

Learning to design, learning through design

Service Design and experientially acquired Entrepreneurial Learning



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Declaration

This thesis has not been submitted in support of an application for another degree at this or any other university. It is the result of my own work and includes nothing that is the outcome of work done in collaboration except where specifically indicated. Many of the ideas in this thesis were the product of discussion with my supervisors Daniela Sangiorgi and Ed McKeever.

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Abstract

The study examines the contribution of the emerging practice of Service Design in Entrepreneurial Learning, or the creation of knowledge that supports shaping and managing new ventures. It is supported by an empirical investigation spanning a pilot study and two case studies in the contexts of enterprise education for nascent entrepreneurs and Service Design consultations with mature entrepreneurs. Three main research questions are addressed, namely what is the focus of service design activities in entrepreneurship, what types of entrepreneurial knowledge are generated through service design activities and how does the transformation of experience to entrepreneurial learning take place in Service Design.

The Service Design process in both case studies was deconstructed through a learning lens applying a framework that captures the contribution of individual activities in learning, namely capturing the domain of knowledge they relate to – ie. the current situation, a potential future situation or the implementation of a specific idea, as well as the way in which they contribute to new knowledge creation. Moreover experiential learning theory was mobilised due to its broad scope and previous use in both fields, to capture the process of experience transformation into new knowledge.

The findings of the study highlight a focus on implementation in Service Design activities, through analysis of the current situation and modelling of various aspects of the venture. The main types of knowledge generated are service specifications user insights as well as insights about being entrepreneurial, namely the importance of empathy and Service Design as an approach to opportunity development. Experience is transformed to knowledge primarily through exploitation and assimilative learning based on abstract conceptualisation.

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1 Introduction

1.1 Scope and aim of the study

The aim of this chapter is to introduce the study and discuss the themes and constructs that are central to the research project. The study is based on the growing body of work around entrepreneurial learning, aiming to understand the process of development of knowledge required for starting and managing a firm (Politis, 2005). It examines the contribution of the practice of Service Design in entrepreneurial learning, looking at two types of Service Design engagement for entrepreneurship, namely entrepreneurship education and consultations with entrepreneurs. Service Design is framed as an interdisciplinary practice that aims to create new value and transformation within organisations by using methods of visualisation, prototyping and participation Wetter-Edman (2014). The practice emerged in a climate of increased attention of management practice to the role of design in creating innovative products in the last two decades (e.g. Bruce and Bessant 2002, Borja de Mozota 2006) as well as the development of networked media technologies that changed the outputs of design and the way services are delivered more broadly. As a practice Service

Design has gained traction in large organisations in the last decade, with contemporary Service design agencies-e.g. Livework, Snook and Engine- offering end to end services like user-centred/ customer experience research, service development and implementation as well as organisational change projects working with governments, corporations and the third sector. In order to evaluate the contribution of this practice for entrepreneurship, firstly the Service Design process adopted in these two types of engagements is analysed to capture the areas of contribution in the venturing process. Subsequently, the function of different Service Design activities is considered in terms of the types of knowledge they generate (Chow and Jonas 2008), framing Service Design process as an inquiry responding to information needs of the entrepreneur. Following that, the experiential learning theory (Kolb 1984, 2014) is applied to consider the mechanisms through which the experiences of those activities are transformed to knowledge and how individual activities contribute to the experiential learning cycle. Experiential learning theory (Kolb 1984) is used as an interdisciplinary theoretical framework due to its previous application to both fields, (e.g. Chow and Jonas 2008, Politis 2008) providing the conceptual breadth and depth necessary to describe and interpret diverse types of experience that manifested in the study.

The study is supported by an empirical investigation spanning a pilot study, and two case studies. The pilot study comprised by a set of interviews with entrepreneurs and Service Designers, aiming at testing initial hypotheses based on the literature and refining research questions. The case studies look at two different domains of application of service design for entrepreneurship, namely enterprise education and consultations with entrepreneurs. The aim of this thesis is to shape a theory of learning in Service Design for Entrepreneurship, which bridges the two literatures in a

meaningful way, by demonstrating the application of experiential learning theory in this novel context for Service Design.

1.2 Research origins

My interest in the application of service design in entrepreneurship stemmed from the study of service design as an elective module as part of a post graduate course on entrepreneurship. As an aspiring entrepreneur myself at the time I found the service design methods to be very helpful in unpacking some of the questions that I was considering around the service offering, which led me to re-consider the business more broadly. Moreover, at that time, through my studies I got in touch with Daniela Sangiorgi who is a leading service design academic based at the time at the Lancaster Institute for Contemporary Arts at Lancaster University and got really interested in her work. By the end of my postgraduate degree I was fascinated by the potential of contributing to the development of service design tools to support people who were setting out to create new ventures and was signposted to HighWire, an interdisciplinary doctoral training centre at Lancaster University, where I got the opportunity to pursue this research further.

1.3 Research positioned in the wider literature

In a review of the entrepreneurship literature Wang and Chugh (2014) highlight three key challenges that the domain of entrepreneurship research seeks to address, including how entrepreneurs gain the skills and resources that allow them to explore and exploit opportunities and how new knowledge comes to be in that process. Both of those questions fall within the scope of this study, with service design being framed as an inquiry and a skill-set for developing and exploiting opportunities. Below the link between these core questions in entrepreneurship and the theory of learning

applied in the study are discussed in more detail to position the study within the entrepreneurial learning literature.

The first question relates to the different skill-sets and learning styles involved in exploring and exploiting opportunities (Choi and Shepherd 2004, Wang and Rafiq 2009). The two key relevant learning types discussed in the literature are exploratory learning – which involves generating variations as a way to yield desirable effects and exploitative learning- which involves ex ante planning to hone in and refine initial insights as experience increases (McGrath 2001). Exploration involves searching for new information and variation, taking risks by breaking away from previous patterns of action and being flexible in response to new stimuli, while exploitation involves refinement and implementation (March 1991) which mirrors the divergent and convergent learning respectively in the language of the experiential learning theory (Kolb 1984).

The second relates to the way opportunities come about, a debate that is dominated by the two contrasting views of discovery and creation of opportunities. The positivist view of discovery of opportunity is based on the assumption that opportunities are to be found in the environment independent of the entrepreneur, which highlights the importance of entrepreneurial alertness, or the ability to identify opportunities. The social construction view of creation based on interpretivist thought suggest that opportunities arise from the entrepreneurs perception and interpretation of the environment, highlighting the importance of learning and growing (e.g. Cope 2005, Gartner et al. 2003) as part of the entrepreneurial journey. The study adopts the latter view and seeks to forward the understanding the mechanisms through which entrepreneurial learning occurs in the context of service design engagements. This is

especially relevant in light of the call for a more detailed analysis of the way the full cycle of experiential learning happens in entrepreneurship (Wang and Chugh 2014).

Previous work in this space has used an experiential learning lens (Kolb 1984) to explore how concrete experience is transformed to abstract conceptualisation for example considering how previous insights are evaluated and interpreted and thus transformed to knowledge (Dimov 2007), or how the way that information is acquired affects the identification of opportunities (Corbett 2005). The constructs of intuitive and sensing learning (Felder and Silverman 1988) are seen as relevant to the discussion around the mechanisms of knowledge creation, focusing on whether learning came through direct external contacts or more analytical thinking based on information. They have been linked back to experiential learning theory, being paralleled to the concrete- abstract learning dimension in experiential learning theory (Cook et al. 2009).

In light of the above articulation of these two central lines of inquiry in entrepreneurship this study is well placed to contribute both in our understanding of the way entrepreneurs gain new skills, as well as the way new knowledge is developed. With regards to the first key challenge the study examines a novel practice that is currently applied to support entrepreneurs, looking to understand how it makes them more able to identify and exploit opportunities. With regards to the second key challenge the mechanisms through which experience is transformed to knowledge are discussed as well as the overall contribution of service design in the experiential learning cycle, making us more articulate with regards to the way new knowledge comes to be through this practice.

1.4 Overview of Thesis

The thesis is organised as follows. In chapter two, literature around the research area identified is reviewed, leading to a conceptual framework that reflects a specific understanding of entrepreneurial learning adopted. Based on that understanding the research questions that guided the study are put forward. Chapter three presents the philosophical and methodological approach of the researcher, including the overall research design and the research procedures followed in the study. Chapter four presents the body of data used, and analyses it by identifying patterns and themes that relate to each of the research questions posed. Finally chapter five links those findings to existing literature concluding the thesis with insights for each of the questions, emerging themes and the broader research area.

1.5 Conclusion

Service design has been framed as an emerging practice drawing from the traditions of interaction and industrial design, predominantly used in the public sector and large organisations to shape new services and improve existing ones, using visualisations, prototyping and participation. With the rise of a design culture in the last two decades, Service Design is seen increasingly as a valuable approach to supporting entrepreneurs in consultations and enterprise education. In order to make us more articulate on the contribution of such practices to entrepreneurship, the study looks at two Service Design programmes for entrepreneurship and eight Service Design consultations with entrepreneurs, examining the design process followed, the outcomes of that process in terms of knowledge and the way that new knowledge was created.

In order to demonstrate familiarity with the discourse in the two fields and to justify the approach taken in this study, related literature from the both fields is presented in chapter two, informing a conceptual model and the research questions that guided the enquiry.

2 Literature review

2.1 Introduction to the chapter

This chapter aims to introduce and review theories and constructs from the disciplines of Entrepreneurship and Service Design that are relevant to the research area introduced in the previous chapter, namely the role of Service Design in entrepreneurship in general and specifically entrepreneurial learning. This review is done to demonstrate familiarity with those disciplines and to relate the study back to existing research, positioning it in the evolving academic discourse in the two fields.

In section 2.2. the two dominant theoretical perspectives on examining the venturing process in the field of entrepreneurship are discussed namely that of the process and that of learning. The influential process models of effectuation, causation and bricolage are discussed to illustrate the current understanding of the process and provide context for the research. The entrepreneurial learning literature is then introduced structured around three main challenges in the field to position the study with relation to the current in the current research. Following that, the experiential learning theory and its applications in entrepreneurship is presented, discussing the

elements and different functions of the theory in entrepreneurship. The structure of section 2.2. is presented in figure 1. below

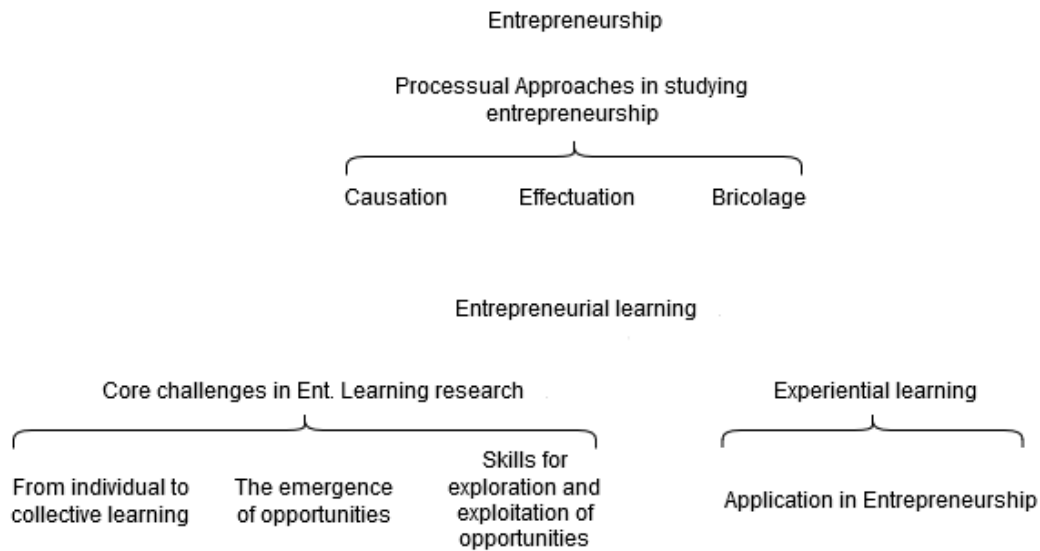


Figure 1: Structure of the literature review on Entrepreneurship

In section 2.3. of the review the practice of Service Design is introduced discussing design broadly and different definitions of the term to provide the reader with an understanding of that tradition, followed by an overview of Design Thinking to illustrate the expanding scope of design , beyond symbols and artefacts to services and organisations. Following that introduction Service Design is introduced discussing its intellectual roots and main areas of research in the field, as well as the main characteristics of the practice. Finally, new knowledge creation in design is discussed, to illustrate the function of knowledge in the Design process in general and the Service Design process in particular. The structure of section 2.3. is presented in figure 2. below.

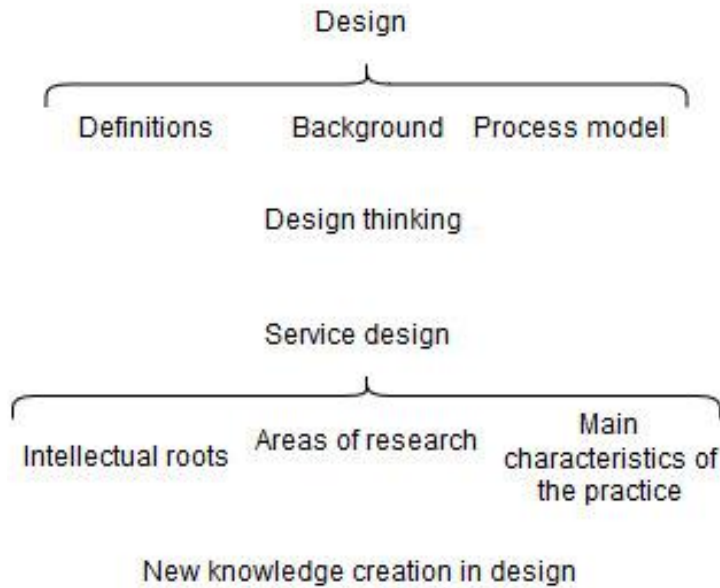


Figure 2: Structure of the literature review on Service Design

2.2 Entrepreneurship

This section introduces the field of entrepreneurship as a domain of research and discusses early approaches in studying the phenomenon. Then it goes on to present the two dominant approaches, namely the processual lens, focusing at the activities and behaviours involved in identifying and exploiting opportunities, and the emerging lens of learning which focuses on the process of developing knowledge that allows entrepreneurs to do so.

As a scholarly domain, Entrepreneurship research aims at a better understanding of the emerging, highly heterogeneous multilevel phenomenon of entrepreneurship. The term entrepreneur evolved from a French term meaning “one who undertakes or manages” and was used in the 1800s by a French economist to capture the activity of someone who creates value by “shifting economic resources out of an area of lower

and into an area of higher productive and greater yield” (Martin & Osberg, 2007, p. 31).

