designers as agents that seed change in collaborative and interdisciplinary projects, across sectors (for example: technology, manufacturing, services, public and voluntary sectors).
Adept at building and working within networks	Analysis Synthesis Evaluation	5. Investigate in-depth, combine creatively and critically, and apply theories that explore the concepts of complexity, systems and holism in the creation of collaborative networks between diverse people (classmates, audiences, experts, academic staff, etc.), organisations, disciplines and sectors relevant to a design project.
	Synthesis Application Evaluation	6. Design, conduct and evaluate engaging and appropriate activities for different types of actors in collaborative design processes, which include teamwork and engagement with relevant players in a project such as an audience, client(s), experts, academic staff, etc.
Mastering social skills	Analysis Application	7. Creatively explore and critically apply mediation and facilitation skills in a variety of contexts in collaborative work with peers, academic staff and other actors relevant to design projects and theoretical assignments.
	Application	8. Show critical and reflective thinking regarding their professional and personal development in relation to theoretical and practical knowledge acquired throughout this programme.

Table 36 – Guiding principles, respective ILOs and taxonomies.

ILOs	LEARNING ACTIVITIES (<i>formative in italic</i>)	ASSESSMENT METHODS
1	Course: Systems and complexity Collaborative projects (terms 1 and 2) Research project (term 3) Workshop: Visualisation and Pattern Finding <i>Tutorials</i> <i>Peer reviews</i>	- Studio work - Presentation - Short essays - Short exploratory, practical exercises - Diagrams, maps, artefacts
2	Collaborative projects (terms 1 and 2) Research project (term 3) Workshops: Visual Storytelling and communication; Ethnography and Ethics	- Report on fieldwork - Short exploratory practical exercises - Presentation - Individual reflective journal
3	Collaborative project (term 2) Research project (term 3) Workshop: Understanding Sustainability Seminars <i>Collective dialogue sessions</i> <i>Tutorials</i> <i>Peer reviews</i>	- Studio work - Research project - Short exploratory practical exercises - Short essay - Individual reflective journal
4	Collaborative projects (terms 1 and 2) Research project (term 3) Seminar <i>Collective dialogue sessions</i> <i>Peer reviews</i>	- Interviews with experts - Desk research report - Short essay - Individual reflective journal
5	Course: Systems and complexity Research project (term 3) Workshop: Design and interdisciplinary practices <i>Collective dialogue sessions</i> <i>Peer reviews</i>	- Essay - Research project - Studio work - Presentation - Short exploratory, practical exercises - Individual reflective journal
6	Collaborative projects (terms 1 and 2) Workshops: Design and interdisciplinary practices; Ethics and Ethnography; Team-dynamics and cross-cultural collaboration; Storytelling and communication. <i>Collective dialogue sessions</i> <i>Tutorials</i>	- Studio work - Report - Presentation - Short exploratory practical exercises - Individual reflective journal
7	Collaborative projects (terms 1 and 2) Workshop: Team dynamics and cross-cultural collaboration <i>Collective dialogue sessions</i> <i>Peer reviews</i> <i>Tutorials</i>	- Fieldwork: run collaborative design sessions - Short exploratory practical exercises - Individual reflective journal
8	Collaborative projects (terms 1 and 2) Research project (term 3) <i>Collective dialogue sessions</i>	- Individual reflective journal - Report

Table 37 – Learning and assessment activities for each ILO

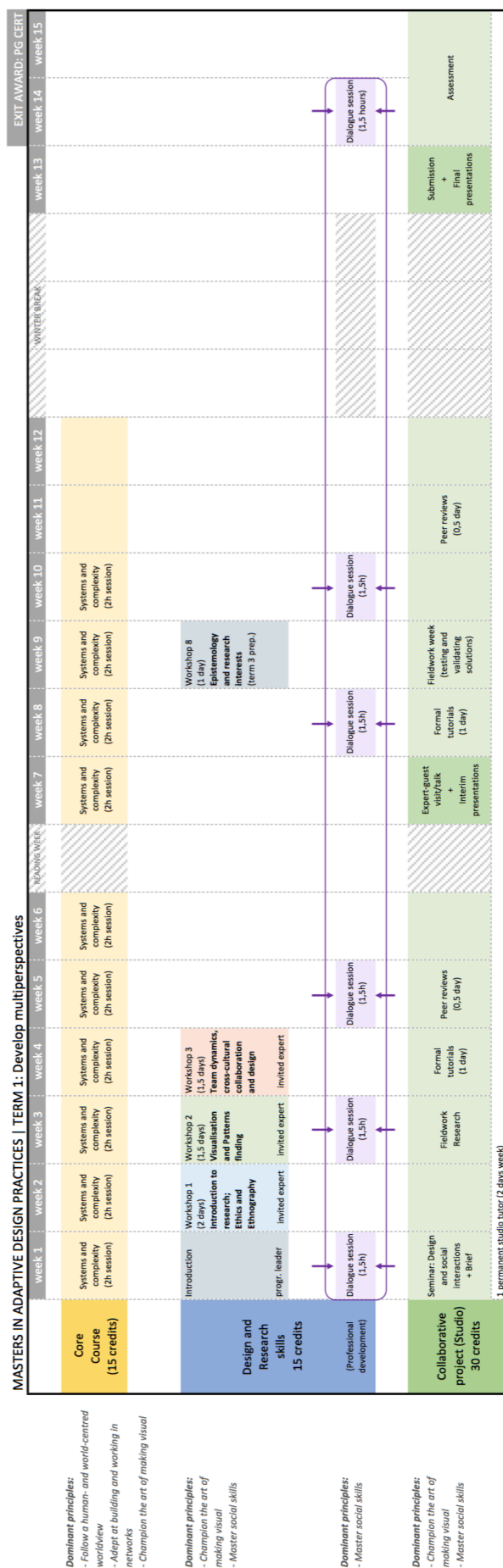


Figure 103 – Schedule for Term 1

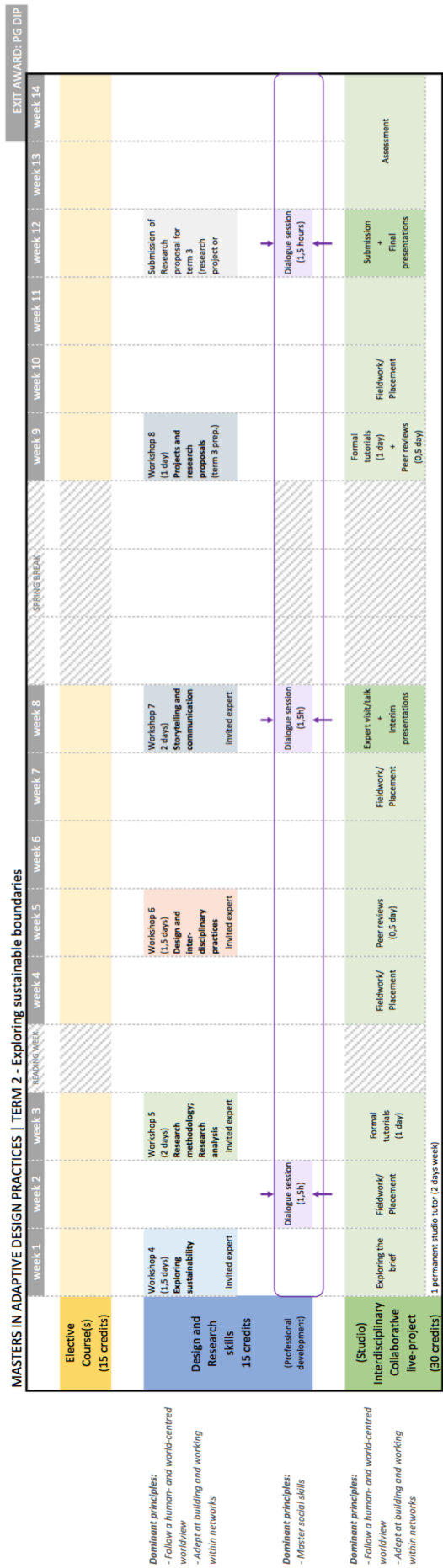


Figure 104 – Schedule for Term 2

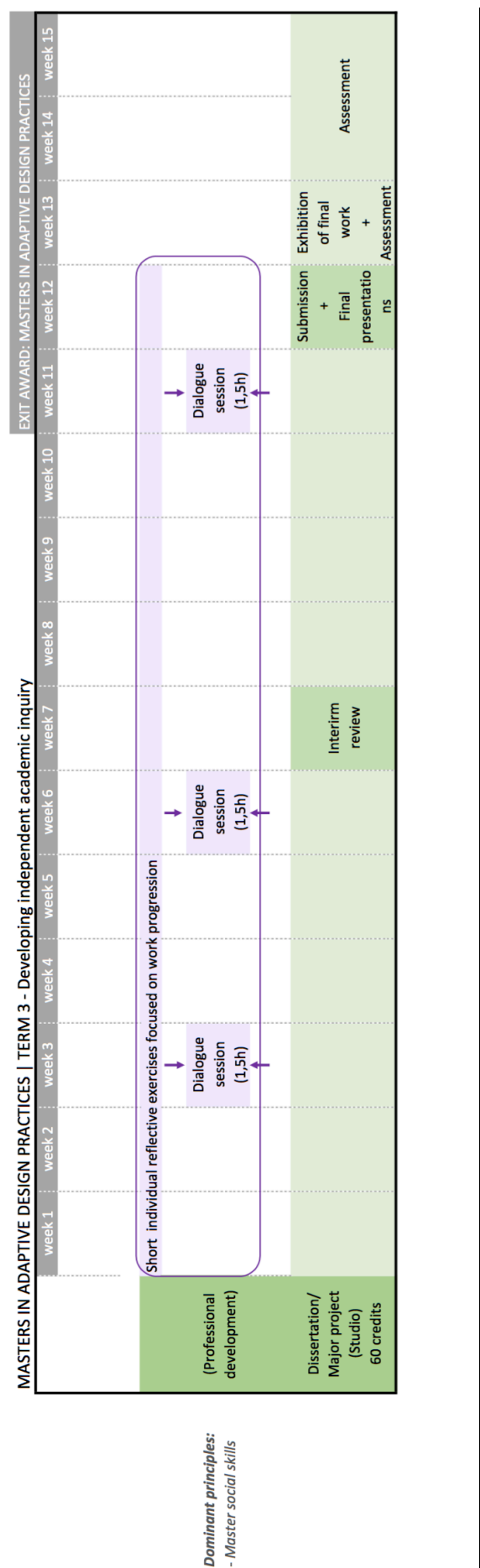


Figure 105 – Schedule for Term 3

– **Other considerations**

First, it is outwith the remit of this thesis to offer a programme ready for implementation. However, the detail offered in these sections provides enough detail to take it forward to implementation. For a full implementation of this programme, further work needs to be done to make sure that the ILOs can align with a code of assessment and with the different exit awards. More detail would also need to be included regarding the credits for each curricular activity, the distribution of learning hours, and the graduate attributes that could be defined based on the AMD.