Since then, understanding of what it is to be an entrepreneur has developed considering various aspects of this practice, the individual and its effect in economy and the society in general. In the decades following the recession of the late 70s the interest in the study of entrepreneurship and small business management increased significantly, driven by the need to study the contribution of newly established firms in employment generation, increased productivity and other public policy goals both in the USA and Western Europe (Birch 1979, European Commission 2010, Shane 1996). At the same time, in developing countries new business development based on local capabilities and resources was seen as a key component of adjustment programmes that aimed to correct major macroeconomic distortions that hinder development (OECD 1993).

Although since then the field has been established as a distinct domain of research, there is still no consensus about the object of study in the field with the concept of entrepreneurship being reinterpreted constantly (Cornelius et al. 2006, Schildt et al. 2006). Some persisting perspectives include a focus on facing uncertainty (Knight 2012), on introducing new processes and products by innovating (Schumpeter 1934) and recognizing opportunities (Kirzner 1978).

Since the first formal theory of entrepreneurship (Cantillon 1755) described the entrepreneurs as the self-employed who "adjust themselves to risk", the strand of research on uncertainty has been one of the most prevalent in early bibliography (d'Amboise and Muldowney 1988, Esposito et al. 1989, Brockhaus 1980, Knight 2012). Another lasting concept that challenges the notion of risk-taking as central was

that of the innovative entrepreneur. Schumpeter (1934) presented the very influential perspective of entrepreneurship as “new combinations“ making innovation a defining characteristic of entrepreneurship. Subsequent studies on the innovation and entrepreneurship can be traced back to this view, for example Drucker (1985) goes as far as to reject the notion of starting a new firm as the defining characteristic of an entrepreneur and rather focuses on innovation, stating that someone who replicates existing models in setting up a new business, like for example setting up a restaurant , while may be taking a risk is not really an entrepreneur as they do not create something new or different, it does not “change or transmute values”(Drucker 1985:132).

Finally, Kirzner (1978) highlights opportunity discovery as the defining characteristic of entrepreneurs, a perspective which has been very influential to this day (Shane and Venkataraman 2000, Venkataraman 1997, Ardichvili et al. 2003). Recently the opportunity identification has been reinterpreted and the view that opportunities are created in an dynamic way through interaction with the environment is more common (Bruyat and Julien 2000, Dimov 2010, Gartner et al. 2005, Sarason et al. 2006), to the extent that entrepreneurship has been characterized as a “collective achievement” (Van de Ven 1993: 226).

Early entrepreneurship research focused on the traits or unique characteristics common to successful entrepreneurs, drawing from strategic management and psychology. It aimed to understand whether such traits were predictors for success in the creation of new ventures (e.g. McClelland 1965 , Hull et al. 1980, Chrisman et al. 1998). Later studies identifying the limitations of this approach (Sexton and Bowman 1985) for example the fact that the population of entrepreneurs is highly

heterogeneous making it impossible to profile a typical entrepreneur, proposed a focus on entrepreneurial activity at the macro level.

Such studies looked at what environments and policies are conducive to higher rates of start-ups, with the unit of analysis being regions, nations, industries or business parks among others (e.g. Acs et al. 1999, Braunerhjelm et al. 2000). While this stream of research was more successful, being valuable for policy making for example, it still did not provide sufficient support to individual entrepreneurs.

More recently, there has been an increasing recognition that traditional research approaches focus mainly on correlations between initial conditions related to entrepreneurship and results at the level of the firm. The process linking these two is relatively underexplored (Pettigrew 1997, Van de Ven and Engleman 2004). As a result, scholars called for a focus on the entrepreneurial process exploring conceptually significant stages and sub-processes in venture creation (Low and MacMillan 1988; Ucbasaran et al. 2001, Steyaert 2007) which are discussed in more detail in the next section.

2.2.1 Processual approaches in studying entrepreneurship

These calls reflect the need for a better understanding of modes of action that include what entrepreneurs do to come up with business ideas, how they refine them and how they take action towards making them a reality. Understanding this process is critical in supporting entrepreneurship and enhancing its positive impact. Different conceptualisations of the entrepreneurial process are discussed in this section.

The behavioural research in entrepreneurship has been influential, focusing on the human action around initiating and developing business ventures. In this context

entrepreneur's behaviour is a research construct described as “the concrete enactment by individuals (or teams) of tasks or activities required to initiate, grow or transform a business venture” (Bird et al. 2012: 22). This stream of research proposes a number of acts as defining of entrepreneurship such as new organization creation (Katz and Gartner 1988, Gatewood et al. 1995) as well as others that fall under the broad concept of new value creation (Bruyat and Julien 2000) such as innovation and opportunity identification.

Davidsson (2006) highlights that given the heterogeneity and variability in the entrepreneurial process its starting and ending points are impossible to clearly define, suggesting exploring both cognition and behaviour, providing us with the following definition which is used here to align the process and the learning lens used in the study:

“entrepreneurial process is all the cognitive and behavioural steps from conception of a rough business idea, or first behaviour towards the realization of a new business activity, until the process is either terminated or has led to an up-and-running business venture with regular sales” (2006: 76).

Further subdividing the process into opportunity discovery and exploitation, Davidsson supports the view of Shane and Venkataraman (2000) who describe opportunity discovery as a combination of idea generation, opportunity identification, opportunity development and refinement. For example part of this sub-process would be fleshing out ideas about value creation or planning and analysis of information. Similarly, exploitation refers to the decision to act upon a perceived opportunity and the behaviours towards achieving that. Part of exploitation process would for example

be creating a legal entity or gathering resources. Empirical research on the entrepreneurial process has revealed that these processes are not linear and can be executed in any order and not necessarily in the order discovery- exploitation (Gartner and Carter 2003).

In his review of the different approaches of inquiry on the entrepreneurial process, Steyaert (2007) identifies multiple schools of thought, for example, early research, focusing on the different stages of new organizations creating linear, progressive representations of the development of the firm (e.g. Grenier 1998), the evolutionary approach that looks at the structural forms that define which firms survive or are disbanded at a macro level (Van de Ven and Poole 1995), more recently the application of complexity theory to look at emergence in organizations (e.g. Mc Kelvey 2004), or others drawing from organizational theory to perceive entrepreneurship as the organizing of new organizations (Gartner et al. 2003).

In order to provide the reader with an overview of commonly used contemporary theories of the process of entrepreneurship, three process models are presented, firstly, causation, which is the term used by Sarasvathy to describe the traditional process model in entrepreneurship literature, secondly, effectuation, which is contrasted to the causation model, and finally bricolage. These process models were selected on the basis of the criteria of generality and impact, with the originating papers of effectuation and bricolage being widely cited compared to other process models.

Causation, effectuation and bricolage

In the traditional causal model of entrepreneurship summarised in figure 3. below, opportunities and markets are assumed to exist independent of the entrepreneur (Casson, 1982; Shane and Venkataraman, 2000) who is seen as an agent trying to capture as much value as possible by focusing on a specific goal and choosing their means to achieve it (e.g. Katz and Gartner 1988, Delmar and Shane 2003). This perspective stresses the importance of competitive analysis, and focusing on specific goals as a way to control the future (Shane and Venkataraman 2000, Sarasvathy 2001). In the causal model, entrepreneurship is reflected as a linear process, driven by clear goals consistent with planned strategy approaches (Ansoff and McDonnell 1988). Central constructs to this perspective are that of intentionality, opportunity identification and evaluation, planning, resource acquisition, and the deliberate exploitation of opportunities (Fisher 2012). In this view the outcome that the entrepreneur is seeking to achieve is a given and decisions are driven from systematic information gathering and analysis within certain bounds (Simon 1959). This perspective is driven by the notion that to the extent that the future can be predicted, it can be controlled (Sarasvathy 2001).

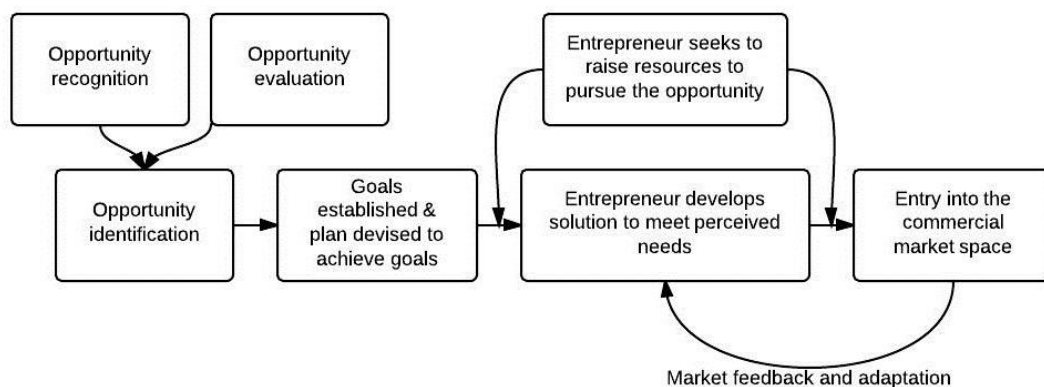


Figure 3 Causation approach to entrepreneurship (Fisher, 2012)

In contrast to causation, the process oriented theoretical perspective of effectuation (Sarasvathy 2001) visualized in figure 4.. re-focuses attention on entrepreneurial

agency, highlighting entrepreneurial imagination as a way to deal with uncertainty. Effectuation seeks to explain the actions and logic that underlie the behaviour of entrepreneurs. It is named in contrast to the traditional perspective on entrepreneurship which is characterized as “causal” to enable clearer theoretical juxtaposition (Sarasvathy 2001, 2008). It is consistent with emergent non-predictive strategies (Mintzberg 1978, Wiltbank et al., 2006), it builds on decision theory and draws from empirical data to suggest that, entrepreneurs adopt a different decision logic under conditions of uncertainty. The decision process they actually use resembles more that of a chef who in order to prepare a meal, first identifies the ingredients she has available as opposed to reading a recipe and buying the ingredients subsequently.

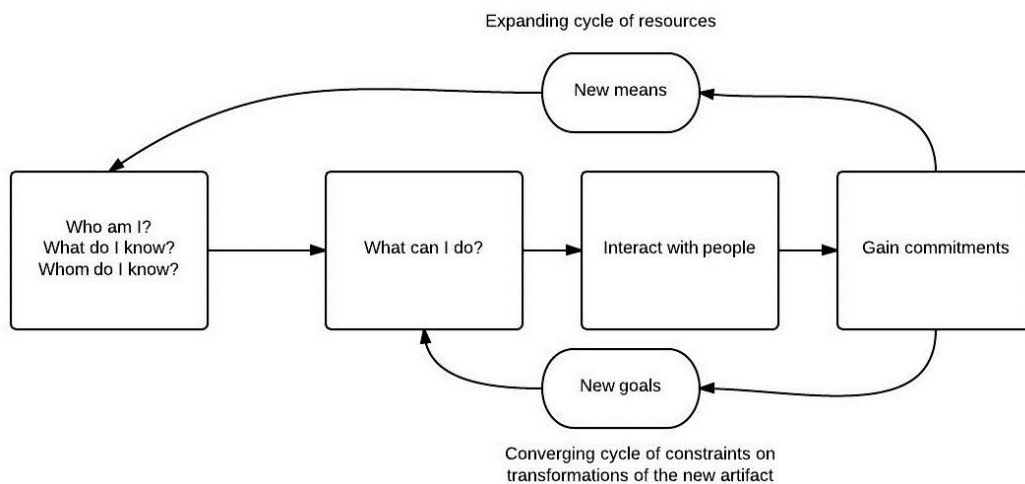


Figure 4 Effectual approach to entrepreneurship (Sarasvathy & Dew, 2005)

The effectual approach was described by Sarasvathy (2008:6) as “a logic of entrepreneurial expertise, a dynamic and interactive process of creating new artefacts in the world”. It does not aim to replace but rather complement the causal model, describing the benefits of both causal and effectual processes in different instances during the initiation of business ventures depending on different conditions (Dew and Sarasvathy 2002). Effectual processes are actor dependent and more appropriate for

exploiting contingencies which makes them more appropriate in situations where human action plays an important role, as opposed to say natural phenomena where a causal model would be more appropriate. Such processes can be summarized in the following four principles (Sarasvathy 2001):

- Affordable loss rather than expected returns
- Instead of focusing on maximizing returns, effectual entrepreneurs define acceptable levels of loss and experiment on different strategies with their limited means. Choices that lead to more options are preferred to those that maximize returns in the present.
- Strategic alliances
- Interaction with potential partners and their pre-commitments are valued by effectual entrepreneurs since they open up new possibilities, reduce uncertainty and erect entry barriers for competition.
- Exploitation of contingencies
- Contingencies that arise through time are seen as opportunities for different ways to create value from effectual entrepreneurs potentially, leading to new offerings or uses of existing resources.
- Control and prediction of an uncertain future

Rather than focusing on the predictable aspects of an uncertain future, effectual entrepreneurs focus on the controllable aspects of their environment to shape the future. This view challenges assumptions about rationality in entrepreneurship and sees action as occurring in terms of unknown values. Questioning the universal applicability of causation based models represents a paradigmatic change in entrepreneurship research (Perry et al.2012). It accommodates the non-teleological

aspect of entrepreneurial action, which facilitates viewing entrepreneurial agency as a way to creatively affect the conditions upon which the entrepreneur wants to act, generating the alternatives themselves (Steyaert 2007).

A third influential process model in entrepreneurship is that of bricolage describing the process of using existing resources creatively to grow a nascent venture, solving problems and identifying new opportunities, defined as “*making do by applying combinations of resources at hand to new problems and opportunities*” (Baker and Nelson 2005 , p. 33). Borrowing the concept from anthropology, Baker and Nelson describe a process of improvisation or creative reinvention (Rice and Rogers 1980) based on existing resources, and using resources for purposes that were not initially designed for to achieve the desired effects. Bricolage is most commonly encountered in the following five domains, namely physical and labour inputs, skills, customers/markets and the regulatory environment. In the case of physical inputs, existing materials are used in a new way to create something new. In labour inputs, various stakeholders are called in to contribute to a new project beyond their usual roles. Similarly, bricolage in skills involves using amateur and self-taught skills to solve problems. In applying bricolage to markets, the entrepreneurs introduce new offerings to existing markets. Finally, in applying bricolage to the regulatory environment the entrepreneur tries new things in areas they know little about ignoring standards and regulations, refusing to see them as constraining. In order to facilitate such activities, the entrepreneur creates an environment that supports creativity and improvisation, the ability to combine things and feel comfortable ambiguity and messiness. Such activities are seen as a way to deal with resource limitations and create unique offerings but can also be constraining and harm firm growth especially

when applied to multiple domains (Baker and Nelson 2005). The process of bricolage is visualised in figure 5. below:

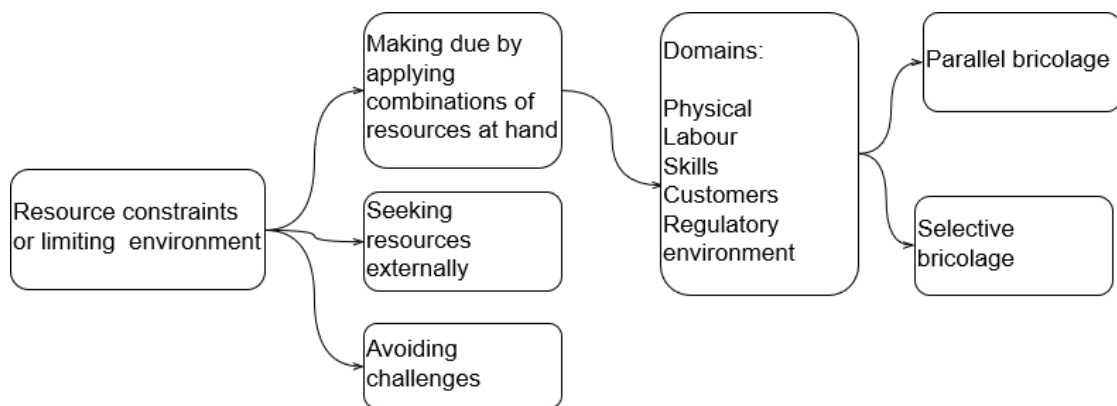


Figure 5: Bricolage in entrepreneurship (Adapted by Baker and Nelson 2005)

The above synthesis of the three process models – summarised in table 1. below-aims to provide the reader with an overview of the processual lens in entrepreneurship, highlighting their main characteristics and exemplary behaviours. These are used in the study to help interpret patterns of behaviour and logic grounding the data collected to previous empirical research.

Concluding this section, it has been demonstrated that there is an increasing interest among scholars in the process of entrepreneurship, with different conceptualizations of the process put forward. The theoretical frameworks of effectuation and bricolage are briefly presented since they challenge some of the most traditional notions related to this process and offer a useful tool in describing the behaviour and cognition of entrepreneurs. The following section introduces the complementary learning lens in entrepreneurship research, which is applied in the study.

	Causation	Effectuation	Bricolage
Approach description	A goal is identified and drives the selection of means to achieve that goal	A set of resources are taken as given which drive the selection of effects based on those means	Making do by creatively using resources at hand to new problems and opportunities
Exemplary behaviours	Analysis of technological trends Identifying a gap in the market Gathering data about the market Producing a project plan Producing a marketing plan	Developing variations of a product or service to ensure product-market fit Experimenting with different ways to promote/sell the product service Changing the product substantially as the venture develops	Experimenting as a way to solve problems Combining existing resources to create solutions Reusing resources for purposes they were not designed to serve. Regularly interacting with various stakeholders in shaping an offering
Main characteristics	Identification and evaluation of objective opportunities	Existing resources as a source of opportunities	
	Analysis of alternative means to fulfil goals	Bias towards action in overcoming resource constraints	
	Considering environmental conditions that constrain the possible means	Community engagement as a source of growth	
	Choosing means on the basis of maximising returns with regards to the goals	Resource constraints as a source of creativity and innovation.	

Table 1: Summary of key process models for identifying and exploiting opportunities (adapted from Fisher 2012)

2.2.2 Entrepreneurial Learning

Entrepreneurship has emerged as a context for the study of learning in the last 15 years, exploring the connection of learning processes to the core processes of entrepreneurship (Wang and Chugh 2014), such as developing and exploiting opportunities. Drawing from the work on organisational learning to build theory, this stream of research has considered for example the impact of previous start-up experience in learning (e.g. Box et al. 1993, Politis 2005), different types of knowledge such as tacit or experiential (e.g. Johannisson et al. 1998, Corbett 2007, Rae and Carswell 2001) on entrepreneurial action, decision making and the performance of ventures.

In the last decade it has been accepted as a significant theoretical lens to examine entrepreneurial activities, enriching and complementing the dominant theoretical perspectives on entrepreneurship which traditionally focused on the economic function of the phenomenon, on the personal traits of the entrepreneurs and their behaviour or process. Definitions of entrepreneurial learning vary depending of the focus of individual studies, some influential definitions are included in table 2. below.

Description	Key elements of the process of learning	Source
Venture learning: A synthesis between hypothesis testing and hermeneutic learning, leading to entrepreneurial knowledge	Experimentation, evaluation, unreflective actions, unverified assumptions.	Berglund et al. 2007
Learning that informs the entrepreneur's quest for new opportunity	Intuiting based on tacit knowledge to inform the interpretation of a situation and inform action	Franco and Haase 2009
"How entrepreneurs accumulate and update knowledge about how to be entrepreneurial" p.8	Hypothesis testing Reinforcement learning Path dependency	Minniti and Bygrave 2001
"Learning experienced by entrepreneurs during the creation and development of a small enterprise" p. 28	"An evolutionary process of awareness, reflection, association and application" p. 22	Cope 2005

Table 2: Views of the entrepreneurial learning process in the literature

Berglund et al. (2007) discuss the process of learning as a synthesis of hypothesis testing and hermeneutic learning, combining reflection and action. In the hypothesis testing part of the cycle, entrepreneurs state assumptions speculatively which are either overthrown or accepted in light of evidence (Harper 1999). At this stage of the cycle of learning, revisions are a key activity for entrepreneurs, who shape new assumptions about different aspects of the business until they encounter opposing evidence. In contrast, in the hermeneutic part of the cycle an action precedes reflection, being grounded in pre-existing understandings which include for example notions of the stakeholders involved and tacitly held assumptions about the world more broadly (Schutz and Luckmann 1973). The action then contributes to refining the understanding of the situation, which contributes to the growing stock of knowledge of entrepreneurs. The two processes interact as part of the process of building up knowledge.

This hermeneutic cycle resembles Franco and Haase's (2009) account of the process of intuiting (Crossan et al.1999) as a source of recognising and exploiting opportunities. They draw from organisational learning literature to stress the ability of entrepreneurs to combine and interpret information, acquiring business skills, habits and attitudes that contribute to optimising commercial performance. They describe the process of learning as a process of intuition that mobilises previous learning to interpret the current situation and shape action. This process is seen as a primarily individual activity that can be social through dialogue to create shared meaning in an organisation.

Another influential hypothesis testing view of entrepreneurial learning is put forward by Minniti and Bygrave (2001) who make a distinction between direct knowledge, or industry specific knowledge and knowledge of "how to be entrepreneurial" framing the latter as a process of testing different hypotheses that lead to a knowledge stock that informs decision

making. Through a process of reinforcement learning, choices that had possible results become part of the repertoire of the entrepreneur, shaping their future actions.

Cope (2005) draws from various learning theories to propose a dynamic learning perspective for entrepreneurship highlighting different phases, processes and characteristics of learning in this space. Specifically he conceptualises three learning processes, namely from critical experiences, through repetitive processes and through reflection and action. Critical experiences are seen as discontinuous events such as successes or failures where previous habitual ways of acting are ineffectual (Marsick and Watkins, 1990). These events constitute valuable learning events that shape the way entrepreneurs approach their work, resulting to higher level learning transforming their assumptions and values, creating a shift in mindset (Argyris and Schön 1978, Applebaum and Goransson 1997). In contrast to those events, routinised or adaptive learning through regularised and repetitive activity is seen as equally important, constantly enriching the stock of knowledge of entrepreneurs and improves their confidence and potentially leading to higher level learning (Burgoyne and Hodgson 1983). Finally Cope highlights the importance of reflection in the process of entrepreneurship, contrasting it to a view of the entrepreneur as constantly *doing* and looking ahead. Framing entrepreneurs as reflective practitioners (Schön 1983), Cope positions reflection as the main way in which previous experience is transformed to learning. Reflection is seen as a process of bringing meaning to experience and has gradations with critical events triggering *deeper* reflection. Moreover reflection informs future actions through the process of reflection-for-action in which the entrepreneur tries to anticipate the fit between the knowledge gained and the future decisions or situations that are likely to arise. In that sense, in resulting to new approaches to doing something, reflection is seen as generative Gibb (1997), in the sense that it brings forward previous experience, applying it to new future actions. In this sense

reflection is seen as improving the actions of the entrepreneur in across a range of new situations creating higher-order skills that result to more transferable learning.

In order to present the current discourse in the field in a way that is representative, without attempting to be comprehensive, this section focuses on the three core challenges in the field (Wang and Chugh 2014), namely:

- Integrating individual knowledge with collective knowledge in new ventures
- Understanding how entrepreneurs can develop skills necessary to explore and exploit opportunities.
- How entrepreneurs learn in opportunity exploration and exploitation.

Moreover three pairs of learning mechanisms related to those challenges are discussed, namely individual and collective learning, exploratory and exploitative learning, and intuitive and sensing learning Wang and Chugh (2014).

Integrating individual knowledge with collective knowledge

The first challenge highlights the focus of current research on individual entrepreneurs and the underexplored area around reconciling the personal learning journey of entrepreneurs with the development and use of new knowledge in entrepreneurial teams. Research on this topic draws from the study on organisational learning, which is defined as “the intentional use of learning processes to continuously transform the organisation” (Dixon 1999, 35). This learning is not seen as an accumulation of the learning of the individuals but rather as the embedding of such insights in the processes of the organisation (Argyris 2005). In the literature of organisational studies, it is described as a process phenomenon, that involves different level of actors, the individual, groups and finally the organisation. According to Mirvis (1996) learning and knowledge have been part of the discourse of organizational

studies since early work from Cangelosi and Dill (1965) who made early propositions on the way organisations as a whole learn, based on observations on a group of students participating in a complex management simulation of an organisation in its formative stages. Later research from Argyris and Schon in this space (1978) drew parallels between the organization and learning in individuals stating that “organizational learning is not merely individual learning, yet organizations learn only through the experience and actions of individuals”(ibid. p. 9).

This multilevel conception of learning within organisations has been very influential, informing theoretical frameworks such as that of Crossan et al. (1999) which suggested that learning in organisations as a dynamic process of intuition, interpretation, integration, and institutionalization, that occurs through time across the different levels of the organisation through a process of feedback - assimilating old knowledge- and feed forward- creating new knowledge. Research on the learning organization (Nevis et al. 1997, Edmondson and Moingeon 1998, Gosh 2004) further stresses the importance of learning as a core capability of an organization in a knowledge based economy, describing the functions of knowledge as well as orientations that facilitate learning.

For example, learning is seen as the development of core capabilities that allow the generation of new products and services, as an attitude of commitment to constant development through reflection and experimentation, as well as the ability of the organisation to enter new fields as part of its operation (Nevis et al. 1997). Conscious knowledge acquisition, usage and dissemination within the organisation are identified as necessary for learning to enact these functions.

Although the connection between learning and the performance of organizations has been challenged (Bierly et al. 2000), this view of the organization has been influential in shaping

the discourse on how organisations can deal with uncertainty (Moingeon and Edmundson 1996). The management scholarship that focuses on knowledge has been growing both in depth and range in the past three decades (Crossant and Guatto 1996, Wang and Ahmed 2003, Kimmerle et al. 2010) examining various concepts such as individual and collaborative knowledge, knowledge acquisition and dissemination and learning as a continuous process of improvement within organizations (Crossant and Guatto 1996). Early work on the knowledge based view of organisations (Nelson and Winter 1982, Teece 1982, Kogut and Zander 1992) considered the role of knowledge assets in the function and development of organisations. It triggered research on the role of knowledge in fostering competitive advantage and innovation, as well in explaining various phenomena in organisations such as working in interdisciplinary projects (McDermott 1999). Since then assets such as information, technology and learning have been accepted as drivers for productivity and growth in knowledge intensive sectors and broadly in advanced countries (e.g. Foray and Lundvall 1998, Cooke and Leydesdorff 2006) accelerating research on the nature of organisational knowledge.

Nonaka's organisational knowledge creation theory saw organisations as knowledge producing entities examining how they can change, and be creative and innovative (Nonaka and Takeuchi 1995, Nonaka 2008, Nonaka et al 2000, Nonaka and von Krogh 2009). In this stream of research knowledge is seen as justified true belief established through our interaction with the world , which allows us to either take skillful action or identify the conditions that would permit skillful action, and exists in a continuum between tacit and explicit knowledge (Nonaka and von Krogh 2009).

This builds on Polanyi's (1967) distinction between objective or explicit and subjective or tacit knowledge with explicit knowledge being defined as that which can be represented and

captured in writing or models, and tacit as that which is unarticulated and remains tied to activity, intuition, physical experience and rules of thumb. The types of knowledge are seen as mutually complementary interacting during creative activities performed by groups of individuals (Nonaka et al. 1996, Alavi and Leidner 2001). The influential SICA spiral model introduced by Nonaka (1994) and Nonaka and Takeuchi (1995) describes the process of organizational knowledge creation, meaning the way in which the knowledge of individuals is communicated exchanged and evolved within an organization until it becomes an adopted knowledge asset that informs activity in that organization. It assumes a continuum along which tacit and explicit knowledge can be distinguished conceptually, and aims to describe the interaction of tacit and explicit knowledge along this continuum (Nonaka 1991 1994, Nonaka and von Krogh 2009). Since its introduction the model has been tested developed and expanded through its application in various contexts (e.g. Sun 1997, Ashby et al. 1998) and has been revised to reflect more recent research in the field and the evolving conceptions of knowledge (Nonaka and von Krogh 2009). The constructs of collective and individual learning are used to operationalise the two types of learning that occur simultaneously within organisations. Individual learning is seen as acquiring skills, knowledge and information as an individual, while collective learning is socially generated, cumulative and public knowledge shaped by rules that allow the team to coordinate to achieve a goal (Nelson and Winter 1977, Capello 1999, Jones et al. 2010). Since the focus of the study is on individual entrepreneurs these constructs and their applications will not be elucidated more at this point, for recent work on the topic see West (2007). Ferguson, et al (2016), Kollmann et al (2017), El-Awad et al (2016).

Developing skills to support exploration and exploitation of opportunities.

The second challenge they identify is understanding and supporting entrepreneurial learning in the process of exploration and exploitation of opportunities (Hitt et al. 2011). The concept of opportunity is seen as fundamental in entrepreneurship and it is generally agreed that being able to pursue entrepreneurial opportunities can lead to various beneficial outcomes such as independent entrepreneurship, renewal and innovation within organisations. Opportunities are framed as a situated phenomenon shaped by environmental, organizational as well as individual factors framed as “the end product of an idea that is developed from incomplete information and relies on constructing patterns and concepts that can bridge the gap between nebulous ideas and an opportunity worth exploring” (Hunter 2013). Exploration and exploitation of opportunities are seen as complementary modes of action in entrepreneurship, that can be framed as variance versus refinement, the two concepts are presented in more detail below.