Second, following the trend of design education partnering with industry, as with Hyper Island for example, this Masters programme could have been further developed with input from the industry, adding value to the processes followed by design educators.

Finally, looking at Table 38, which shows the guiding principles found in both case studies next to the ones derived from the AMD, it can be inferred that in general the principles for Masters programmes for emerging design practices should include a focus on collaboration, and on producing transformation in the student and in the world.

MDes Adaptive Design Practices	MDes Design Innovation (CS1)	MA Ecological Design Thinking (CS2)
Championing the art of making visual Adept at building and working within networks Mastering social skills Following a human-centred and synergistic worldview	Developing the student's identity Adept at working collaboratively Informed by Social Sciences	Adept at interdisciplinary work Pursue qualities of flexibility and resilience Produce transformation strategically Seed and/or develop an ecological worldview Follow a holistic approach to learning and teaching

Table 38 – Guiding principles compared

CHAPTER 8 - CONCLUSION

This research followed a qualitative case study methodology informed by ethnography and by design methods to answer the following research question: How can distinct approaches to postgraduate design education help future designers develop an amplified mindset? It aimed to identify such approaches, and as a result, a conceptual framework for an *amplified mindset of design* (AMD), and a Masters programme entitled MDes in Adaptive Design Practices are offered as research outcomes to answer this research question. A set of sub-research questions (in Table 39) was defined to better track the extent to which specific aspects of this research contributed to answering the research question.

RESEARCH QUESTION	How can distinct approaches to postgraduate design education help future designers develop an amplified mindset?
RESEARCH SUB-QUESTIONS	1a. What can be defined as an amplified mindset of design in the literature, and in the field?
	1b. Where are there examples of design education for this type of mindset?
	1c. What characterises these postgraduate design programmes?
	1d. How can these approaches to design education be developed further into a new Masters programme?

Table 39 – Main research question and sub-questions

The starting point of this research was to define the characteristics of an AMD to start answering the first research sub-question. This was an iterative process between the literature and fieldwork which culminated in the final version and definition of an amplified mindset of design (see section 7.1). First, the exploration of literature on emerging design practices and its interpretation and synthesis (see Figure 13, page 40) led to the development of the initial version of this conceptual framework (see section 2.4, pages 40-43). What followed was a series of iterations during fieldwork concerned with better communicating and translating the AMD (see section 4.8, pages 106-113) and resulting in more descriptive elements (see Appendix 6, first diagram). With critical reflection on the fieldwork iterations and further literature review, the final version of the conceptual framework of an amplified mindset of design was presented successfully answering this sub-question.

Regarding the second and third sub-questions in Table 39, examples of design education for an amplified mindset of design were successfully identified and characterised. Two Masters programmes were investigated as examples of existing approaches that showed an amplified character. First, because the AMD was a development of this research it would be unlikely that findings from CS1 and CS2 would reveal a perfect fit to the conceptual framework. However, findings from

the cases offered strong evidence of design education that is moving towards an amplified mindset (see section 5.2, pages 199-203 for CS1, and section 5.4, pages 230-232 for CS2). Both cases showed close connections with the “integrative behaviours” and “social skills” aspects of the AMD but differed in the remaining ones. Regarding the “human-centred and synergistic worldview” aspect of the AMD, CS1 had a closer inclination to a social and human-centred approach, whereas CS2 showed a closer link with a synergistic and ecologically oriented approach. Also the element of visualisation of the AMD was residual in CS2, while in CS1 it was evident. Second, both cases were characterised by their guiding principles, key notions about their design specialism and teaching methods. CS1 was characterised as a networked programme informed by social science principles which enables students to develop in a way that continuously amplifies their practices (see section 5.3, pages 203-207). CS2 was characterised as an immersive programme informed by ecological principles and that uses a holistic approach to navigate the world’s complexity, and in which students learn to take an active role in facilitating sustainable change (see section 5.5, pages 232-233).

Answering the last sub-question in Table 39, a new Masters programme was designed during this research for the specific development of an AMD (see section 7.2) which was also informed by findings from the case studies. There were also activities to scope the relevance of such a programme in the field. First, the elements of the AMD were interpreted as educational guiding principles. Second, to fulfil the instrumental nature of CS1 and CS2, the main findings that informed the development of the MDes in Adaptive Design Practices included: collaborative ways of working, an interdisciplinary orientation, international cohorts of students, a focus on navigating complex scenarios, a strategic orientation, and a transformative potential (see section 4.9, pages 118-119). Third, during fieldwork design educators were interviewed (see pages 129-134) to offer feedback on developing versions of this programme. Their comments ranged from not engaging with the Masters programme to fully acknowledge its relevance (see Figure 53, page 134). Also, a validation focus group was conducted to gather opinions from design practitioners, educators and students that concluded that this programme was relevant, stimulating, challenging and a valuable experience (see detail in pages 139 and 140).

From the previously demonstrated, these distinct approaches to design education (CS1, CS2, and the MDes in Adaptive Design Practices) can contribute to the development of an amplified mindset of design in the students. Thus, answering the research question that guided this research. First, from the comparison of the guiding principles of CS1, CS2 and the AMD (see Table 38, page 281) this research inferred that to develop in the students a mindset that is amplified, the overall focus of an educational programme should be on fostering collaboration, and on producing transformation in the student and in the world. Second, an application of the AMD in an educational format was developed with the MDes in Adaptive Design Practices which included the proposal of a curricular format, content and methods. Representing an overall view of the programme Figure 99 (page 270) depicts the way each principle of the AMD informed each academic term. A more detailed explanation can be found in the programme schedule

regarding the presence of each element of the AMD in the curricular activities (see Figure 103 to Figure 105, pages 278-280). Also, elements of the AMD were translated into the aims of the Masters programme (see page 275), and its ILOs (see Table 36, page 276) that were further expanded with a set of possible learning activities and assessment methods (see Table 37, page 277).

Below, the contribution to knowledge of this thesis will be articulated, and the limitations and intentions for future research will be discussed.

8.1 – Contribution to knowledge

– *Conceptual framework: amplified mindset of design*

This thesis responded to the current ambiguous and ill-defined disciplinary moment where design is amplifying its territories and practices. This amplification impacts design education creating a need to update its models. As a result, the conceptual framework of an amplified mindset of design was developed to capture an emerging identity of design to be used as categories of educational demand for emerging design practices.

A concise explanation of what the conceptual framework contains will be offered in this conclusion, before articulating its original contribution to knowledge that is aimed at design educators and designers, with the potential to be transferred to other disciplines.

An amplified mindset of design represents an emerging integral position in design articulated in this thesis as a conceptual framework with four-elements that include core design skills (amplified by), a set of behaviours, attitudes and beliefs about design. First, the element “Championing the art of making visual” refers to the strategic use of 2D and 3D visualisation techniques to foster dialogue and insight. This element is amplified and put to use in the remaining elements of the framework. Second, the element “Being adept at building and working within networks” refers to an all-encompassing approach informed by systems and holistic perspectives, seeking cross-fertilisation and the exploration of boundary spaces as creative sites of action. Third, “Mastering social skills” is an element with a particular focus on the mediation and facilitation of processes and relations, and on the creation of shared motivation and cultural alignment between the stakeholders of a project. This element reflects the interpersonal skills that are part of the designer’s culture. Fourth, the element “Following a human-centred and synergistic worldview” refers to an expansion from a user-centred focus in design towards a focus on human beings as part of the natural, economic and social worlds. By acknowledging the interplay and synergies between these different dimensions, it seeks sustainability in processes and outcomes.

Relevant to designers, design educators and others disciplines, the value of this conceptual framework can be said to start in the manner and the depth of its synthesis. The AMD reflects what is beginning to be expected from designers and

how design education can adjust; it presents a different perspective that seeks to advance pre-existing knowledge in this field.

Helping designers articulating their value

First, as designers reinvent their practices, they can struggle to communicate their roles and the value they bring to complex projects. By using the AMD, designers can communicate and situate their practices and roles, and improve their discourse regarding their value to clients, partners, audiences, and other disciplines. Therefore, the AMD contributes to better equipping designers with terminology to advocate an integral position especially suited to dealing with complex design scenarios and new complex problems.

Assisting the development of future designers for complexity and change

Second, answering to the need to change and update contemporary design education models, design educators can use the AMD as guiding principles to develop distinct approaches to design education (as exemplified with the MDes in Adaptive Design Practices developed in this research). This conceptual framework is flexible enough to inform the creation of ILOs or define graduate attributes, for example. Consequently, design educators that use the AMD can assist in developing future designers to be more adept to dealing with complex and changing contexts. If used to inform design research projects, the AMD can further advance and consolidate the emerging design practices referred to in this research.

Leading other disciplines to innovation

Third, other disciplines can use the AMD in education or training contexts to better deal with global complexities that require a more comprehensive approach. “Championing the art of making visual” is the element of the framework that binds the framework to Design, to which another disciplinary core could be added. The remaining aspects of the AMD can be appropriated by other disciplines, resulting in an amplified mindset of business, for example. Meaning that future professionals can be developed within their disciplinary silo while being prepared for cross-disciplinary work open to the pollination of other disciplines. However, it is important to highlight that the designer’s core skills access other ways of knowing that are more embodied and tacit which can enrich other disciplines. With support from design, the appropriation of an AMD by other disciplines can equip them with an integral approach that, due to its comprehensiveness, can lead to innovation.