Exploration of opportunities is framed as higher variance behaviour involving experimentation, and flexibility, aiming to create multiple versions of ideas and offerings in the early stages of the entrepreneurial process. It involves going beyond the existing knowledge base of the entrepreneur to pursue new markets, relationships or technical skills (Lavie and Rosenkopf 2006) that are viewed as opportunities for a competitive advantage (Shane and Venkataraman, 2000). Engaging in exploration can be costly as it involves uncertainty and long gestation periods (Bierly and Daly 2007). Developing skills to do that well involve learning to identify new opportunities and approaching them by shaping variations of offerings that may prove to have the desirable effects McGrath (2001).

In contrast, exploitation refers to engaging with specific opportunities aiming to make the most of them as efficiently as possible by refining an offering or different aspects of the

operations of the organisation. For example by conducting a directed search on a topic as a result of a new technology or trend, focused on planning and control of the future – assuming it will unfold in a specific way. Such activities aim to limit the variety achieved, based on deepening initial insights on specific aspects of the business (Shane and Venkataraman 2000). During exploitation the entrepreneur aims to improve the efficiency or quality of the offering assimilating and applying existing knowledge from within or outside the firm. (Lavie et al 2010, Kreiser 2011; Zhao et al. 2011).

Cognitive approaches to understanding these two processes, consider how the mental makeup of an individual relates to their ability to engage in these two processes e.g. (Ardichvili et al. 2003, Keh et al. 2002). These perspective consider for example cognitive properties such as information structures and cognitive mechanisms and heuristics that inform decisions. Additionally creativity has been framed as a related cognitive function that relates to opportunity identification (Lumpkin et al. 2004; Ward, 2004) framing the role of knowledge in both enhancing and inhibiting the creation and identification of new opportunities. This work highlights the importance of a pre-existing stock of knowledge as well as how that stock of knowledge is interpreted in opportunity identification.

According to Simon et al. (2000) entrepreneurial cognition is the knowledge structures that individuals use to make decisions involving opportunity creation, assessments and growth. On the other hand, bias is the systematic deviation from the rational choice theory when individuals choose actions and approximate probabilities (Tversky, and Kahneman, 1974). These biases limitations in cognitive processing typically prevent individuals from making objectively optimal or rational decisions when they are under conditions of uncertainty and risk, sabotaging their ability to collect the right information, evaluate the information properly and consequently make good decisions (Gary et al. 2008). Kaplan et al. (2009)

suggestes that emotion and affect normally influences an individual's perception, so that individuals who experience positive affect have a high possibility of perceiving aspects around themselves in a more favourable way compared to individuals who are experiencing negative affect. The relationship between cognition bias and the pursuit of the entrepreneurial opportunities are thus influenced by either positive or negative affects and hence emotions (Gigerenzer, and Gaissmaier, 2011). According to Baron (2005), cognitive mechanisms normally play a critical role in almost all the aspects by which individuals say, think, as well as act especially the knowledge of entrepreneurs, their susceptibility to cognitive bias, as well as how their use cognitive strategies normally significantly have an influence on the pursued opportunities. Considering cognitive mechanisms normally encompass various ways that individuals collect, interpret, scrutinize, organize, and integrate information, an entrepreneur's cognitive styles usually a fundamental determinant in comprehending decision-making as well as behaviours of entrepreneurs.

As an example of the constructs mobilised in research around entrepreneurial behaviour and bias, common types of bias that are examined in the literature include overconfidence – or perceiving subjective certainty as higher than objective accuracy (Busenitz, 1999, Gudmundsson and Lechner 2013, Zhang and Cueto 2017) overoptimism- overestimating the likelihood of positive events and underestimating the likelihood of negative events (Sharot, 2011, Zhang and Cueto 2017) and the illusion of control- overemphasizing how much skills, instead of chance, improve performance (Langer 1975, Zhang and Cueto 2017).

The construct of human capital is used to articulate the different elements that constitute the broader makeup of the individual encompassing previous education employment and experience and skills (Davidsson and Honig 2003, Shepherd et al 2015). The effect of human capital in decision making with regards to opportunities is well established, with researchers

identifying for example differences in the ability of serial and portfolio entrepreneur's ability to identify opportunities, assess them (Westhead et al 2005).

Perspectives from enterprise and adult education identify skills that contribute to exploration and exploitation of ideas. For example DeTienne and Chandler (2004) suggest that “expanding” or “exposing” activities that support the development of new skills around exploration and confidence with dealing with uncertainty contribute to higher levels of opportunity identification. These include for example exploratory skills such as idea generation, brainstorming as well as presenting ideas, sharing knowledge, creative product development, elevator pitches.

In considering the development of skills on exploration and exploitation of opportunities, we need to remain aware of the need for ambidexterity, viewing these modes of action as complementary, since none of them individually is enough for the sustainability of ventures. For example exploration without exploitation means that no value is captured from the opportunities identified, which translates to cost, while similarly exploitation without exploration might mean that the entrepreneur does not develop new skills limiting their options. An ambidextrous strategy that combines the both is seen as beneficial both in innovation, efficiency and the creation of new knowledge within organisations (March 1991, Tushman and O'Reilly 1996).

Overall, the literature identifies the heterogeneity of the process of decision making with regards to opportunities, as well as the importance of the processes of exploration and exploitation in the entrepreneurial journey. Wang and Chugh (2014) call for research on different contexts that are more conducive to either of the types of learning as well as the processes through which learning in these two types of activity occurs.

The emergence of opportunities

The third core challenge in EL literature is how learning relates to a question which is fundamental to entrepreneurship, namely whether opportunities are identified or created, a topic on which there is no consensus in the entrepreneurship literature (e.g. Crawford et al. 2015, Ramoglou and Zyglidopoulos 2015). The positivist perspective of discovery is framed around the notion that opportunities exist independently of entrepreneurs, who are defined in the Kirznerian sense by their alertness towards those-external- opportunities (Buenstorf 2007). According to this view entrepreneurs are “able to perceive opportunities for entrepreneurial profits; that is, they are able to see where a good can be sold at a price higher than that for which it can be bought” (Kirzner, 1999, p. 14 cited in Buenstorf 2007). This view is contrasted to the Schumpeterian perspective of “new combinations” (Schumpeter 1911) that an entrepreneur introduces in the economic sphere, which does not imply a pre-existing opportunity, but stresses the agency of entrepreneurs – even if they are not inventors but take advantage of a new technology in the market. In the Kirznerian sense, opportunities are mechanisms to bring balance to the economy by correcting inefficiencies, while in the Schumpeterian view they represent forces of creative destruction that changes the economic structures from within leading to economic development.

These ideas stemming from economics have affected the evolution of ideas in the field of entrepreneurship, with the ontology of opportunities remaining a debate between the discovery perspectives viewing opportunities as “objective phenomena that are not known to all parties at all times” (Shane and Venkataraman, 2000, p. 220), and the creation perspective viewing opportunities as “created endogenously by the actions of entrepreneurs that seek to exploit them” (Alvarez et al. 2013, p. 303). More recent work sees entrepreneurial opportunities emerging through existing knowledge and ideas affecting the interpretation of

the environment and leading to action (Wood and McKinley 2010). That line of research based on a social construction perspective considers the creative capacity of the entrepreneur driving the process of creating opportunities (Dimov 2011, Sarasvathy 2001,2012) considering it “fundamentally constitutive of [social] structure or external reality” (Korsgaard 2011: 671 quoted in Ramoglou and Zyglidopoulos 2015). While both perspectives put new knowledge at the centre of the construct of opportunity, it is the creation view that is more interesting from this perspective as it poses the question, how do entrepreneurs perceive, interpret their environment and grow as they develop opportunities (Gartner 1988, Rae 2000, Cope 2005). Contemporary research around the nature of opportunities challenges established notions of social construction and objectivism around opportunity creation equally (Alvarez et al. 2013, Ramoglou and Zyglidopoulos 2015), with calls for more constructive and integrating approaches to theory building (Crawford et al. 2016, Davidsson 2017).

Two useful constructs from the EL literature that relate to this discourse are intuitive and sensing learning (Wang and Chugh 2014). Sensing learning involves learning through sights sounds and physical sensations, in a concrete and practical way, while intuitive learning is more analytical based on relationships of facts and by discovering possibilities (Felder and Silverman 1988). These are connected to the perspectives discussed above, with sensing learning being linked to discovery of existing opportunities, and intuitive learning related to creation of new opportunities as a result of conceptual thinking. This dyad of concepts describes the way entrepreneurs prefer to deal with information in search of opportunities, contrasting “abstract thinking” or “improvisational learning” and a more practical mindset. They are linked to Kolb’s experiential learning theory (Cook et al. 2009) and specifically the concepts of concrete and abstract learning, the former grounded to raw experience, and the latter representing interpretation and theory building.

These three challenges in entrepreneurial learning discourse paint a picture of an ambitious field that aims to tackle learning in emerging organisations from various perspectives. For this study the most relevant concepts are the ones related to exploration and exploitation of opportunities as well as the way opportunities come to be. The dyads of exploratory/exploitative and sensing/intuitive learning provide valuable conceptual tools to approach knowledge creation in service design engagements, providing the language to discuss the contribution of various activities to entrepreneurial learning.

While this overview provides coordinates to facilitate applying a learning lens to service design activities, a broader integrative theory is necessary, which is wide enough to accommodate the emerging aspects of the under-explored phenomenon under study while providing the language for integrative theory building. The next session presents experiential learning theory which will play that role in the study.

2.2.3 Experiential learning

As illustrated in the section above, entrepreneurial learning literature has drawn from a wide range of learning theories to explore the mechanisms of learning, including for example learning-by-doing (Cope 2003), exploratory and exploitative learning (March 1991), and vicarious learning or learning from the experience of others (Lévesque et al. 2009). One of the most used theories in the field (Wang and Chugh 2014) is experiential learning theory developed by David A. Kolb in 1984.

David Kolb developed his experiential learning theory by building on work from previous scholars in the fields of psychology, education and development such as William James, Kurt Lewin, John Dewey, Jean Piaget and Carl Jung with the aim to create a tool that can be applied widely in all arenas in life to capture the mechanisms through which individuals learn (Kolb 1984). Since then it has been used as a systematic framework for designing education programmes in all levels of formal education as well as management and adult education.

Experiential learning views learning as the central process of adapting to the social and physical environment and helps us understand the mechanisms through which this adaptations occurs. It is a holistic concept acknowledging the role of cognitive, affective and behavioural aspects of learning framing it as an integrated function. In principle it deals with the way individuals make meaning based on their direct experience based on a constructivist epistemological stance which posits that it is the human mind that actively gives meaning to the world it responds to.(Kolb 2014). The definition of learning provided by Kolb is that it is a process whereby knowledge is created through the transformation of experience.

In this view, knowledge is not a constant transmittable entity but in a constant transformation, being created and recreated based on experience, i.e. it emerges from the relationship of two ways of knowing- concrete experience and the mediating process of abstract conceptualisation. These ways of knowing cannot on their own virtue constitute knowledge; something needs to be done with the experience for knowledge to emerge. This is the process of transformation during which individuals actively transform their experience to knowledge through either extension- by acting and generating a new experience- or intention-by reflecting on the characteristics of the experience. The core elements of experiential learning theory are presented in figure 6. below

The theory is built around these tensions between fundamental modes of relating to the world, namely the way we grasp experience, and the way we transform it to knowledge. The knowledge creation process has two main elements, namely prehension- or grasping, and transformation. Prehension refers to the process of acquiring experience, or creating a figurative representation of it which occurs either as concrete experience of events – apprehension- or abstract conceptualisation - comprehension. Apprehension as a mode of knowing involves sensing without engaging in rational inquiry or analysis. It is the process of deploying attention to different aspects of the raw experience relying on its tangible qualities. Comprehension involves conceptual and symbolic interpretation of experience. The second main element of the theory is transformation, or the process of turning both types of figurative representations of experience- the concrete apprehensions or abstract comprehensions- into knowledge. The two modes of transforming experience

are extension and intention, the former involving some sort of action, a manipulation of the external world to ground ideas to the real world and the latter involving internal reflection.

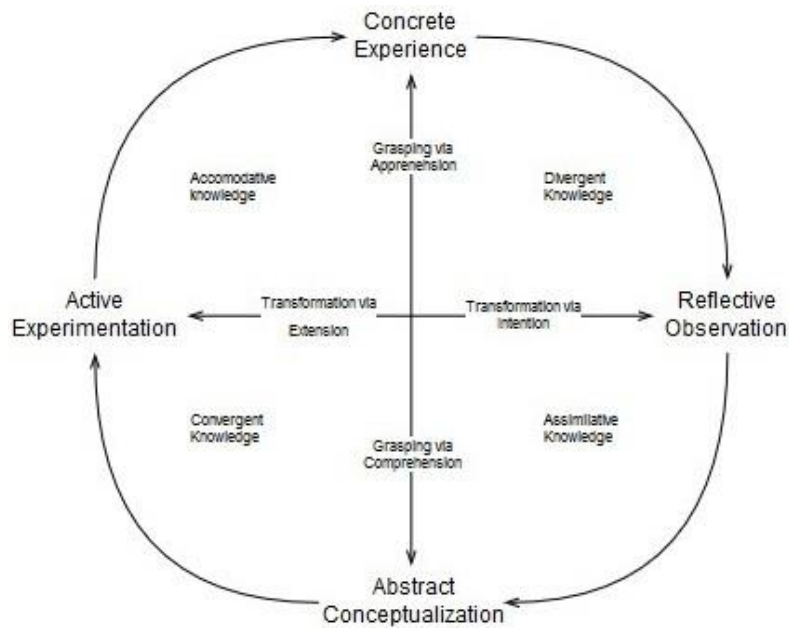


Figure 6. Structural dimensions underlying the process of experiential learning and the resulting basic knowledge forms (Kolb 2014)

Based on the way experience is grasped and transformed, four types of knowledge are identified. Divergent knowledge is associated with the perception of stimuli as a starting point for imagining new possibilities, assimilating knowledge can be thought of as modelling, involving shaping a new conception of reality by integrating characteristics of new experience, convergent knowledge involves hypothesising on what is the appropriate course of action based on the existing conception of reality, and accommodative knowledge involves testing that hypothesis creating new events and experiences.