– ***MDes in Adaptive Design Practices***

The MDes in Adaptive Design Practices makes a contribution to knowledge in the field of design education and curriculum development more broadly, by providing a practical proposal for the development of an amplified mindset of design, and an approach to curriculum development informed by design methods.

First, the Masters programme designed in this research for the development of an amplified mindset of design promotes a distinct way of working and thinking about design, and aims to develop an adaptable expertise in developing strategic, interdisciplinary, and collaborative design approaches across different sectors. This thesis recommends that design educators who want to develop an amplified mindset of design focus on the further development of visualisation skills, collaborative and interdisciplinary ways of working, and on the development of epistemological awareness and literacy in students (and educators), and the associated social skills, integrative behaviours, and synergistic worldview. (The emphasis on epistemological development aims to close a gap identified in design education regarding the underuse of foundational literature from education.) Thus, graduates will be equipped with a level of flexibility and resourcefulness (of tools and knowledge) useful for a dynamic career and agile design practice, improving working processes in interdisciplinary teams, and increasing the impact of interdisciplinary complex projects.

Second, using visuals and low-fidelity prototyping design methods have the potential to enhance curriculum development. Here, visualisations serve to build and communicate the programme's vision and structure. This thesis recommends the use of these methods in two ways: when compared with written documents, visual methods enhance the level of involvement, motivation and communication in those developing curricula; they also have the potential to enhance programme approval processes with curriculum simulations later used to populate necessary programme approval documents. An example of these simulations is the student-journey game developed in this research. Therefore, the process of curriculum design will be more efficient and clear to all involved, making it easier to communicate with academic staff, applicants, students, guests, and partner organisations.

8.2 – Limitations and future research

As an exploratory research on an ill-defined phenomenon, the outcomes of this study are but a starting point to further exploring the details of each element of an amplified mindset of design and of design education for such a mindset.

As a research project about design and conducted through design, this thesis is bounded geographically to the European and North American contexts. In a nutshell, this research sits in a social, economic, and cultural scenario of globalisation within post-industrial Europe. Global technological advancements and the industrial growth of China and other Asian countries have contributed to such a context. I recognise the limits of not extending this investigation to Asian and Eurasian countries, for example, leaving such a focus for future research.

This thesis's qualitative case study approach was bounded to the sample of participants and the contexts investigated. Its limitations will be discussed regarding the sample of cases, their different configurations and contrasting settings. First, the choice of two case studies from the UK (appendix 1 offers more detail on the sampling criteria) was due to time and financial constraints,

geographical and personal reasons related to being a parent. Thus, I have not extended this research to investigate Masters programmes outside the UK such as the MA in Transdisciplinary Design (Parsons School of Design, New York) or the Masters of Integrated Design (KISD - Köln International School of Design, Cologne).

Second, I recognise the limits set by having two cases studies with very different configurations in this research. However, it was not my intention to choose cases with a similar character or to develop a collective case study methodology. I aimed to holistically investigate an emerging topic from two intrinsic and instrumental case studies that offered two ends of an educational spectrum (a more traditional art school setting versus a residential learning community), each relevant to gaining rich insights into the emerging issue of design education for an AMD. The purpose of the case studies was to explore and identify the characteristics of each Masters programme in order to discover what made them a teaching setting for an amplified mindset of design, and to use the findings to further develop the AMD as well as the MDes in Adaptive Design Practices.

Third, adding to the contrasting settings of each case study, the time devoted to investigating each case can be interpreted as incongruent, as CS1 lasted for more than two years, contrasting with one week of immersive involvement in CS2. However, the observations of the effects of the Masters programme on its students were more immediate in CS2 due to its residential context. This contrasted with CS1 where students could determine their own level of engagement in the programme, which meant that more time was required to grasp the case study. It can also be argued that time was a limitation in CS2, not allowing for gathering counter-stories focusing on the problems and challenges of this programme. Nonetheless, I had close contact with and interviewed students from the first cohort of CS2 who had finished their studies and had a more critical view on their programme. Also, I was able to contrast these views with the new students with whom I participated in the academic and social activities of the college. The impact of such an intense experience in a short time frame can also be argued to have impacted my judgement as a researcher as some of the principles of the college were very close to my own views on education. Being aware of this led me to pay close attention to the ethics of my roles and behaviours and to question the content of my reflections and inferences (in both cases).

Finally, investigating within one's host institution, as I did for CS1, could be taken as a practice that has its limits. I am aware of this, and I chose this department to conduct my PhD in based on my previous interest in the department's views of design. Whilst on one hand, the choice of this case derived from the pragmatics of research constraints, the targeted local context offered rich data to develop a rich hypothesis to feed future research.

Research outcomes: limitations and future research

The conceptual framework of an amplified mindset of design is not intended as a universal framework. It was created to incorporate diverse views of design that showed overlaps and formed this plural framework, which aims to surpass the fragmented discourse it synthesises. However, this thesis admittedly represents an interpretation of the phenomenon of an amplification of design practices. The exploratory character of this research demands further investigation to ascertain the existence of an amplified mindset of design at a global level— in which multiple paradigms and cultures co-exist— spanning, in particular, European, North American, Eurasian and Asian contexts. To enrich the present research there are a couple of areas of specific interest to me:

- Conducting a global survey to investigate in Western, Eurasian and Asian contexts the practices of design organisations with an amplified mindset of design.
- Given the high industrialisation of China, it would be interesting to investigate what happens with this amplified mindset of design within a culture dominated by Buddhism, Confucianism and Taoism, and how these different perspectives could cross-fertilise.

The MDes in Adaptive Design Practices developed in this study is presented as a finalised programme, which could benefit from further investigation into the importance of institutional contexts and cultures in which such a programme could be implemented. However, the contexts of both case studies were pointed out as examples of suitable cultures in which to implement this Masters programme. Furthermore, the implementation of a community of practice for an amplified mindset of design in the context of HE is limited by the need to measure students' results, which raises issues of power inequalities between students and educators. In the future I would like to investigate the implementation of this Masters programme in the following ways:

- Exploring the development of a community of practice for an amplified mindset of design, and how such a synergistic and integral approach to design education tackles issues of power in design education.
- Piloting relevant aspects of the MDes Adaptive Design Practices, to determine the degree to which the programme can develop an amplified mindset of design in its students.
- Investigating the influence of summative and formative assessment in the development of an AMD in design education.

Further thoughts on future research

Throughout the course of this research I have been reflecting on how I have used visualisations as research tools and not as research outcomes in itself. Therefore, in the future I would love to:

- Investigate the use of visuals as work in progress across design theses, to develop a taxonomy that can support design research activities.

- Explore in depth and evidence how the element “championing the art of making things visual” informs the remaining three elements of the amplified mindset of design.
- Conduct an action research methodology to investigate the effects of using visuals and low fidelity prototyping techniques, borrowed from Design, in curriculum development processes.
- Investigate how visual design methods could help educational research to gain more in-depth knowledge about students and their learning contexts.

Finally, other topics related to higher education, that I would like to explore include:

- Considering the relationship between design education and the merger of the integral Quadrants and the Rose Window model, and investigating how each quadrant can be explored in curricular activities to develop an integral, more sustainable approach to design.
- Conducting a longitudinal study focusing on the factors that encourage or hinder the epistemological development of design students from undergraduate level through to postgraduate taught courses, and the impact that epistemological orientations have on the students’ views of their professional identity.
- Identifying significant stepping stones for the mental wellbeing of PhD students during their studies, and exploring designerly ways to improve the experience of a PhD programme. This proposal for further research is rooted in my interest in personal development, previous professional experience, and in the project I have curated in parallel to this research, entitled “PhD Behind the Scenes” (referred to in section 4.5).
- Exploring the potential to apply the AMD outside the field of design, with a focus on translating the terms used in the conceptual framework into the language of other disciplines. This particular research has the potential to advance educational programmes or courses, and professional practices for innovation in general.



An amplified mindset of design represents an aspiration for sustainable ways of working in design, and the MDes in Adaptive Design Practices a practical suggestion to seed change in the world.

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- APPENDICES -

THE EMERGENCE OF AN AMPLIFIED MINDSET OF DESIGN

distinct approaches to postgraduate
design education

Mafalda Moreira

May 2018

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Appendix 1

Summary of desk research on the programmes surveyed to choose a second case study

This appendix covers the process I have followed to find evidence of design education programmes that show signs of developing an amplified mindset of design. In 2014, several Masters programmes were surveyed based on the information on their websites (including study guides, handbooks and videos) and on several criteria that allowed me to choose a second case study to investigate in depth.

The first indicator that informed the initial choice of programmes to survey was the names of the Masters programmes, which were associated with the following:

- human-centred approaches, reflected in words such as "social" or "citizenship";
- a strategic and sustainable approach to design, reflected in words such as "sustainability" or "ecology";
- a focus on immateriality, reflected in words such as "services" or "thinking";
- the creation of the new, reflected in words such as "innovation", or "transformation";
- a future orientation and an inclination to go beyond design, reflected in words such as "future" or "transdisciplinary".

From this initial stage, seven educational institutions were chosen, and eleven Masters programmes in design were surveyed, as follows:

- MA in Design Futures and Metadesign, Goldsmiths University of London
- MA Sustainable Design, University of Brighton (1)
- MSc International Innovation (Design), Lancaster University
- MA Sustainable Design, Kingston University (2)
- MDes in Design, University of the Arts London
 - Design Management Innovation
 - Service Design Innovation
 - Luxury Brand Management Innovation
- MA in Ecological Design Thinking, Schumacher College
- MDes Design Innovation, Glasgow School of Art
 - & Citizenship
 - & Service Design
 - & Environmental Design

Additionally, although this research was focused on the UK for the reasons pointed out in Chapter 1, it was important to look briefly outside this remit, given

that we live in a globalised world. Two additional programmes were therefore surveyed:

- MFA in Transdisciplinary Design, Parsons School of Design, New York;
- MA in Integrated Design, KISD- Köln International School of Design, Cologne.