Applications of experiential learning theory in entrepreneurship

Experiential learning theory is one of the most applied theories in the field of entrepreneurial learning research (Wang and Chugh 2014). It has been applied as a conceptual framework to support theory development (e.g. Politis 2005) and all of the main constructs of the theory have been operationalised in this field, including grasping (e.g. Corbett 2007), transformation

and the types of learning (e.g. Dimov 2007). Table 3. below summarises examples of such studies in entrepreneurial learning of individuals.

Study and focus:	Key findings
Politis (2005)	<ul style="list-style-type: none"> • Career experience contributes to the development of entrepreneurial knowledge. • The main mode of transformation of experience adopted shapes the new entrepreneurial knowledge created • Results of past entrepreneurial attempts shape the transformation strategy of entrepreneurs, failures result in exploration, successes in exploitation • Entrepreneurs with a primarily effectual mode of reasoning are more likely to transform experience via exploration, those with a primarily causal reasoning transform experience primarily via exploitation.
Corbett (2007)	<ul style="list-style-type: none"> • While specific types of knowledge are important, the process of learning also plays an important role in the discovery of entrepreneurial opportunities. • The way information is acquired is responsible for much of the difference in the ability to identify opportunities. <ul style="list-style-type: none"> ○ Reliance on comprehension – conceptual interpretation and symbolic representation- of new information and a transformation through extension - actively testing ideas- increases the number of opportunities identified ○ Intention- or internally reflecting on new information- can be as effective if entrepreneurs also transform that information through comprehension - conceptual interpretation and symbolic representation.
Dimov (2007)	<p>Emergence of opportunities as a learning process - Learning and the intention to act</p> <ul style="list-style-type: none"> • Initial insights are examined further only when there is a person–situation match. • Individuals’ prior knowledge of the opportunity domain increases their likelihood of acting on their initial opportunity insights only when their style of learning is compatible with the situation at hand.
Politis and Gabrielsson (2009)	<p>Experiential learning</p> <ul style="list-style-type: none"> • Effective learning is framed as involving both action and reflection • Knowledge and beliefs are framed as changing in response to experience and new information • Two types of experience associate with a positive attitude towards failure, namely prior start-up experience and business closure experience. • Directly experiencing the consequences of actions relates to a positive attitude towards failure
Huovinen and Tihula (2008)	<ul style="list-style-type: none"> • Experiential learning theory applied to frame the link between experiences and entrepreneurial knowledge • Exploring for opportunities is seen as the main mechanism of transforming experience into knowledge • Outputs of the process is knowledge on opportunity recognition and coping with liabilities of newness • Learning through experience especially important to portfolio entrepreneurs who switch contexts in the duration of their career • A divergent and accommodative learning leveraging networks is appropriate for learning in this context

Table 3: Examples of previous applications of experiential learning theory in entrepreneurship

Politis (2005) uses experiential learning theory as a conceptual framework to synthesise research on the concept of previous professional experience to better understand the antecedents and outcomes of its transformation to entrepreneurial knowledge. The distinction between the concepts of experience and knowledge was used to clarify the concepts of previous start-up and management experience and the actual knowledge acquired through the process of entrepreneurial learning. The main contribution of this synthesis was the necessity to understand the predominant mode of transforming experiences into knowledge and its impact to the type of knowledge created. Two major modes of transformation of experience were identified, namely exploration and exploitation, which define the way in which entrepreneurs “use” previous experience, either by replicating previous successful strategies – exploiting pre-existing knowledge,- or by choosing new distinct actions that differ from previous strategies – engaging in exploration. An exploratory approach to transformation translates to increased ability to identify opportunities, while relying on exploitation as a mode of transformation is seen as resulting to dealing with liabilities of newness more effectively. These are in turn linked to the two key types of reasoning and decision making in the entrepreneurship literature, namely effectuation and causation. According to Politis, an effectual mode of reasoning is more conducive to higher levels of exploration as a mode of transformation. In contrast, entrepreneurs who have a predominantly causal mode of reasoning are more likely to transform experience via exploitation. Politis’ conceptual framework of entrepreneurial knowledge has been impactful as reflected in the citations of the publication, as well as in the use of the conceptual framework for example as an analytical tool for unpacking the learning journey of a portfolio entrepreneur (Huovinen and Tihula 2008). In that case the constructs of experience, transformation and knowledge were

used to make valuable distinctions between initial experiences and stimuli such as industry specific experience, the process of mobilising that experience to identify future opportunities and finally the output of that process, namely the ability to deal with liabilities of newness and identifying new opportunities. The theory was used in a similar way to explore attitudes of entrepreneurs towards failure (Politis and Gabrielsson 2009), applied as a conceptual framework for identifying and testing critical experiences the entrepreneurs had. In more detail the experiential learning cycle helped frame the inquiry by defining effective learning - highlighting the importance of both action and reflection. Moreover it helped highlight the temporal nature of knowledge which is in a constant evolution as a result of interactions with the world. Finally it brought to focus the importance of the direct experience of the outcomes of actions as a factor in learning.

Corbett (2007) mobilises experiential learning theory to discuss connections between opportunity identification and the learning process. The study suggests that the way entrepreneurs learn affects their ability to identify opportunities. He specifically examines the role of the way information was acquired – grasping in experiential learning theory- in identifying opportunities. He posits that entrepreneurs with a comprehension preference- transforming information to knowledge through conceptual interpretation and symbolic representation- are likely to identify more opportunities. This is because they are more likely to consider more contingencies which is necessary in an increasingly unpredictable environment. Similarly, Dimov (2007) used experiential learning and entrepreneurial intention in a complementary way to explore why some entrepreneurs act on perceived opportunities while others don't. He uses divergent and convergent learning to discuss how insights come to be, and how entrepreneurs react to them. Specifically insights that constitute opportunities can be convergent if they are relied on convergent knowledge or divergent if they rely on divergent knowledge. The study suggests that the fit between the pre-existing

knowledge of the individual and the opportunity domain increases the likelihood of acting on a perceived opportunity. In other words, entrepreneurs are more likely to act on an opportunity when they are familiar with the relevant niche or industry for example. Moreover, the study suggests that the way the entrepreneurs transformed their experience to knowledge- seen here as the evaluation and interpretation of insights- is identified as critical for that fit. Convergent insights evaluated by people that tend to learn by convergence are more likely to lead to action, and similarly divergent insights evaluated by people that tend to learn by divergence are more likely to lead to action. For example an entrepreneur who is used to evaluate ideas by using logic and looking for practical applications – convergent learning- is more likely to act on opportunities that came to be through the analysis of such data.

These studies are relevant to this project as they exemplify different ways to apply Kolb's theory in entrepreneurship highlighting different Operationalisations of the concepts of experience, transformation and knowledge. The concepts of experience and knowledge are used in more or less the same way across papers, experience is Operationalised broadly as previous professional experience, which is similar to the learning-by-doing and vocational learning literature (e.g. Cope 2007) while knowledge is seen as variations industry specific knowledge, market knowledge, special interest knowledge, knowledge of customer problems. Operationalisation of transformation differs the most across papers, for Dimov (2007), transformation is seen as the evaluation and interpretation of insights, while in Politis (2005) the focus of the concept is on action based on previous events. Similarly Corbert (2007) interprets transformation of experience as the interaction of new information with an existing knowledge base. While this is a valid use of the theory to serve different purposes it reflects the need for more research on the way transformation takes place, something highlighted in the review of the literature from Wang and Chugh (2014).

In the next section service design is introduced, being the second body of knowledge that relates to the research area identified.

2.3 Service Design

Service Design is an approach to developing services in a conscious and well managed manner. It is defined in terms of its outcomes as a practice that helps “create new or improve existing services, by making them more useful, usable and desirable for clients, as well as efficient and effective for organisations. It is a new holistic, multi-disciplinary, integrative field” (Moritz 2005). An overview of the practice in terms of its main characteristics by Wetter Edman (2011) discusses Service Design in terms of three questions, namely who does what and how (table 4. below) and defines it as an interdisciplinary practice that aims to create new value and transformation within organisations by using methods of visualisations, prototyping and participation.

Who?	What?	How?
Interdisciplinary	Value creation	Visualisations and prototyping
	Transformation within organisations	Participation

Table 4: A synthesis of the main characteristics of Service Design adapted from Wetter Edman (2011)

This section begins by introducing the concept of design broadly as a field of research, discussing its expanding scope and the turn to design thinking. This is followed by a review on literature on service design focusing on its intellectual roots in design and its core research areas, followed up by a presentation of the practice of Service Design focusing on its main

characteristics as described by Wetter-Edman (2011). Finally it discusses Service Design in the context of knowledge creation and entrepreneurship to connecting the literature review to the research topic.

2.3.1 Design

The tradition of design encompasses various disciplines including those of architecture, engineering, product development, urban planning, interaction and service design. Currently there is no generally accepted definition of design across these disciplines, or within the disciplines themselves, with different schools of thought prioritizing different aspects of the practice. In their analysis of existing definitions available in different design disciplines, Ralph and Wand (2009) concluded that existing definitions have problems with the most common being that of coverage and limited meaningfulness since the terms used do not have a widely accepted meaning.

Some influential definitions are included here to exemplify some of the different perspectives on the concept of design.

- “Design is devising courses of action aimed at changing existing situations into preferred ones.” (Simon 1996)
- “The process of inventing physical things which display new physical order, organization, form, in response to function.” (Alexander 1964)
- “Design is a conscious and intuitive effort to impose meaningful order.... Design is both the underlying matrix of order and the tool that creates it.” (Papanek 1983)
- “Design is the human power to conceive, plan and realize all of the products that serve human beings in the accomplishment of their individual or collective purposes.” (Buchanan 2006)

- “A goal-oriented, constrained, decision-making, exploration and learning activity which operates within a context which depends on the designer's perception of the context.” (Gero 1990)
- “Design: a noun referring to a specification or plan for making a particular artefact or for undertaking a particular activity. A distinction is drawn here between a design and an artifact — a design is the basis for, and precursor to, the making of an artefact. Designing: human activity leading to the production of a design.” Love (2002)

The main conceptualizations of design according to definitions in the literature see design as a process, creation and planning (Ralph and Wand 2009). Although designing can be traced back to many different types of human activity throughout history, Design began to develop formally as a discipline in academia after the second world war (Gedenryd 1998). The early work of the Design Methods group challenged previous craft based models of the Design practice exemplified by the early work of the Bauhaus arts school (Newhall 1975, Findeli 2001) which sought to draw from the arts, viewing design as applied aesthetics. The methods group saw this perspective as insufficient in dealing with the complex problems faced in the post-industrial world and contributed to the connection of design with the tradition of engineering and science, for example introducing a systems view of design projects, concepts from cybernetics (Jones and Thornley 1963, Rith and Dubberly 2007) and the concept of wicked problems (Rittel and Webber 1973) that articulated the limitations of the scientific tradition in dealing with complex emerging problems inherent in a process of planning.

The Design Methods movement was later criticized for attempting to scientise design, and was challenged (e.g. Alexander 1964, Jones 1977) with Rittel calling for a need for a second generation of design methods (Rittel 1972, 1984). Despite that, the movement was the

starting point for an inquiry into design methodology seen as a study of principles, practices and procedures of design (Cross 1984). Moreover, it has contributed to the development of Design as an academic discipline and had an impact on other disciplines, namely to the fields of operations research, management and in the domains of software development where design rationale research is an active field of study (Rith and Dubberly 2007).

Simon's (1996) perspective on the relationship between design and science makes a distinction between natural science and what he calls the "sciences of the artificial". The first aim to identify patterns about the various natural phenomena creating some order by developing the knowledge base on such phenomena. The latter in contrast, aim to deal with the various instances of human artifice that embody human intention and purpose and define today's world. In that sense he frames designer as a problem solver or someone who is "*concerned with how things ought to be in order to attain goals*" (ibid :4) His view of design as a rational problem solving activity has been influential in articulating the process of design.

Ralph and Wand (2009) observe that the most common theme across different definitions of design is that of a process. This is reflected in the interest of design scholars to attempt to capture elements of the practice of designers through time. Early design scholars of the Design Methods movement discussed above produced early phase models and flow diagrams (e.g. Archer 1964, Alexander 1964) attempting to model the design process rationally, with the aim to automate the approach to design problems. Other scholars suggested that design could be seen fruitfully as a way of thinking (Lawson 1990) and suggested the broad stages of analysis evaluation and synthesis as a way to see this process.

A recent synthesis of the literature on the process of design by the Design Council (2007) suggested that the process of design today is complex given the different the contexts in which the term is used, and illustrated it in the double diamond model in Figure 7.

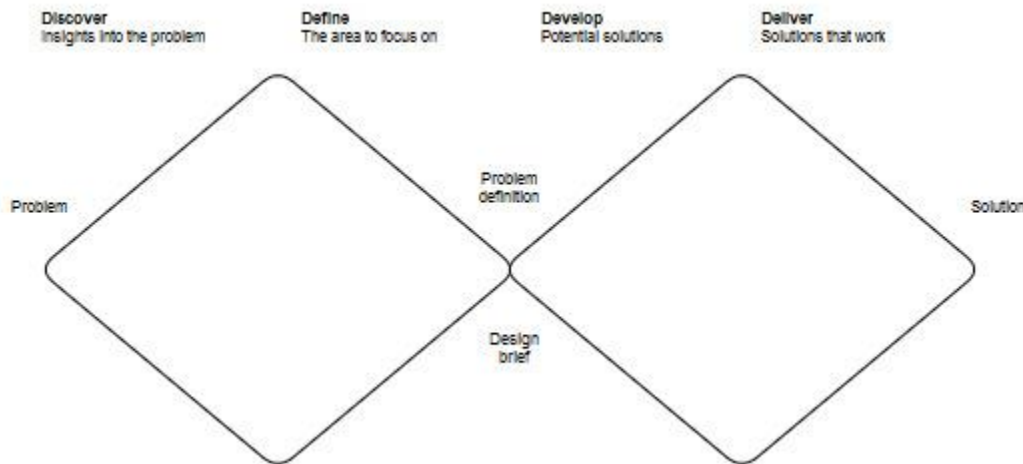


Figure 7: The double diamond model (Design Council 2007)

In this model the Design process is illustrated as an iterative process comprised by two stages the first being problem definition and the second problem solution. The first process involves the analysis of the design problem, and an exploration into the various elements of the problem that will shape the requirements for its solution. This early stage is increasingly referred to as the fuzzy front end of design (Rhea 2003). The requirements gathered at this stage shape the design brief, which usually involves reframing the initial problem statement in light of new insights. The solution part involves the development of alternative manifestations of solutions that are prototyped and evaluated until a solution is identified. This has been an influential abstraction of the design process that is commonly referenced in design projects in various domains as the role of designers evolves, from designing symbols and artifacts to services and organizations (Buchanan 2001). Below the concept of design thinking is introduced to illustrate this expansion of scope that contributed to the emergence of Service Design as a practice.

2.3.2 Design thinking

Designers increasingly engage with problems that go beyond the creation of material goods, taking roles in innovation projects in the public sector (e.g. Bason 2012, Julier and Moor 2009), the ICT sector (Brooks 2010) business (Brown 2009, Bruce and Bessant 2002, Martin 2009, Brown and Wyatt 2010) and other institutions that seek new markets, offerings or ways to create value expanding the role of professional designers.

Design thinking specifically has attracted attention from the business world with publications focusing on different ways the design process can fit in organisations (e.g. Thackara 1997, Boland and Collopy 2004, Bate 2007, Martin 2009). In the design literature, different accounts of the way designers think stress different domains and aspects of the practice. For example even though the term design thinking was not used by Simon, in his seminal work on the sciences of the artificial (1996), he describes design as the process of making new artifacts, while Jones (1970, 1992) focuses on the ability of designers to redefine problem spaces to approach problem solving. Others include reflections on processual characteristics of design in the domain of urban planning and architecture (Rowe 1991), or explorations of the function of the act of reflection upon what was created in the process (Schon 1983).

In a review of the scholarship of the topic Johansson-Sköldberg et al. (2013) differentiate between such early work and more recent research on the application of design thinking in the business context. Such management oriented work mainly has Buchanan's paper in 1992 as a starting point, which described the potential for a broader adoption of design thinking. Buchanan approached the topic reflecting on the role of Designers professionals in design projects and suggested that they should depart from the tradition of industrial design, favouring a conception of design thinking as “a concrete integration of knowledge for new productive purposes” (ibid. : 6). In more detail, Buchanan views design as a liberal art, in the

sense that it can offer a way for integrated knowledge across what is seen today as distinct specialisations. The practice of design is seen as a way to draw from existing knowledge in science and art and directing them to serve the purpose of “enriching human life” (ibid : 6) . In that sense the role of professional designers and design thinking is seen as contributing to the conception and planning of products and systems in contextualising information and knowledge available, with design briefs to be seen as a set of coordinates that the designer needs to keep in mind in approaching the problem.

By adopting Rittel’s definition of wicked problems as "a class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing” (quoted in Buchanan 1997) Buchanan sees the role of the designer as one of identifying elements of the problem as expressed by the views of the participants and shaping the design situation to promote further exploration and development. In this process the designer essentially evaluates the relevance of existing knowledge to the given problem while remaining faithful to the purpose of designing a solution.

In a recent critique of the way Design thinking discourse has developed, Kimbell (2011, 2012) suggests that more theoretically robust approaches need to be mobilised examine the phenomenon. In more detail, she suggests design and management scholars draw from sociology, anthropology and organisational studies to examine design cultures (Julier 2013) rather than cognitive styles of individual designers. Such a view of design is better equipped to provide a more nuanced account of the relationship between knowing and action in design, which will allow for more fruitful theorising and practice across contexts while accounting for the uniqueness of design (Cross 2001).

2.3.3 Service Design

The necessity of a more systematic way to develop services led to early work on the topic in the discipline of marketing (Eiglier and Langeard 1977, Shostack 1982, 1984, Lovelock 1984) suggesting a more deliberate combination of the material and the immaterial components of products, explicitly stressing the importance of visualisation in evaluating the different aspects of a service. Service design emerged as an agenda for design research in the 90s (e.g. Hollins and Hollins 1991, Buchanan 1992, Manzini 1993 cited in Sangiorgi 2009; Erlhoff et al. 1997 cited in Sangiorgi 2009) and as a profession in early 2000s with the first service design agencies established in the UK.

In the emerging academic discourse around service design, the first school of thought initially conceived services as products to be designed (Hollins and Hollins 1991, Mager 2004) and looked at the process of doing that, suggesting that traditional product design methodologies could be adapted for the design of services. In their review of early contributions in the field from Italy, Pacenti and Sangiorgi (2010) identify three main areas of research interest, namely the nature of services, product-service systems and the impact of service design to social innovation. The first stream of research explored the service interaction paradigm as an approach to Service Design, drawing from the discipline of interaction design (Pacenti 1995 cited in Pacenti and Sangiorgi 2010, Sangiorgi 2004). Research in the field of interaction design focuses on designing interactive digital systems and services considering the form of such systems and the behaviour they facilitate (Moggridge and Atkinson 2007). It provided early researchers of Service design with a set of metaphors and tools to draw from in considering the design of interactions and encounters in services. In more detail it allowed designers to engage with Services by looking at the moments of interaction between the service delivery system and the user (Sangiorgi 2004).

Similarly, early work on product-service systems, drew from marketing, management and operations management in interpreting services (e.g. Pawar et al 2009) to consider the application of Design to create sets of products and services to fulfil user's needs (e.g. Morelli 2003, 2006). In this perspective the object of Design is the re-organisation of various elements of such systems depending on functional parameters of the system, informed for example by the values and needs of the stakeholders or the technology used. Finally, research in social innovation and Service Design explored ways in which new service scenarios could enhance and connect community activities and sustainability initiatives as a way to cultivate social innovation (e.g. Manzini and Pacenti 1995).

Today Service Design is seen broadly as a human centred and creative approach to service innovation (Sangiorgi 2009, Blomkvist et al. 2010). It is defined in terms of its outcomes as “a new holistic, multi-disciplinary, integrative field that aims to create new or improve existing services, by making them more useful, usable and desirable for clients, as well as efficient and effective for organisations ”(Moritz 2005). More recently service design research has focused on expanding its scope, linking it with other fields, framed for example in relation to other boundary disciplines around the study of services (Sangiorgi and Prendiville 2014), namely new service development and service innovation. In this work design is interpreted broadly as an assemblage of resources and services are seen from a business perspective adopting the service marketing perspective. Similarly, work on the relationship between service design and the service logic framework (Wetter-Edman et al. 2014) aims to identify ways to use service design to apply principles of that logic, focusing for example on the concept of value co-creation, user experience and service systems.

In order to narrow the scope of this review and introduce the main characteristics of service design that relate to this study, Wetter-Edman's model (2011) is used, which represents the

practice based on three questions, namely who does what and how. She frames it as an interdisciplinary practice that aims to create new value and transformation within organisations by using methods of visualisations, prototyping and participation. Each of these characteristics is discussed below in more detail.

Interdiscilinariry

Due to the nature of services, service design is by necessity interdisciplinary both in its intellectual roots, as well as its scope. Services are constituted by various elements such as digital and physical material, interfaces, interactions and organisational resources. As a result the development of services in general has been researched by various disciplines including innovation management (e.g. Oke 2004, Victorino and Verma 2006), operations management (e.g. Stuart and Tax 2004) and new service development (e.g. Johnson et al. 2000).

Similarly, the emerging practice of service design has also been discussed from and influenced by different perspectives such as new service development (Edvardsson et al. 2000), service science, organisational change (Junginger and Sangiorgi 2009) interaction design (Holmlid 2009) and marketing (Mager 2004, Shostack 1984). It has been characterised as an integrative and collaborative practice that considers various aspects of services that relate to different specialist competences (Moritz 2005) including ethnography, interaction design and product design among others (Segelström et al. 2009, Holmlid 2009).

In service design, engagements are made across the wider service system, which is described as the broader organisational setting around a service, including the various actors, processes and resources involved (Wetter-Edman et al. 2014). Shaping such complex systems involves considering various aspects of organisations holistically. Service design methods allow designers to consider the various service encounters with the user holistically, rather than adopting a reductionist view of other disciplines which enables them to consider the

interactions between the various elements of the service. Examples of methods to achieve that in service design are service blueprinting (Shostack 1984) and actor network mapping (Morelli and Tollestrup 2007). Service blueprints aim to capture the operational functions of the organisation based on the desired user experience, and stakeholder mapping is a way to consider the broader external actors involved in the delivery of a service.

Participation

The practice of Service Design has also been informed by the human-centered and participatory design discourses, adopting involvement techniques as well as a broader cooperative approach (Holmlid 2009). The term human-centered design (e.g. Segelström 2013) is used in contrast to the term user-centered design to highlight the relevance of a broad network of people that need to be consulted as part of the design process. These approaches allow for more direct insights into the needs of users and allow users to develop a sense of ownership over the outcome.

Participation is a key characteristic of service design in various stages of the process, including insight generation about the current situation as well as projection of potential future services. For example in early stages of service design projects ethnographic approaches are used to understand the problem space. Ethnography as a research approach favours first hand data collection through spending significant amounts of time with the group under study, with the intention to capture the experience of people within their own context (Segelström et al. 2009). Certain participation techniques are also categorised under ethnography as they allow designers to work in close proximity with stakeholders to represent and interpret their experiences (Wetter-Edman 2014).

Such ethnographic accounts become key in abductive thinking (Martin 2009) which is central to later stages of the design process, allowing designers to step in the shoes of future users of

the service as a way to develop new service propositions. Examples of other techniques used to engage stakeholders in creating new service propositions include design games that provide rules for collaborative story telling in order to understand users (Brandt and Messier 2004) or enactment of scenarios using mock-ups of future devices to help stimulate the imagination of participants (Iacucci et al. 2000).

Visualisations and prototyping

Visualizations are used in all design disciplines (Arvola and Artman 2007) to describe various aspects of a design object and help designers and teams process complex information. They are defined as “*depictions of current or future states of a service (...) used as summarizations of research, or as a deliverable of a project showing how the new service is suggested to be structured.*” (Blomkvist and Segelström 2014 p.335). They have various functions for example representing the experience of users, the physical context of a service as well as temporal aspects of a service or how various elements of the service connect in use.

Some examples of the most common visualisation methods in Service Design would include customer journey maps that represent the experience of the user as they go through the service, blueprints, which capture both the user experience and the service delivery system behind it, scenarios that describe potential scenarios of use, and staging that involves setting up props to create immersion to a service through enactment (Stickdorn et al. 2011).

Similarly prototyping in design involves creating representations of design objects in a variety of fidelities to answer design questions and communicate ideas in the context of use. In Service Design specifically prototypes are defined as a key fundamental activity which “*aims at improving the quality of the ideas and solutions suggested by service design projects through testing the whole or parts of a service idea. They focus on the user experience as well*

as the service delivery process,(...) to refine ideas as problems or opportunities are discovered in the original ideas” (Blomkvist and Segelström 2014 p.335)

Value creation

The concept of value creation in service design is informed by the service dominant logic framework (Vargo and Lusch 2004), which has been elaborated and developed into a broad theoretical framework (e.g. Payne et al. 2008, Grönroos 2011) based on the idea that services are the basic unit of exchange, with actors offering their competencies for the benefit of others in a reciprocal service – for – service exchange. Fundamental axioms of this theory are the centrality of service as a basis for exchange and the co-creation of value from multiple actors including the user who always determines the value received (Vargo and Lusch 2008). This theoretical model has been increasingly considered to be valuable in discussing the service design practice and its contribution (Wetter-Edman et al. 2014), since it helps articulate the concepts of value co-creation and resource integration while providing a systems foundation for the practice.

In service design value co-creation occurs through the engagement of both external and internal stakeholders in the creation of new resource constellations that support new service systems. Using service design approaches –including empathetic tools and techniques and a broader mindset- allows for value co-creation activities of different stakeholders to be understood.

Additionally this lens highlights the inability of designers to fully regulate how value is created in services (Meroni and Sangiorgi 2011). In more detail Kimbell (2009) discusses two implications for designing services, firstly, the need to design for indeterminacy in the sense that the factors that affect the value creation created are impossible to fully predict and

control. And secondly the need to find ways to consider and represent how value is co-created in complex systems of interactions.

Transformation

Finally, the last key characteristic of service design is its transformative character, both in terms of organisational and behavioural change. Junginger and Sangiorgi (2009) paint a picture of how service design projects can result to organisational change organically shaping existing practices. Even though most commonly such engagements begin from the periphery of the organisation, this changes through the engagement of stakeholders from across the organisation in the process, as well as through the generation of interesting insights about the function of the organisation. Such pilot projects are seeds for increasingly engaged projects that can result to transformative knowledge and a vision for the organisation.

The above aspects of Service Design position it very much as a design principle, typically involving several design techniques such as participatory design, co-design, design research, prototyping and sketching (Liedtka, and Ogilvie, 2011). While design thinking as a practice has evolved as the application of design techniques to problem-solving more broadly, service design can be seen as an extension of Design thinking (Stickdorn, Schneider, and Andrews, 2011) that has a craft or a making focus (Sangiorgi, and Meroni, 2016) that aims to deliver a value proposition, or a configuration of resources and actors that allows the users to ultimately co-create value for themselves (Edvardsson and Tronvoll 2013). To illustrate this difference in scope, the popularised process of design thinking can be applied to draw from the way designers work to create a space for people in an organisation to input in shaping its strategy for example (Moggridge and Atkinson 2007),

while service design can be described more accurately as a process of understanding both users and service providers and their context in order to develop tangible outputs that constitute evidence of service systems interaction (Holmlid and Evenson 2008; Yu and Sangiorgi 2014). That is not to say that the decisions made at the level of service design don't have implications in the broader organisational context- in fact this research seeks to contribute to understanding of what these broader contributions can be in the context of emerging organisations – but considering service design as a practice of defining a mix of interfaces, tangible evidence roles and processes (Patricio and Fisk 2013) helps make a distinction from the practice of design thinking and position service design within the broader design practice.

2.3.4 New knowledge creation in Service Design

Service design was framed above in terms of its main characteristics reflected in the literature, below we focus on literature around knowledge creation, to inform the inquiry into the contribution of service design to entrepreneurial learning.

There are many models of the process of design which in some form or the other involve a stage of analysis, synthesis and evaluation in which understanding the problem is central. In this sense knowledge creation is central across the design process and at the most basic level it is characterized by Buchanan as “clinical research”(2001 p.17), encompassing all the information gathering about problem space, which informs design decisions. He posits that the act of making –anything from artifacts to services and organisations- is the “connective activity that integrates knowledge from many fields for impact on how we live our lives” (Buchanan 2001: 7). He viewed the design process as a form of inquiry (2004) that creates knowledge through a process of starting with a problem, formulating a concept that solves that problem, develop it through exploration, visualization and testing and finally create a

product that meets the needs of the situation. Similarly, Manzini (2009) describes design knowledge as cognitive artifacts that are the result of a complex social process that requires “reflection and creativity, visionary and concrete thinking, the ability to propose and the ability to listen” (ibid.:7). This knowledge has diverse purposes depending on the nature of the design engagement, including understanding design problems, implementing design ideas and steering broader strategic discussion.