For a more detailed look into each programme I used the Rose Window model (McAra-McWilliam 2008) as a lens to look for signs of an amplified approach in the Masters programmes, and also defined the following criteria and guidelines for my analysis:

- Examine the programme statements to obtain an overview of the educational approach and views of design;
- Check each programme's disciplinary orientation to see if it tends towards a multidisciplinary or integral approach to design;
- Check each programme's sustainability concerns from an integral perspective on sustainability (Quadruple Bottom Line which includes economic, environmental, social, experiential perspectives);
- Try to understand each Masters programme's views of designer roles to see if they align with the deeper levels of the Rose Window quadrants;
- Look for pedagogical links to practice to check the level of integration between the academic training and professional practices;
- Learn about the level of focus on student development to see how integral the programme is;
- Learn about the modes of delivering each programme to check if the teaching methods tackle the different dimensions of design practices (as in the Rose Window);
- Look at the type of design outcomes (material and/or immaterial)

I was aware of the limits of this survey and that it might not offer a true image of what plays out in the day-to-day running of the programmes. The information found online was produced for marketing and communication purposes. However, this was a filter for choosing a Masters programme in order to conduct a deeper investigation.

Findings

After conducting this survey, three main themes emerged and allowed me to select the Masters programme that showed the strongest signs of an amplified mindset of design (which is an integral position): disciplinary orientation, and approaches to sustainability and student development. First, with regard to the Masters programmes' disciplinary orientation, the majority of the programmes showed

interdisciplinary and multidisciplinary orientations. Exceptionally, the MA in Ecological Design Thinking stated a transdisciplinary orientation, which could then be, and was, further investigated in this research. This was also clearly found in the MFA in Transdisciplinary Design. These two programmes showed a clear orientation towards an integrated approach to design. Judging by its name and content found online, the MA in Integrated Design also showed a few signs of an integral approach, although the MA in Ecological Design Thinking had a stronger message in this regard.

Second, on the issue of sustainability, it was found that the majority of the Masters programmes included a focus on environmental, economic, and social and cultural concerns but to different extents. Some programmes showed a higher focus on sustainability than others, who referred to it only as an underlying principle used in design in general, but without exploring it much. The MA in Ecological Design Thinking was found to be the strongest advocate of an ecological and holistic approach to design and sustainability, followed by the MDes in Design Innovation & Environmental Design, and the MFA in Transdisciplinary Design which showed a higher inclination towards social sustainability.

Third, regarding student development, the Rose Window was used as a lens through which to examine each Masters programme. As expected it was found that all programmes covered the development of surface levels of design practice, some focusing mainly on career development and work placements.

The MA in Integrative Design openly referred to a mentoring programme that can be interpreted as addressing personal development. Other programmes, indirectly and at different levels, showed signs of a focus on the development of more subjective and intersubjective dimensions in the students (ways of seeing and ways of being) in the form of delivery methods, pedagogical tools, and particular views of design and of the designer. Examples of these included terms such as teamwork, peer-to-peer learning, collaborative, facilitation, transdisciplinary, translation, interdisciplinary, leadership, independent learning, reflective enquiry, participatory and experiential sessions, deeply reflective methodologies, cultural exposure, international exposure, T-shaped practitioners, live projects, developing the whole person, using skills and knowledge from others, agents of change, systemic thinking, and holistic thinking. However, it was the MA in Ecological Design Thinking that showed explicit signs of an amplified approach to student development by openly referring to the development of the student as a whole person (intellectual, intuitive, emotional, ethical and practical). Here, a visible link can be identified between this position and the four design sensibilities of the Rose Window.

As a result of this desk research, the MA in Ecological Design Thinking was chosen as a second case study for this study.

Appendix 2 | Ethics: information sheets, consent forms and non-disclosure agreement

SCHOOL
OF DESIGN
THE GLASGOW
SCHOOL OF ART

PARTICIPANT CONSENT FORM

THE EMERGENCE OF AN AMPLIFIED PRACTICE OF DESIGN – EDUCATING AT POSTGRADUATE LEVEL

Researcher: Mafalda Moreira, m.moreira1@student.gsa.ac.uk

Research supervision: Irene McAra-McWilliam, i.mcara-mcwilliam@gsa.ac.uk
Emma Murphy, e.murphy@gsa.ac.uk

Research and Postgraduate Office: Alison Hay, a.hay@gsa.ac.uk

STATEMENTS OF UNDERSTANDING

I have read the information sheet about the research project in which I have been asked to take part in and have been given a copy of the information sheet to keep.

It has been explained to me what is going to happen and why it is being done, and I have had the opportunity to discuss the details and ask questions.

I understand that I give my consent for the following to take place (*select the applicable option/s*):

- ☐ INTERVIEW (voice recorded)
- ☐ DOCUMENTS ACCESS
 - o My Reflective Journal or Final Reports
 - o Internal programme documents
- ☐ OBSERVATION (activities within the programme)

ACTIVITY CONSENTS

I understand and have had explained to me the appropriate health and safety procedures for my part in this research.

I understand and have had explained to me any risks associated with this activity.

DATA CONSENTS

I understand that I have given approval for (*select the applicable option/s*):

- ☐ MY NAME
- ☐ MY CONTEXTUAL REFERENCES (AGE, GENDER, NATIONALITY)
- ☐ MY ACADEMIC BACKGROUND
- ☐ MY PROFESSIONAL BACKGROUND
- ☐ RECORDED IMAGES OF MYSELF AND MY ENVIRONMENT
- ☐ SOUND RECORDINGS OF MYSELF AND MY ENVIRONMENT

to be published in the final report of this project and may be used in future publications, journal articles, conference paper/presentations, lectures or broadcasts, and exhibitions.

I understand that my involvement in this study, unless stated above, and particular data from this research, will remain strictly confidential. My personal details will be anonymised by an alphanumeric ID. Only the researchers involved in the study will have access to the data.

It has been explained to me what will happen to the data once this study has been completed.

The identifiable data will be shared with the researcher's supervisors:
Irene McAra-McWilliam and Emma Murphy.

RIGHT OF WITHDRAWAL

I understand that I have the right to withdraw from the research at any time without disadvantage to myself and without having to give any reason.

STATEMENT OF CONSENT

I hereby fully and freely consent to participation in the study, which has been fully explained to me.

Name (CAPITAL LETTERS): _____

Address: _____

Email (CAPITAL LETTERS): _____

Telephone number: _____

Participant signed: _____ Date: _____

Researcher signed: _____ Date: _____

When completed, please return to the researcher. One copy will be given to the participant and the original will be kept in the researcher's file at the Glasgow School of Art's Institute of Design Innovation.

PARTICIPANT INFORMATION SHEET

THE EMERGENCE OF AN AMPLIFIED PRACTICE OF DESIGN – EDUCATING AT POSTGRADUATE LEVEL

You are being invited to take part in a research project. Before you decide to take part it is important that you understand why the research is being done and what it will involve. Please take time to read this information sheet carefully and discuss it with others if you wish. Ask if anything is unclear or if you would like more information.

PURPOSE OF THE RESEARCH

The overall aim of this study is to identify distinct approaches to postgraduate Design Education, which help prepare future designers for emergent, leading-edge design practices that show an amplified perspective. Implicit in a number of complementary visions in literature, this research has identified a set of emergent practices that this thesis offers, albeit notionally, as 'amplified design practice'.

Part of this research's methodology is focused in discussing with design educators the concept of amplified design practice and potential educational approaches to based on this notion.

Also, within the scope of this research on emergent practices of design, the MDES Design Innovation from The Glasgow School of Art, and the MA in Ecological Design Thinking from Schumacher College have been identified as examples of distinct educational approaches. Following a qualitative case study approach, this research intends to build a rich in-depth investigation focusing on how learning and teaching happens in each programme through the use of interviews, observation, and document analysis.

Results of this investigation are intended to bring more clarity to the 'shape-shifting' discipline that Design is, and inform the development of an approach to postgraduate design education for this moving disciplinary scenario.

DO I HAVE TO TAKE PART?

No. Participation in this study is voluntary. In case you are a student, taking part in this research will not have any impact in your academic evaluation.

WHAT WILL HAPPEN IF I WISH TO TAKE PART?

If you wish to take part in this study you will be asked to sign a consent form stating the conditions in which you wish to take part. You will keep a copy of that consent for your records.

Your identity will not be disclosed, unless you consent it. The results of research activities will refer to all participants with alphanumeric identification codes.

There will be no risks involved in taking part in this activity but in case of emergency, both Glasgow School of Art and Schumacher College have security and emergency procedures and a team ready to help.

Interviews: are not expected to exceed one-hour time, and will be voice-recorded and transcribed for further analysis.

In case you agree to be interviewed, and are a student, you will also be asked to share your Reflective Journal, final reports or any other material that reflects on your journey throughout the programme.

Observation activities: are dependent on the nature of the pedagogical activity to be observed. The choice of educational activities to observe will be agreed upon with the programme's coordination team and/or its tutors.

Before any observation begins your consent will be asked. The researcher's role can vary between an observer or full participant, depending on the activity and on your consent. Observation will be recorded through occasional photographs, and field-notes that will be transcribed for further analysis.

Observations will take place at the Glasgow School of Art Campus and Schumacher College Campus and can include accompanying students through their fieldwork.

If you wish to participate, the researcher will contact you to schedule the best suitable date for any interviews and inform you about any observation activities.

WHAT IF I CHANGE MY MIND?

You have the right to withdraw from this study at any time without disadvantage to yourself and without having to give any reason. Withdrawals will not have any impact in your academic evaluation. The participation in this study is independent of your studies.

WHAT ARE THE ADVANTAGES / DISADVANTAGES OF TAKING PART?

By being involved in this study, and sharing your experience, you will be contributing to the discussion on the enhancement of postgraduate Design Education programmes to better prepare future designers for emergent, leading-edge practices of design. With the help of all field activities, this research intends to bring light to an ill-defined area of practice within Design.

WHAT WILL HAPPEN TO THE INFORMATION I GIVE?

Unless otherwise indicated by you in the consent form, your anonymity will be preserved at all times. All photographs, and transcripts will be kept safe.