In the product design literature, learning is seen as a defining characteristic of the process of design Gero (1990), seen as the collection of information about its emerging features. Such knowledge, relevant to the specific design situation includes constraints, qualitative knowledge connecting structure variables and function, mathematical relationships among variables and context knowledge which identifies variables exogenous to the design. All of these aspects of the design are updated and enriched after every iteration to reflect the evolving understanding of the problem space and the outcome of the design process.

According to Hatchuel and Weil (2009) the creation of new knowledge is nothing less than constitutive to design, representing a central function of the process of design which is described as the interplay between the space of unconfirmed properties of objects, or concepts and the space of the known. Through this interplay design generates new knowledge and concepts which makes it appropriate as an approach to innovation (Kimbel 2011). In the information systems design literature, knowledge is framed as information that allows stakeholders select actions from those available to them (Ralph and Wand 2009, Bera and Wand 2007). This is seen as distinct from skills, which involve actually performing actions rather than just selecting them.

Dubberly and Evenson (2011) draw from organisational learning literature and the SECI model (Nonaka et al. 2000) to theorise as to how the design process supports the

transformation of tacit knowledge to explicit in existing organisations. They argue that the design process mirrors the process of the “learning spiral” by describing the current situation, interpreting it, suggesting what could be and manifesting a version of that. This perspective mirrors the areas of design inquiry according to Nelson and Stolterman (2003) who view design as a tradition of inquiry and action, suggesting a model for appreciating how different forms of inquiry can be seen as part of the design process (ibid p. 41). This form of inquiry is composed by three types of approaches to gaining knowledge, namely inquiries into the true, the real and the ideal. Inquiries into the “the true” seek to represent objective reality, they describe the true as being the result of explanations and accurate descriptions, often the result of scientific inquiry. For example an inquiry on the amount people that currently use a set of services as part of the analysis of a project would fall under this category. Inquiry into “the real” is an action oriented reflective process that strives to create the not-yet-existing. It is part of production and innovation, and is thus the main type of inquiry in design. When designers deal with the real they benefit from scientific insights-the true- but cannot act solely on those. They integrate the design judgment, will and intention to make decisions transforming scientific knowledge into a design (ibid.: 35). Similarly inquiries into “the ideal” seek to say something about how the world should be, creating projections and evaluating different aspects of these projections to inform the design of the real.

While the role of knowledge development in the process of design is well understood and the increasingly transformative role of service design for organisations is acknowledged, the ways in which Service Design contributes to the creation of such organisational or entrepreneurial knowledge underexplored. The following section synthesises the literature reviewed in a conceptual framework that motivates the research questions that lead the study.

The role of learning in individuals who engage in service design is not discussed explicitly in the literature, but data collection and new insight generation to inform the specific aims of the project, are a part of the design process and are this discussed in some detail. For example, Maffei et al. (2005), discuss the importance of “information for innovation” seen as especially significant for the ability of service providers to innovate, shaping new service interfaces applications and concepts. Collecting that information is framed as part of the broader user-driven approach to innovation adopted in service design, implying that design activities contribute to the collection of information that is highly context specific, dependent for example on human capital and professional knowledge of those involved. The nature of interaction with users and other stakeholders as part of service design was examined by Segelström (2013) who looked at methods applied by designers to collect information about stakeholders and how they communicate it. He describes the approach of designers as starting with understanding the information needs for the project and making a plan to acquire it which is framed as the preparation stage in the process. Then as they go along collecting data the initial data collection plan may change based on insights collected through research. Research is primarily conducted through interviews observations and design probes. Communicating knowledge is also seen as an important part of the service design process, achieved primarily by visualisations (Segelström and Holmlid 2009, Segelstrom 2013, Visser 2009) and aims to enhance empathy, promote participation and provide inspiration. Moreover he highlights the importance of visualisations for showing progress to stakeholders outside the design team.

2.3.5 Service Design for Entrepreneurship

Research on the interdisciplinary space between service design and entrepreneurship is very limited, and focuses primarily on service design consultations and service design led enterprise education and social enterprise. With regards to service design consultations,

Kimbell (2009) sketched out the contributions of service designers in consultations with science and technology enterprises. She observed that service designers examined the underlying business logic of the offering as they discussed the customer journey and various touchpoints framing it as the value proposition. Multiple scenarios and service positions generated through the workshops with designers were put forward without particular consideration of the implications of those suggestions to current configurations resources within the enterprises, stimulating discussions on alternative business models to support these offerings.

Kuzmina et al. (2016) on the other hand explored service design-led enterprise education looking at the application of service design methods to fostering social enterprises as part of a forty-eight hour design intervention. The focus of the intervention was to introduce a service design-based approach to problem solving, guiding participants through a process of “discovering, developing and prototyping solutions” (ibid : 7). The author suggests that the collaborative scope, the processes and tools introduced were perceived as valuable with participants reporting to develop knowledge, experience and self-efficacy as a result of using them. The tools included the double diamond process model, quick prototyping techniques, persona creation and mind-mapping and were reported to help tease out existing knowledge and experience of users that was fundamental to the development of entrepreneurial ideas.

Similarly, Garcia et al.(2017) looked at the use of service design tools at a two day entrepreneurship event and their impact in the ability of groups to navigate the early stages of the entrepreneurial process. They suggest that the use of service design supported the creation of new ideas, the evaluation of existing ideas and the efficiency of the process overall. In terms of generating new ideas in a group context, service design tools were reported to help channel the existing knowledge of individuals in the group as a way to help them shape new

service concepts. The research suggests that design tools can facilitate “knowledge brokering” (ibid: 82) within groups, i.e. the tools could function as a tool to facilitate discussions and processing of complex abstractions of services which is compatible with the evaluation of the tools by Blomkvist and Segelström (2014). With regards to the assessment of ideas service design tools were reported to allow participants to identify inconsistencies faster, for example between the market need and a specific offering. The structure offered by the tools allowed them to evaluate ideas more systematically. Finally, the ability of service design tools to organise the related information and focus on specific aspects of the ideas was reported as the main contributing factors to significantly increasing the speed of the overall process.

In the work by Thorpe and Gamman (2011) on socially responsive design the decision making principles of effectuation are used to structure a design approach in dealing with uncertainty in social innovation projects where there is a constant evolution of goals and stakeholder relationships. In additional empirical work on such projects (Thorpe and Gamman 2013) the term is used to describe the approaches of design students who adopted opportunistic and adaptive strategies in order to “control rather than predict the future”. This is arguably an important parallel between theory and practice in the two fields highlighting the similar situations in which designers and entrepreneurs operate especially in the context of social enterprise. The author also contributed to this discourse through a conference paper exploring opportunities for service design interventions in effectuation (Balis 2014).

Sangiorgi and Prendiville (2014) suggest that research on the impact of service design projects is limited even in the domains in which the practice is commonly applied such as the public sector and commercial projects, calling for more research on the impact of Service Design projects that will enable professionals frame their contributions, especially in light of

critiques for example on the grounds of lack of sensitivity to economic and organisational issues related to service design (Mulgan 2014). This study contributes to this stream of research by examining the application of service design in the novel context of entrepreneurship, while demonstrating a new lens for the evaluation of Service Design projects, namely that of knowledge creation.

2.4 A synthesis of the literature

The literature review above aimed to demonstrate familiarity with the domains relevant to the research area and also to articulate the current discourse in both fields, to consider fruitful ways to conduct interdisciplinary research in this space. This section aims to summarise the most relevant elements of that review in the form of a synthesis that represents the author's understanding of the relations between major themes in the two literatures with the intention to inform the research questions that guide the inquiry. The synthesis acts as a reflection on the literature review, reiterating the research area as well as the system of concepts that inform and support the study, making sure the research questions stem organically from the literature review and are both relevant and realistic. Figure 8. below aims to represent the research area in broad terms to clarify the phenomenon under study and table 5. synthesises the most relevant concepts from the literature review that were mobilised to unpack the research problem identified.

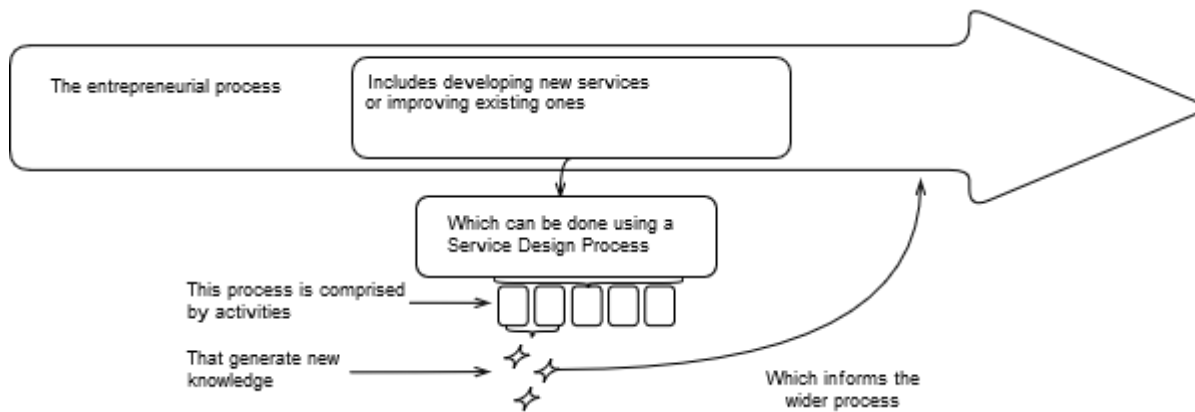


Figure 8: A broad level representation of the phenomenon under study

The literature review highlighted learning as a lens to examine entrepreneurship, encompassing everything from decision making about opportunities (Corbett 2005) to personal growth (e.g. Cope 2005) spanning from the most operational to the most strategic aspects of the venture. Moreover it highlighted the importance of entrepreneurial agency (e.g. Dimov 2007, Sarasvathy 2001) in shaping those organisations, and the kinds of behaviours they engage in to achieve that. The journey of shaping a new venture includes activities that focus on creating a new service, or improving a new one, involving for example behaviours such as collecting data about the market, producing a project plan, experimenting with ways to promote a product or service, interacting with stakeholders (Sarasvathy 2001,2008, Baker and Nelson 2005, Wang and Chugh 2014). One of the main arguments of the thesis is that those activities can be done by applying Service Design, something that can be witnessed increasingly in various engagements of entrepreneurs with service design such as consultations e.g. Kimbell (2009), social enterprise (Thorpe and Gamman 2013) and enterprise education (Garcia et al. 2017, Kuzmina et al. (2016).

Within the frames of that engagement with Service Design the entrepreneur goes through a design process. This process is comprised of individual activities that framed as steps within

a broader inquiry (Nelson and Stolterman 2003) help build up knowledge about the object of design, namely the service concept, the service process, or the service system to support it operationally and strategically (Secomandi and Snelders 2011). Not all of the activities will necessarily lead to entrepreneurial learning- contributing to the identification and exploitation of opportunities, or helping entrepreneurs manage small businesses (Wang and Chugh 2014). Some could for example involve familiarising a designer to the offering or the initial idea itself, or making incremental changes to a web interface that does not necessarily constitute entrepreneurial learning. Equally some of that knowledge will clearly be entrepreneurial, since core functions of service design are aligned to the identification and exploitation of opportunities such as creating a product-market fit and understanding the user's needs. Additionally, other outputs of service design such as the specifications of different aspects of a service can support managing the delivery of these services.

In order to be able to evaluate the contribution of service design to entrepreneurship, we need to be more articulate with regards to the new knowledge it helps generate and the way that this knowledge relates to entrepreneurship. The most relevant constructs from the literature review that help unpack this research area are summarised in table 5. below. The function of the conceptual model in the thesis is to present the researcher's understanding of the situation and introduce the system of concepts that support and inform the study (Maxwell 2012, Miles and Huberman 1994) informing the research questions and the research design.

The experiential learning theory (Kolb 1984) is used as a theoretical framework to take advantage of commonalities between the two fields (e.g. Chow and Jonas 2008, Politis 2008). In more detail Chow and Jonas use Kolb's theory to frame the design process as a process of inquiry focusing on three domains, namely Analysis, projection and synthesis. Within each of those domains a micro-learning cycle takes place, accumulating information about the object

of design. These learning cycles are framed on the basis of Kolb's model as research, analysis, synthesis realisation. This allows us to use analytical abstractions that pre-exist in both fields making the study more parsimonious while linking the two literatures more organically.

Secondly Kolb's model can be used to synthesise the two dyads of learning types put forward (Wang and Chugh 2014) as core to the domain of entrepreneurial learning, namely intuitive and sensing learning and exploratory and exploitative learning. Intuitive and sensing learning mirror ways of grasping experience in Kolb's theory, while exploration and exploitation relate to the process of transformation of experience to knowledge. In more detail, intuitive and sensing learning are seen as parallel to the concepts of concrete and abstract learning dimension in experiential learning theory (Cook et al. 2009). In concrete thinking we base actions on insights on the basis of sensations without the need for analytical thinking and rational inquiry. Kolb categorises knowledge generated through concrete thinking into accommodating knowledge- based on an intuitive feel of the situation and diverging knowledge based on reflection on a sensory experience. The second dyad of concepts put forward is that of exploration and exploitation, which have been used to unpack the process of transformation of experience (Politis 2005) - evaluating experiences and transforming them to knowledge. Essentially one can replicate previous actions that were successful, using previous experiences and knowledge, or explore new domains, outside their previous knowledge and experience base. Exploratory learning is then seen as the learning that results from this process of creation of alternatives or departure from the safe knowledge base of the entrepreneur, while exploitative learning is seen as learning as a result of planning and control based on existing knowledge or previous experience. These theoretical categories provide us with the vocabulary to capture and interpret the kinds of knowledge generated in the phenomenon under study.