To guarantee anonymity, you will be assigned an alphanumeric ID. Contextual and cultural references will not be disclosed (age, gender, nationality, ethnicity), unless otherwise indicated by you in the consent form.

Behaviours can be disclosed when appropriate to convey a point of view or an important fact for this research. In this case all cultural and contextual references will be omitted to safeguard your identity.

Your academic and professional background will be disclosed only in terms of designer/non-designer background and in terms of the presence of previous professional experience.

Only the researcher (Mafalda Moreira) and her supervisors (Irene McAra-McWilliam, Emma Murphy) will have access to information that reveals your identity.

Your identification and your anonymity code will be destroyed upon completion of the researcher's PhD studies. All information related to this research's activities in which you will take part will be stored digitally in a protected external disc. The external disc will be stored in a secured location at the GSA Campus until the degree's final examination (including completion of corrections).

WHAT WILL YOU DO WITH THE RESULTS?

The results of this activity will contribute to the overall research and will be part of the researcher's PhD thesis that will be published after completion. The information derived from this activity, after anonymisation, can be made public in future publications, journal articles, conference paper/presentations, lectures or broadcasts, and exhibitions.

CONTACTS

If you have any questions regarding this activity feel free to contact the researcher, the researcher's supervisors or the Research and Postgraduate Office.

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PARTICIPANT CONSENT FORM

THE EMERGENCE OF AN AMPLIFIED MINDSET OF DESIGN – DISTINCT APPROACHES TO POSTGRADUATE DESIGN EDUCATION – INTERVIEWS

Researcher: Mafalda Moreira, m.moreira1@student.gsa.ac.uk

Research supervision: Irene McAra-McWilliam, i.mcara-mcwilliam@gsa.ac.uk
Emma Murphy, e.murphy@gsa.ac.uk

Research and Postgraduate Office: Alison Hay, a.hay@gsa.ac.uk

STATEMENTS OF UNDERSTANDING

I have read the information sheet about the research project in which I have been asked to take part in and have been given a copy of the information sheet to keep.

It has been explained to me what is going to happen and why it is being done, and I have had the opportunity to discuss the details and ask questions.

I understand that I give my consent for the following to take place (*select the applicable option/s*):

☐ INTERVIEW

ACTIVITY CONSENTS

I understand and have had explained to me the appropriate health and safety procedures for my part in this research.

I understand and have had explained to me any risks associated with this activity.

DATA CONSENTS

I understand that I have given approval for (*select the applicable option/s*):

- ☐ MY NAME
- ☐ MY CONTEXTUAL REFERENCES (AGE, GENDER, NATIONALITY)
- ☐ MY ACADEMIC BACKGROUND
- ☐ MY PROFESSIONAL BACKGROUND
- ☐ SOUND RECORDINGS OF MYSELF AND MY ENVIRONMENT

to be published in the final report of this project and may be used in future publications, journal articles, conference paper/presentations, lectures or broadcasts, and exhibitions.

I understand that my involvement in this study, unless stated above, and particular data from this research, will remain strictly confidential. My personal details will be anonymised by an alphanumeric ID. Only the researchers involved in the study will have access to the data.

It has been explained to me what will happen to the data once this study has been completed.

The identifiable data will be shared with the researcher's supervisors:
Irene McAra-McWilliam and Emma Murphy.

CONFIDENTIALITY

Until this research is published, I agree not disclose or use the research information that was shared with me as my own or for my own benefit.

RIGHT OF WITHDRAWAL

I understand that I have the right to withdraw from the research at any time without disadvantage to myself and without having to give any reason.

STATEMENT OF CONSENT

I hereby fully and freely consent to participation in the study, which has been fully explained to me.

Name (CAPITAL LETTERS): _____

Address: _____

Email (CAPITAL LETTERS): _____

Telephone number: _____

Participant signed: _____ Date: _____

Researcher signed: _____

Date: _____

When completed, please return to the researcher. One copy will be given to the participant and the original will be kept in the researcher's file at the Glasgow School of Art's Institute of Design Innovation.

PARTICIPANT INFORMATION SHEET

THE EMERGENCE OF AN AMPLIFIED MINDSET OF DESIGN – DISTINCT APPROACHES TO POSTGRADUATE DESIGN EDUCATION – INTERVIEWS TO DESIGN EDUCATORS

You are being invited to take part in a research project. Before you decide to take part it is important that you understand why the research is being done and what it will involve. Please take time to read this information sheet carefully and discuss it with others if you wish. Ask if anything is unclear or if you would like more information.

PURPOSE OF THE RESEARCH

The overall aim of this study is to identify distinct approaches to postgraduate Design Education, which help develop future designers for emergent, leading-edge design practices that show an amplified perspective. Implicit in a number of complementary visions in literature, this research has identified a set of emergent practices that this thesis offers, albeit notionally, as 'amplified mindset of design'.

Part of this research's methodology is focused in discussing with design educators the concept of amplified mindset of design and potential educational approaches based on this notion. Intending to build a rich, in-depth investigation into the phenomenon of design education for an amplified mindset of design, this research followed a qualitative methodology. Two Instrumental Case Studies were conducted on postgraduate design programmes that showed signs of an amplified mindset. In parallel, and informed by literature and interim findings from the cases' fieldwork, a Masters Programme was drafted and intends to be discussed (using interviews) with design educators in relation to the framework of an amplified mindset of design. These interviews will be used to further develop the Masters Programme.

Results of this investigation are intended to bring more clarity to the 'shape-shifting' discipline that Design is, and inform the development of an approach to postgraduate design education for this moving disciplinary scenario.

DO I HAVE TO TAKE PART?

No. Participation in this study is voluntary. In case you are a student, taking part in this research will not have any impact in your academic evaluation.

WHAT WILL HAPPEN IF I WISH TO TAKE PART?

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There will be no risks involved in taking part in this activity but in case of emergency, the Glasgow School of Art have security and emergency procedures and a team ready to help.

WHAT IF I CHANGE MY MIND?

You have the right to withdraw from this study at any time without disadvantage to yourself and without having to give any reason. Withdrawals will not have any impact in your academic evaluation. The participation in this study is independent of your studies.

WHAT ARE THE ADVANTAGES / DISADVANTAGES OF TAKING PART?

By being involved in this study, and sharing your experience, you will be contributing to the discussion on the enhancement of postgraduate Design Education to better develop future designers for emergent, leading-edge practices of design. With the help of all field activities, this research intends to bring light to an ill-defined area of Design.

WHAT WILL HAPPEN TO THE INFORMATION I GIVE?

Unless otherwise indicated by you in the consent form, your anonymity will be preserved at all times. All photographs, and transcripts will be kept safe.

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Behaviours can be disclosed when appropriate to convey a point of view or an important fact for this research. In this case all cultural and contextual references will be omitted to safeguard your identity.

Your academic and professional background will be disclosed only in terms of designer/non-designer background and in terms of the presence of previous professional experience.

Only the researcher (Mafalda Moreira) and her supervisors (Irene McAra-McWilliam, Emma Murphy, Vicky Gunn) will have access to information that reveals your identity.

Your identification and your anonymity code will be destroyed upon completion of the researcher's PhD studies. All information related to this research's activities in which you will take part will be stored digitally in a protected external disc. The external disc will be stored in a secured location at the GSA Campus until the degree's final examination (including completion of corrections).

WHAT WILL YOU DO WITH THE RESULTS?

The results of this activity will contribute to the overall research and will be part of the researcher's PhD thesis that will be published after completion. The information derived from this activity, after anonymisation, can be made public in future publications, journal articles, conference paper/presentations, lectures or broadcasts, and exhibitions.

CONTACTS

If you have any questions regarding this activity feel free to contact the researcher, the researcher's supervisors or the Research and Postgraduate Office.

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167 Renfrew Street
Glasgow
G3 6RQ

PARTICIPANT CONSENT FORM

THE EMERGENCE OF AN AMPLIFIED MINDSET OF DESIGN – DISTINCT APPROACHES TO POSTGRADUATE DESIGN EDUCATION – FOCUS GROUP

Researcher: Mafalda Moreira, m.moreira1@student.gsa.ac.uk

Research supervision: Irene McAra-McWilliam, i.mcara-mcwilliam@gsa.ac.uk
Emma Murphy, e.murphy@gsa.ac.uk, Vicky Gunn, v.gunn@gsa.ac.uk

Research and Postgraduate Office: Alison Hay, a.hay@gsa.ac.uk

STATEMENTS OF UNDERSTANDING

I have read the information sheet about the research project in which I have been asked to take part in and have been given a copy of the information sheet to keep.

It has been explained to me what is going to happen and why it is being done, and I have had the opportunity to discuss the details and ask questions.

I understand that I give my consent for the following to take place (*select the applicable option/s*):

☐ FOCUS GROUP

ACTIVITY CONSENTS

I understand and have had explained to me the appropriate health and safety procedures for my part in this research.

I understand and have had explained to me any risks associated with this activity.

DATA CONSENTS

I understand that I have given approval for (*select the applicable option/s*):

- ☐ MY NAME
- ☐ MY CONTEXTUAL REFERENCES (AGE, GENDER, NATIONALITY)
- ☐ MY ACADEMIC BACKGROUND
- ☐ MY PROFESSIONAL BACKGROUND
- ☐ SOUND RECORDINGS OF MYSELF AND MY ENVIRONMENT

to be published in the final report of this project and may be used in future publications, journal articles, conference paper/presentations, lectures or broadcasts, and exhibitions.

I understand that my involvement in this study, unless stated above, and particular data from this research, will remain strictly confidential. My personal details will be anonymised by an alphanumeric ID. Only the researchers involved in the study will have access to the data.

It has been explained to me what will happen to the data once this study has been completed.

The identifiable data will be shared with the researcher's supervisors:
Irene McAra-McWilliam and Emma Murphy.

CONFIDENTIALITY

Until this research is published, I agree not disclose or use the research information that was shared with me as my own or for my own benefit.

RIGHT OF WITHDRAWAL

I understand that I have the right to withdraw from the research at any time without disadvantage to myself and without having to give any reason.

STATEMENT OF CONSENT

I hereby fully and freely consent to participation in the study, which has been fully explained to me.

Name (CAPITAL LETTERS): _____

Address: _____

Email (CAPITAL LETTERS): _____

Telephone number: _____

Participant signed: _____ Date: _____

Researcher signed: _____

Date: _____

When completed, please return to the researcher. One copy will be given to the participant and the original will be kept in the researcher's file at the Glasgow School of Art's Institute of Design Innovation.

PARTICIPANT INFORMATION SHEET

THE EMERGENCE OF AN AMPLIFIED MINDSET OF DESIGN – DISTINCT APPROACHES TO POSTGRADUATE DESIGN EDUCATION – FOCUS GROUP

You are being invited to take part in a research project. Before you decide to take part it is important that you understand why the research is being done and what it will involve. Please take time to read this information sheet carefully and discuss it with others if you wish. Ask if anything is unclear or if you would like more information.

PURPOSE OF THE RESEARCH

The overall aim of this study is to identify distinct approaches to postgraduate Design Education, which help develop future designers for emergent, leading-edge design practices that show an amplified perspective. Implicit in a number of complementary visions in literature, this research has identified a set of emergent practices that this thesis offers, albeit notionally, as 'amplified mindset of design'.

Part of this research's methodology is focused in discussing with design educators the concept of amplified mindset of design and potential educational approaches based on this notion. Intending to build a rich, in-depth investigation into the phenomenon of design education for an amplified mindset of design, this research followed a qualitative methodology. Two Instrumental Case Studies were conducted on postgraduate design programmes that showed signs of an amplified mindset. In parallel, and informed by literature and interim findings from the cases' fieldwork, a Masters programme was drafted and discussed with design educators in relation to the framework of an amplified mindset of design. This was an iterative process that resulted in a final version of both the Conceptual Framework and the layout of a Masters programme that is going to be discussed in this focus group.

Results of this investigation are intended to bring more clarity to the 'shape-shifting' discipline that Design is, and inform the development of an approach to postgraduate design education for this moving disciplinary scenario.

DO I HAVE TO TAKE PART?

No. Participation in this study is voluntary. In case you are a student, taking part in this research will not have any impact in your academic evaluation.

WHAT WILL HAPPEN IF I WISH TO TAKE PART?

If you wish to take part in this study you will be asked to sign a consent form stating the conditions in which you wish to take part. You will keep a copy of that consent for your records.

Your identity will not be disclosed, unless you consent it. The results of research activities will refer to all participants with alphanumeric identification codes.

There will be no risks involved in taking part in this activity but in case of emergency, the Glasgow School of Art have security and emergency procedures and a team ready to help.

WHAT IF I CHANGE MY MIND?

You have the right to withdraw from this study at any time without disadvantage to yourself and without having to give any reason. Withdrawals will not have any impact in your academic evaluation. The participation in this study is independent of your studies.

WHAT ARE THE ADVANTAGES / DISADVANTAGES OF TAKING PART?

By being involved in this study, and sharing your experience, you will be contributing to the discussion on the enhancement of postgraduate Design Education to better develop future designers for emergent, leading-edge practices of design. With the help of all field activities, this research intends to bring light to an ill-defined area of Design.

WHAT WILL HAPPEN TO THE INFORMATION I GIVE?

Unless otherwise indicated by you in the consent form, your anonymity will be preserved at all times. All photographs, and transcripts will be kept safe.

To guarantee anonymity, you will be assigned an alphanumeric ID. Contextual and cultural references will not be disclosed (age, gender, nationality, ethnicity), unless otherwise indicated by you in the consent form.

Behaviours can be disclosed when appropriate to convey a point of view or an important fact for this research. In this case all cultural and contextual references will be omitted to safeguard your identity.

Your academic and professional background will be disclosed only in terms of designer/non-designer background and in terms of the presence of previous professional experience.

Only the researcher (Mafalda Moreira) and her supervisors (Irene McAra-McWilliam, Emma Murphy, Vicky Gunn) will have access to information that reveals your identity.

Your identification and your anonymity code will be destroyed upon completion of the researcher's PhD studies. All information related to this research's activities in which you will take part will be stored digitally in a protected external disc. The external disc will be stored in a secured location at the GSA Campus until the degree's final examination (including completion of corrections).

WHAT WILL YOU DO WITH THE RESULTS?

The results of this activity will contribute to the overall research and will be part of the researcher's PhD thesis that will be published after completion. The information derived from this activity, after anonymisation, can be made public in future publications, journal articles, conference paper/presentations, lectures or broadcasts, and exhibitions.

CONTACTS

If you have any questions regarding this activity feel free to contact the researcher, the researcher's supervisors or the Research and Postgraduate Office.

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NON-DISCLOSURE AGREEMENT



THIS AGREEMENT is made on 8th December 2015

BETWEEN

1. Mafalda Moreira, (the "Disclosing Party"); and
 2. Callisto Green, (the "Receiving Party"),
- collectively referred to as the "Parties".

RECITALS

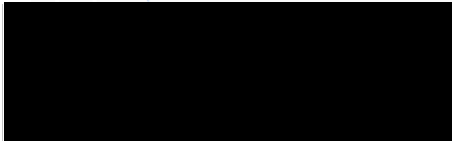
The Receiving Party understands and acknowledges that the Disclosing Party has disclosed or may disclose information of a confidential nature, including manuscripts for publication, which to the extent previously, presently, or subsequently disclosed to the Receiving Party is hereinafter referred to as "Proprietary Information" of the Disclosing Party.

OPERATIVE PROVISIONS

1. In consideration of the disclosure of Proprietary Information by the Disclosing Party, the Receiving Party hereby agrees: (i) to hold the Proprietary Information in strict confidence and to take all reasonable precautions to protect such Proprietary Information (including, without limitation, all precautions the Receiving Party employs with respect to its own confidential materials), (ii) not to disclose any such Proprietary Information or any information derived therefrom to any third person, and (iii) not to copy or reverse engineer any such Proprietary Information except when this is expressly part of a project with the Disclosing Party. The Receiving Party shall procure that its employees, agents and sub-contractors to whom Proprietary Information is disclosed or who have access to Proprietary Information sign a non-disclosure or similar agreement in content substantially similar to this Agreement.
2. Without granting any right or license, the Disclosing Party agrees that the foregoing shall not apply with respect to any information that (i) becomes (through no improper action or inaction by the Receiving Party or any affiliate, agent, consultant or employee) generally available to the public, or (ii) was in its possession or known by it prior to receipt from the Disclosing Party as evidenced in writing, except to the extent that such information was unlawfully appropriated, or (iii) was rightfully disclosed to it by a third party, or (iv) was independently developed without use of any Proprietary Information of the Disclosing Party. The Receiving Party may make disclosures required by law or court order provided the Receiving Party uses diligent reasonable efforts to limit disclosure and has allowed the Disclosing Party to seek a protective order.

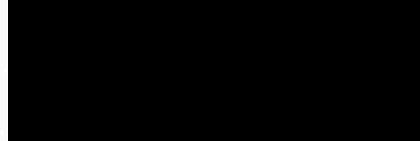
3. Immediately upon written request by the Disclosing Party at any time, the Receiving Party will return to the Disclosing Party all Proprietary Information and all documents or media containing any such Proprietary Information and any and all copies or extracts thereof, save that where such Proprietary Information is a form incapable of return and it shall be destroyed or erased, as appropriate.
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5. Each party further acknowledges and confirms to the other party that no representation or warranty, express or implied, is or will be made, and no responsibility or liability is or will be accepted by either party, or by any of its respective directors, officers, employees, agents or advisers, as to, or in relation to, the accuracy or completeness of any Proprietary Information made available to the other party or its advisers; it is responsible for making its own evaluation of such Proprietary Information.
6. The failure of either party to enforce its rights under this Agreement at any time for any period shall not be construed as a waiver of such rights. If any part, term or provision of this Agreement is held to be illegal or unenforceable neither the validity, nor enforceability of the remainder of this Agreement shall be affected. Neither Party shall assign or transfer all or any part of its rights under this Agreement without the consent of the other Party. This Agreement may not be amended for any other reason without the prior written agreement of both Parties. This Agreement constitutes the entire understanding between the Parties relating to the subject matter hereof unless any representation or warranty made about this Agreement was made fraudulently and, save as may be expressly referred to or referenced herein, supersedes all prior representations, writings, negotiations or understandings with respect hereto.
7. This Agreement shall be governed by the laws of the jurisdiction in which the Disclosing Party is located (the "Territory") and the parties agree to submit disputes arising out of or in connection with this Agreement to the non-exclusive of the courts in the Territory.

Mafalda Moreira
(on behalf of Glasgow School of Art)



Date: 8/12/2015

Vicki Watson
(on behalf of Callisto Green)



Date: 8th December 2015

Appendix 3 | Case Studies: interview script

Questions for Academic Staff

1a - Can you tell me about your role in this programme?

1b – In your opinions to teach this design speciality what would be a suitable educational approach?

Expected information: Introduction; Worldview

2a - [*programme leader*] Can you tell me when was the programme launched and what motivated its creation?

Expected information: Worldview

2b - In your opinion, what is unique about this programme?

Expected information: Distinct aspects of the programme

3a - [*programme leader*] Since it was launched, what do you recall as the major changes from then until today's format?

Expected information: Programme structure

4 - What type of designer/professional is expected to come out of the programme?

Expected information: View of designer's role, attitudes and behaviours

5 - How do you train students for that profile?

Expected information: Programme structure, pedagogical methods

6 - Do you identify any major challenges, for students and tutors, with that approach? Which ones?

Expected information: Identification of areas for improvement

7 - I'm interested in knowing, ways in which if you have witnessed transformation in the students related to their projects?

Expected information: Student development; Teaching and Learning impactful moments

8 – [*show the conceptual framework of an amplified practice*] From this conceptual framework of an amplified practice of design, do you recognise the programme's approach in any of these aspects?

Expected information: First check of the amplified practice framework

9 - In this programme, do you identify any key moments in the development of social skills and integrative behaviours in the students?

Expected information: First check of the amplified practice framework

10 - How do you envision the future of the MDes/MA?

Expected information: Future aspirations

11 - From our conversation did any other thoughts emerged related to the programme?

Questions for Students

1 – [CS1] What can you tell me about the MDES/MA?

1 – [CS2] Can you tell me about your background and what led you to this MA?

1a – [CS22] If you had to tell me about the MA what would you say?

Expected information: Introduction and overall impression

2 - Do you remember what you expected from the programme and what really happened?

Expected information: Student expectations VS Programme's reality

3 - Looking back, what changed in the way you think about the design profession (design innovation/ecological design thinking)? (*in relation to your programme*) What led you to that change?

Expected information: Student development

4 – [CS1] Think about how the programme was delivered and what you have learned. How would you explain your experience to another student?

4 – [CS2] Think about how the programme was taught and what you have learned. How would you explain your experience to another student?

Expected information: Programme's methods and learning outcomes; possible identification of areas for improvement

5 - What do you identify as major challenges in your learning during this programme? Do you think of other teaching methods that could make your challenges more effective?

Expected information: Identification of areas for improvement

6 - Can you identify any activities in this programme that were game-changers for you? Why?

Expected information: Student development; Teaching and Learning impactful moments/activities

7 - Did the exploration of your final project have had any transformational effects in you? In what way?

Expected information: Student development

8 – [CS1] Now that you are at the end of your programme, if you had to describe yourself as an innovation designer/ecological design thinker, what would you say?

8 – [CS2] Now that you have finished your programme, if you had to describe yourself as an ecological design thinker, what would you say?

Expected information: View of designer's role, attitudes and behaviours

9 - From our conversation did any other thoughts emerged related to your programme?

Appendix 4 | Design educators: interview script

1 - Introduction: Contextualisation of the research

2 - Tell me about your role?

3 - What do you expect your postgraduate students take from your programmes?

[Presentation of the diagram of an Amplified Mindset of Design]

Based on this if you had to design a Masters Programme for an amplified mindset:

4 - How would you design it? *(Where would you focus on?)*

5 - What type of project briefs would you give the students?

6 - How would you assess this mindset at the end of the Masters?

[Presentation of the diagrams on the Masters Programme's structure]

7 - What do you think of this programme and its structure?

8 - What changes would you make? Name?

9 - Do you envision any type of assessment for this structure?

10 - Any other thoughts?

Appendix 5 | Validation focus-group: agenda

AGENDA 13th Feb 2017, 2 hours

Part 1: Welcome and introduction

- Ice-breaker
- Introduction to the Research
- Workshop objectives
- Introducing the context and the rationale for the programme
- The audience of the Masters
 - o Presentation of a fictional cohort of students as personas, with detail on major projects and future work
- Masters' guiding principles and aims

Part 2: Programme's structure and dynamics

- Embodiment activity to understand the programme: student-journey game

Part 3: Discussion and feedback

- Round table discussion about the game. Participants are invited to share their impressions about:
 - o the exercise as another way to know an academic programme
 - o the programme's structure and dynamics.
- Main questions:
 - o What are the programme's strong points? What's missing?
 - o Design students: Would I apply for it? Why?
 - o Design practitioners: Would I employ someone from this Masters? Why?
 - o Design educators: Is it a robust programme? Why? Would I want to teach in it? Why?

Part 4: Closing

Appendix 5 | Validation focus-group: cue-cards for the student-journey-game

**YOU ARE THE STUDENT JOURNEY,
A COLLABORATIVE PROJECT (THE CORE OF THIS PROGRAMME)**

You walk the project path with curiosity as if you were listening to good or bad music, depending on the project phase you're in.

You will be the one to start this game.

You will be collecting objects along the way and will use them when you encounter the other activities.

Your goal, in this academic term, is to create a designer's manual or guidelines for social engagement.

PRE-TASK: Shape this topic into a more objective project that allows you to discuss it when you meet:

- the workshop sessions
 - the reflective discussions
 - the theoretical course in systems and complexity.
-

**YOU ARE SYSTEMS AND COMPLEXITY,
A THEORETICAL FOUNDATIONAL COURSE FOR THIS MASTERS**

You are motivated to find connections between everything. From one session to another you have different paces (run, walk, dance...you choose)

PRE-TASK: For each session build your own speech lines to create a short dialogue with the students. In each encounter include the hand-in of the tool cards you find on the floor. E.g.: Hello, today we are... (expand)

Session 1 - Objective: Introduce theory of systems and complexity as a lens for looking at social engagement. Explore and map systems.

Session 2 - Objective: Learn and explore parts of social systems and their behaviours.

Session 3 - Objective: Learn and explore the effects of introducing small-scale alterations to a social system. Map alternatives.

Session 4 - Objective: Looking at the students' different projects and exploring future behaviours of the systems.

YOU ARE THE PROGRAMME'S REFLECTIVE DISCUSSIONS

You are open-minded, a good listener and speak your mind with empathy. You walk at a calm pace.

You help students make sense of the whole Masters programme while helping them develop dialogic skills and multi-perspective thinking. You let students bring their own topics to debate.

Everyone sits in a circle during these sessions.

PRE-TASK: For each session build your own speech lines to create a short dialogue with the students at each encounter. In each encounter include the hand-in of the tool cards you find on the floor. E.g.: Hi, our session will be about....(expand)

Session 1 -...

Session 2 -...

Session 3 - Discuss the topic from four different perspectives:

- personal experiences (feelings, reactions, insights)
- cultural perspective (interactions, environment,...)
- behavioural perspective (what was done)
- system perspective (the big picture)

YOU ARE THE PROGRAMME'S WORKSHOPS

You are dynamic and seek to learn practical skills and knowledge to apply in your projects. You jump from one session to another.

PRE-TASK: For each session build your own lines to create a short dialogue with the students. Include the hand-in of the tool cards in each encounter. E.g.: Hi, our session will be about ethics and ethnography....(expand)

Session 1 - Theme: Ethics and ethnography

Objective: Help students explore the topic of social engagement

Session 2 - Theme: Visualisation and pattern finding in data

Objective: Help students visualise their findings in their social engagement project (from desk research, fieldwork, or literature review)

Session 3 - Theme: Cross-cultural collaborations and team dynamics

Objective: Improve students' team-work skills, develop awareness of relationships between people from different cultures, prepare students for interdisciplinary work.

Appendix 6

Notes: design educators' feedback on the Amplified Mindset of Design and the Masters Programme (next three pages)

DE2 Fully identifies with this and
he/his experience as a practitioner
and as lecturer/tutor

DE4 It's idealistic
Not sure if it applies to all
design fields. It's culturally
contingent

→ if It refers to practices related to the
private sector and conventional
commissioning, a lot of these
aspects dissolve.

→ The AFD (its majority) could be
part of any project based brief

DE3 Nice, concise way of
articulating something
very complex; it says that design
is not a closed or defined practice

DE5 Isn't this interdisciplinary instead?

DE5 It appears to be a dynamic model
which is good; need to better model
its complexities

problematic
especially in DE4
interior design
and fashion design
DE1

Build collective ownership

Systems and holistic
perspectives

Creation of synergies

Collaboration and cross-
fertilisation of knowledge
and experiences between
individuals and disciplines

Shaping thoughts and
relationships

Visualise the intangible for
insight and communication

A skill that informs all
aspects of the framework

DE4 very granular and
detailed. Can't connect
with a teaching method

Networks?

THIS IS
ABOUT
INSIGHT

DE3 can be
included
IN...

Champion the art of
making things visible

DE2 Junior
Designer

Adept to pursue
INTEGRATIVE
BEHAVIOURS

DE2 Design manager

amplified mindset
of design

Follow CENTRED
HUMAN- AND
SYNERGISTIC
WORLD-CENTRED
worldview

Need

included in

this is about
communication
DE5

Mastering
SOCIAL
SKILLS

DE5 Are not the preserve of designers

Ethical and sustainable
concerns

Designer as agent
that seeds change

Act at strategic and
cultural levels

DE4 Live projects could
address this

Empathy and
communication skills

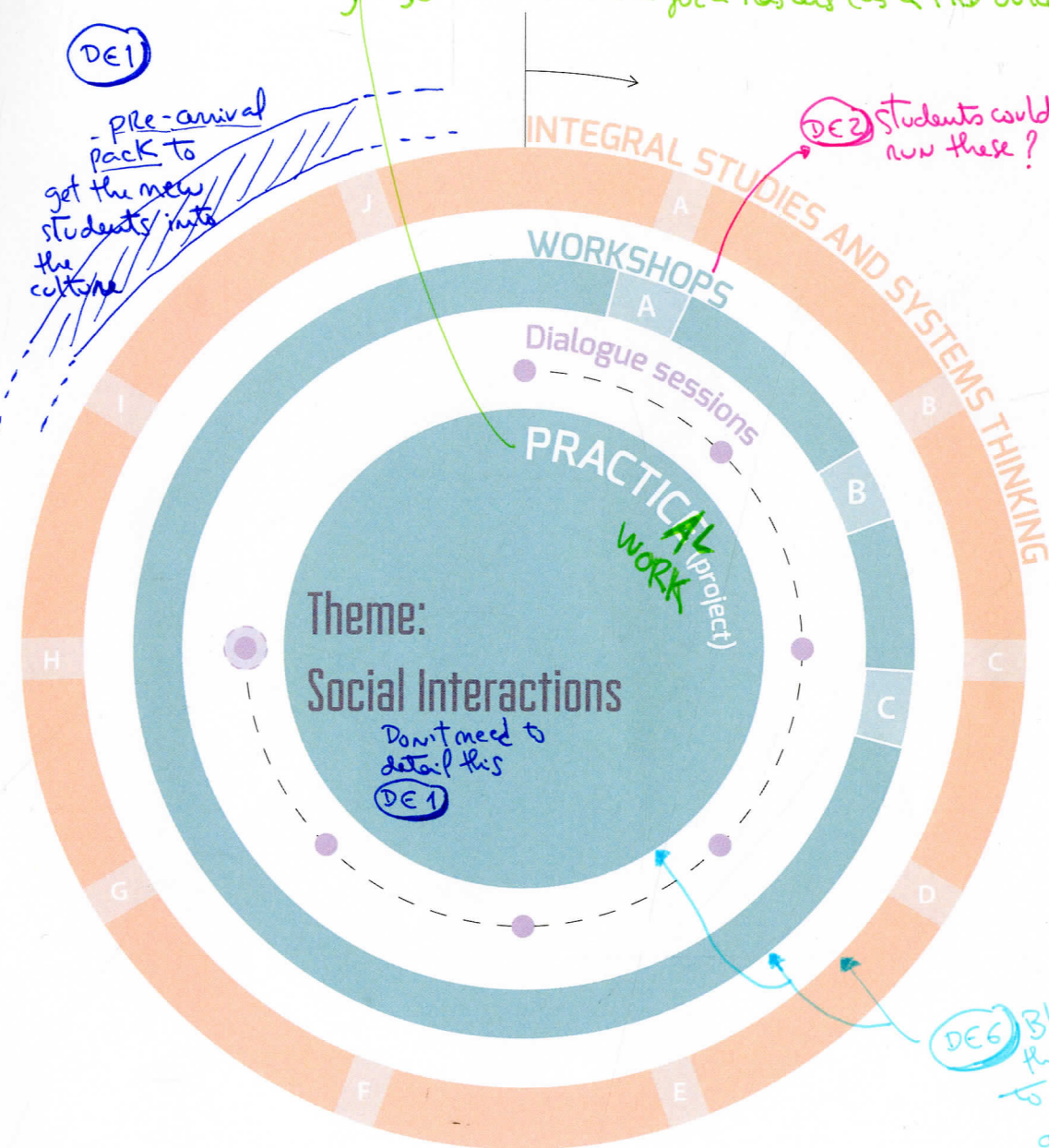
Mediation and facilitation
of processes and relations

Creation of shared motivation
and cultural alignment

My notes
Design educator 5
DE1 - Design educator 1
Design educator 2
Design educator 3
Design educator 4

DE1

- pre-arrival
pack to
get the new
students into
the culture



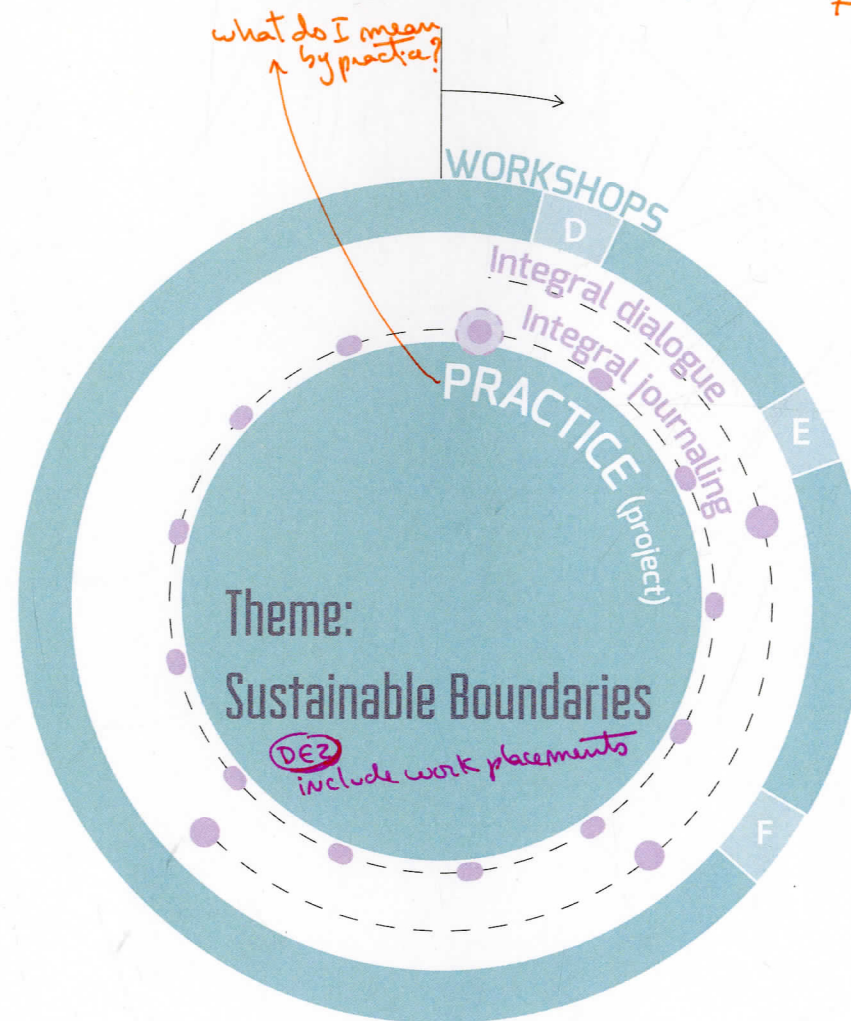
DEVELOP MULTIPERSPECTIVISM

DE2 This is about grounding the students
ex: Small facilitation project

→ A course should align with the philosophy of who runs it; language needs to be student-friendly to avoid discussions on semantics

→ tools/methods are too defined (# students can ask for
methods or briefs)

what do I mean
↑ by practice?

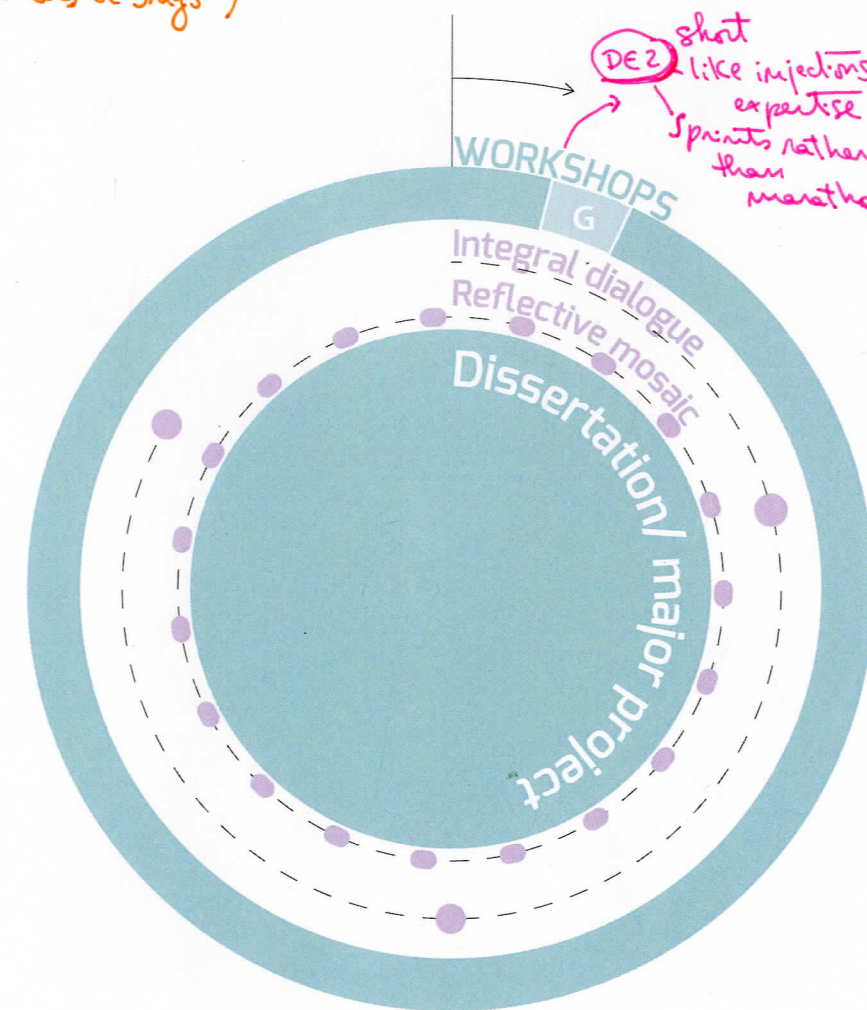


EXPLORE BOUNDARIES

DE2 This is about practicing collaboratively
ex: big industrial project

- be less specific of what I'll teach in each term, not to loose sight of the overall philosophy of the programme
- share the vision: "we believe the world needs... therefore..."
- stop thinking in outcomes and focus on the philosophy

DE2 short like injections of expertise
sprints rather than marathons



DEVELOP INQUIRY SKILLS

DE2 This is about predicting individually
ex: final dissertation

 design educator 1
  Design educator 2
  Design educator 3
  Design educator 4
  Design educator 5
  Design educator 6

MASTERS PROGRAMME

02 MAR '16 | MAFALDA MOREIRA | GSA

DE2 DE3 DE6 - this is the best diagram to show the Masters because it shows its underlying values/principles

DE2 3 Terms, students are given a taste of \neq ways of working/being, thinking and doing

seems very balanced as a shape or a form through a year's journey

it's about movement of ideas, \neq people; It seems very 'explorative' programme

likes the narrative of it: it's about surrounding the students to something to practice collaboratively and individually

DE4 inclined towards the interdisciplinary collaborative aspect of a project

this could be an elective/course for subject specialists to explore their area ^{from} an amplified perspective; a way to augment what they are doing as a framework for that departure

it is not an approach for all the students

DE4 concept of communities of practice

notable these... bubbles for better reading

championing the art of making
VISUALISATION

Accept to pursue
INTEGRATIVE BEHAVIOURS

PRACTICE (project)
THEME SUSTAINABLE BOUNDARIES
Group work
Interdisciplinary
EXPLORING BOUNDARIES
TERM 2

FOUNDATIONAL COURSE
THEME SOCIAL INTERACTIONS
Group work
DEVELOP MULTIPERSPECTIVISM
TERM 1

Dissertation / major project
DEVELOP INQUIRY SKILLS
TERM 3
Individual work

DE5 PLURALISTIC
DIALOGUE REFLECTION (methods)

Follow CENTRED
HUMAN- AND SYNERGISTIC
WORLD-CENTRED worldview

DE6 could include in the diagram, the set of principles of the programme

focus on the core pillars; on what holds everything together
operate on the principle of flows
traditional teaching techniques are more de-integrative

DE3 include inside the bubbles the type of work students will be doing; the themes

Mastering
SOCIAL SKILLS

INTEGRAL STUDIES
SYSTEMS THINKING
FOUNDATIONAL COURSE
TERM 1