Key challenges in entrepreneurial learning research (Wang and Chugh 2014)			
How to develop the skills and resources required to explore and exploit opportunities. exploratory and exploitative learning		How entrepreneurs learn in exploring and exploiting opportunities intuitive learning (learning through abstract conceptual thinking) sensing learning (learning through understanding and analysing facts)	
The relevance of a Service Design process - Examining the function of each activity in the design process (Chow and Jonas 2009)			
“Domain of knowledge” it relates to The current situation The ideal situation The realistic implementation		Contribution to the micro-learning cycle in that specific domain Data gathering Analysing collections of data Creating models or representations Creating a tangible outcome	
New knowledge is the result of the transformation of previous experience – something must be “done” with it to produce knowledge. Exploration and exploitation represent the fundamental logics of how entrepreneurs respond to experience, shaping the way it is transformed to knowledge (Politis 2005)			
Exploratory learning: Being open to alternatives different to familiar experiences (Politis 2005)- Generation of enough variations to accomplish the desirable results		Exploitative learning: Drawing from familiar experience (Politis 2005) - Directed search that can be planned to limit the variations generated , “deepening insights as experience increases” (Wang et al. 2014)	
Transformation of experience			
Based on concrete experience		Based on analytical thinking	
Sensing: “Sensing learning involves learning by knowing facts or details based on external contacts through sights, sounds and physical sensations” (Wang et al. 2014)		Intuitive: “Abstract learning by knowing relationships of facts through a high level of conceptual thinking and discovering possibilities” (Wang et al. 2014)	
Feeling and doing	Feeling and watching	Thinking and watching	Thinking and doing
Accommodating knowledge: As a result of experiencing an action. Based on an intuitive feel of the situation E.g. Adapting to changing circumstances	Diverging knowledge: Concrete learning as a result of reflection on sensory experience E.g. Alternating perspectives to view a situation	Assimilating knowledge: Inductive model building based on observations - theory building E.g. Integrating disparate observations	Converging knowledge: Using an abstract model or a theory to inform action E.g. Practically applying an idea
The output of entrepreneurial learning: entrepreneurial knowledge			
Entrepreneurial knowledge seen as knowledge that contributes to: <ul style="list-style-type: none"> increased effectiveness in opportunity recognition, increased effectiveness in overcoming obstacles when organising and managing new ventures examples: access to specific suppliers, knowledge of a new technology, managerial competence			

<ul style="list-style-type: none"> • • 			

Table 5: Examining experiential learning in design engagements - a conceptual model based on the literature

2.5 Research questions

Extant research has identified the potential of service design for entrepreneurship (e.g. Kuzmina et al. 2016, Garcia et al. 2017) and some early coordinates as to what the contribution of this practice may be. The objective of this study is to fill the gap in the literature with regards to entrepreneurial learning in service design engagements, extending the discourse on entrepreneurial learning in this novel domain. The previous section introduced a conceptual framework that synthesises relevant constructs from the literature to frame entrepreneurial learning as experientially acquired, shaped by the dominant logic and

dominant mode of learning activated, resulting to entrepreneurial knowledge (Politis 2005, Corbert 2007, Dimov 2007). Moreover, the constructs of domain of knowledge and the cycles of micro-learning from the design literature (Chow and Jonas 2009) are included because of their fit with the purpose of the study, which is to systematically reflect on the function of design activities. The following research questions stem from that conceptualisation of the literature, with the aim to provide direction to the research, connecting previous theoretical work to the data to be collected.

- RQ.1. What is the focus of service design activities in entrepreneurship?
- RQ.2. What types of entrepreneurial knowledge are generated through service design activities?
- RQ.3. How does the transformation of experience to entrepreneurial learning take place in service design?

The first question seeks to address the way service design is applied in the context of entrepreneurship in terms of the domain of knowledge it contributes to and how that is achieved (Chow and Jonas 2009). More specifically the Service Design process in each of the engagements will be deconstructed into the individual activities it is comprised by, using the MAPS framework (ibid) to answer two main questions. Firstly, what is the domain of knowledge each activity focuses on- namely the current situation as it is (Analysis), a future projection (Projection), or a synthesis of these for the purposes of implementation (Synthesis)? Secondly, for each activity, the application of the MAPS framework will allow us to comment on which of the four learning steps it contributes to, namely, research, analysis, synthesis, or realization (ibid p. 4). This will provide us with an overview of the structure of the Service Design processes applied for entrepreneurship.

The second research question shifts focus from the process to the outcome, allowing us to consider the types of new information and insights that are typically generated through Service Design. To capture this, the theoretical construct of entrepreneurial knowledge is mobilised, defined as knowledge that increases the effectiveness of entrepreneurs in identifying opportunities and dealing with the liabilities of newness of emerging organisations (Politis 2005).

Finally, the third research question draws from the theory around experientially acquired entrepreneurial learning to specifically capture the way service design facilitates the transformation of experience to knowledge. As discussed above transformation of experience has been operationalised in different ways in entrepreneurship research. For this study we adopt a composite view of the construct, commenting on two different aspects of transformation of experience. Firstly drawing from Politis (2005) the study captures the dominant logic of entrepreneurs when responding to or acting on the basis of new knowledge. This will be valuable in understanding if and how service design enhances the ability of entrepreneurs to explore and exploit opportunities. Secondly we will apply the concept of transformation to comment on the nature of the interaction of individuals with a learning situation, commenting on the types of learning that took place, drawing from Dimov's (2007) analysis.

This learning oriented sensitising framework will allow us to capture nuances in learning in Service Design that have not been captured before, while linking it theoretically with the entrepreneurial learning literature.

2.6 Conclusion

Chapter two presented research on the fields of entrepreneurship and service design, focusing on aspects of the two literatures that relate to the research area identified, namely examining

the contribution of Service Design in entrepreneurial learning. Moreover a conceptual model was developed synthesising elements of that literature to inform the research questions. It reflects the main challenges currently faced in the domain of entrepreneurial learning research, positioning the enquiry around service design at the heart of that discourse. Additionally it puts forward a system of theoretical concepts -drawing from experiential learning theory primarily- that will be used to operationalise entrepreneurial learning in the study, namely entrepreneurial knowledge, dominant logics, dominant learning modes and stages of learning in three learning domains. The research questions reflect those considerations and focus on three main aspects of the research area, namely understanding the process of Service Design as it is applied for entrepreneurship, the outputs of that process in terms of knowledge, and the way it contributed to the development of that knowledge.

The following chapter presents the research design mobilised to collect and analyse data to address these questions, framing the enquiry philosophically and methodologically.

3 Methodology

3.1 Introduction to the chapter

This chapter aims to present and justify the research design and methodology adopted in the study in order to address the research questions. Moreover it intends to provide enough information on the way the study was conducted so that other researchers are able to replicate the study in to build on and expand this line of inquiry.

The previous chapter presented literature that relates to the research area identified, on the processual and learning lenses in examining entrepreneurship, as well as the practice of service design. It concluded with a conceptual framework that frames the inquiry and informs the research questions. These questions help link the literature with the data used in this study providing direction for both data collection and analysis. The broader question articulated in the previous chapter was understanding how entrepreneurial learning occurs in service design. This is framed as a two step inquiry, namely firstly looking at the activities in which entrepreneurs are engaged in during such engagements and secondly capturing the way these activities shape the transformation of experience to new knowledge.

To that end the first research question focuses on the process or structure, of the activities, placing emphasis on capturing and adequately describing service design activities in terms of their function within the design process. The second places emphasis on the outcomes of these processes in terms of knowledge – what types of knowledge are generated?- and learning- what is the dominant logic in the activities? What are the dominant modes of learning?

Acknowledging the significance of reflecting on the way data and theory relate in the study of social phenomena (Easterby- Smith et al. 2008) this chapter aims to frame the inquiry philosophically and methodologically. The chapter is structured as follows; firstly the interpretivist perspective is presented and justified. Secondly, the research design and the rationale behind it is articulated. Thirdly, the research procedures followed to create the account of the phenomenon are described, and finally the sources of data used are described.

3.2 Adopting an interpretivist perspective

The field of entrepreneurship is a relatively young academic field (Bygrave 1989; Low 2001, Wang and Chugh 2014) that has become more popular in the last few decades gaining the attention of scholars from diverse fields (Acs and Audretsch 2003; McDonald et al. 2006, Wang and Chugh 2014). Although as a result there are various types of constructs mobilised to study the phenomenon, traditionally entrepreneurship research has drawn from a positivist stance to research (e.g. Davidsson 2003) influenced by trends in management research more broadly. This approach assumes that social phenomena much like the physical world operate according to laws, with the intention being to understand and model those laws as a way to understand the social world (Bryman, 1988). The nature of reality is considered objective with research aiming to explain and predict that reality. Research drawing from this perspective is characterised by data collection through large scale surveys that aim to

measure as accurately as possible aspects of the phenomenon, to link cause and effect and shape generalisable theory. This approach to research in entrepreneurship is supported by the view that such consolidated efforts that use similar approaches and constructs contribute to the development of the field overall, building up a testable knowledge base, which has contributed to a relatively low level of methodological diversity (Neergaard and Ulhøi 2007).

Increasingly in the last two decades this trend seems to change with major publications being more open to new approaches to examining the phenomenon (Gartner and Birley, 2002). Studies adopting phenomenological and interpretivist approaches have advanced our understanding of entrepreneurship significantly (Suddaby et al. 2015) and are increasingly seen as potentially the only way to address certain aspects of the phenomenon that are emerging, context specific and highly social (Gartner and Birley 2002).

For this study this broader view of entrepreneurship is acknowledged, viewing it as a complex social construct with various manifestations that can be better understood through the application of different ontological and epistemological lenses. The study adopts an interpretivist perspective justified by the nature of the research problem identified and the literature review conducted (Aldrich 1992). In more detail, adopting an objectivist perspective in unpacking the research question would not be appropriate since the researcher cannot be independent from the study of knowledge creation in such a novel context, it is more appropriate for the researcher to use their intuition and reflection with the aim to increase the level of understanding of the situation rather than to demonstrate causality. To do that the study aims to capture instances of personal experience within the context of the design process and link those to the stories and meanings that the participants assign to them. The interpretivist approach draws from the reflection of individuals on their experience which is more appropriate given the nature of the phenomenon under study. It is based on the

argument that the study of social phenomena can be done effectively through capturing the meanings and interpretations people ascribe to them as a way to understand them and their actions (Johnson et al. 2006). This approach is especially appropriate in a novel context, making an account of people's constructions of meanings in a setting that has not been explored before. The view is adopted that an account of the phenomenon of learning in service design, should be grounded in participant's self-understandings of the engagements and the benefit the value it created for them. Ontologically, adopting this paradigm involves assuming a socially constructed nature of reality, which is shaped intersubjectively by the meanings people develop socially and experientially and ascribe to phenomena. The implication for epistemology is that there can be no separation between reality and our knowledge of it, stressing the importance of the values of the researcher in the investigation with truth being the outcome of a dialogue and a representation of realities intersubjectively. It is acknowledged that all interpretations are grounded on a specific situation and time and are open to re-interpretation through discussion. (Neergaard and Ulhøi 2007).

With this in mind an interpretivist study aims to understand by making rich accounts of phenomena rather than explain the laws that govern them. To achieve that naturalistic methods are adopted, namely interviews, observation and the analysis of texts, detailed in section 3.4. below. To understand and represent these interpretations, the researcher generates rich descriptions that preserve these meanings (Gephart 2004) using them to make an account of complex phenomena. In order to embed the findings to existing research in both fields, two theories discussed in the literature review above are used to represent and analyse the data, providing a structure to the inquiry. The first one is experiential learning theory (Kolb 1984), which is applied to make a nuanced account of the way new knowledge comes to be in the engagement of entrepreneurs in Service Design. The theoretical constructs of dominant logic and learning mode were mobilised to make a novel knowledge-oriented account of the

process of service design in this context. The second theory is the Model – Analysis – Projection – Synthesis framework (Chow and Jonas 2009) which draws from experiential learning theory and helps deconstruct each service design engagement in knowledge oriented way, looking at the domains of knowledge each activity relates to and its contribution to the micro-cycle of learning for each one. Remaining faithful to the philosophical approach adopted, it is acknowledged that the research process is dynamic and the aim of interpretivist research is to develop theories that are grounded in the experience of people, rather than making ontological assumptions about what is real (Leitch et al. 2010, Cope 2005). For this reason the use of these two theories are used mindfully, primarily to represent and analyse the data, allowing for rich interpretation based on the meanings shaped by participants, based on openness to emerging themes. How this is implemented in the study is reflected in the research design discussed below.

3.3 Research design

The previous section discusses the theoretical stance adopted in the study discussing the ontological and epistemological assumptions made to approach the problem. This section presents the overall research design adopted, detailing the set of methods and procedures applied to collect and analyse the data specified in the research problem to generate knowledge. The main research strategy applied is a case study design, supported by an early exploratory pilot study. The function of each part of the study is summarised in table 6. below. A case study is defined as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (Yin, 1984, p. 23)

As a research strategy, case studies can take various forms, the choices made for the design of this study were based on the nature of the research questions (Yin, 2009). Firstly, the design is a multiple case design. This was done for two reasons, firstly to cover the theoretical categories identified in the literature, as well as to improve external validity. In more detail, two main categories of service design engagements in entrepreneurship were identified in the literature, namely enterprise education and consultations. These represent two different contexts in which the phenomenon can be studied which formed the basis for the sampling of cases. Sampling was as a result theoretical-purposive (Yin 1984) to cover these manifestations of the phenomenon. Moreover these two contexts provide an opportunity for two different types of entrepreneurs to be represented in the study, namely start-up and established entrepreneurs. These perspectives improve the evidence base of the study and allow for a richer account of interpretations of the contribution of service design. Furthermore, multiple case studies were used to ensure external validity of the study, by reducing the possibility of misjudging or misrepresenting the phenomenon under study (Yin 1984).

The case studies were followed by a description of the data through thematic analysis and analysis using the MAPS framework followed by interpretation considering the existing literature primarily in chapter five conclusions and implications. The research procedures adopted to describe analyse and interpret the data collected are described in the next session.

Description	Function in the study
Theoretical underpinnings	
Literature review	
Entrepreneurship Service design	Delimitation of scope of the research area, positioning the study Identifying related theoretical constructs Building a conceptual model which informs the research questions
Sources of data	
Pilot study	
In depth interviews with twelve entrepreneurs and five designers involved in projects with entrepreneurs	Testing early assumptions and the applicability of theoretical constructs Re-shaping research questions
Case studies	
Service Design in enterprise education- An account of two enterprise education programmes which apply service design to help start-up entrepreneurs develop enterprising skills. In-depth interviews, observation, documentation.	Describing modes of application of Service design for enterprise education Describing the design process and the function of individual activities Inferring the types of entrepreneurial knowledge generated Capturing the role of service design in experientially acquired entrepreneurial learning – dominant logic, dominant learning modes prompted
Service Design consultations An account of eight service design workshops with three established entrepreneurs In-depth interviews, observation, documentation.	Describing an approach to applying Service design to support established entrepreneurs Describing the design process and the function of individual activities Inferring the types of entrepreneurial knowledge generated Capturing the role of service design in experientially acquired entrepreneurial learning – dominant logic, dominant learning modes prompted
Description of data	
Description and Coding stage 1.	Description of sources in section 3.5. Description of the raw data in case accounts (Chapter 4) Identifying key themes through thematic networks (Examples in appendices)
Use of the MAPS framework to capture the structure of each service design engagement	Capturing the function of individual activities as well as the nature of the overall design process (Chapter 4 chronological tables of activities, MAPS tables for each case and across each case study)
Analysis	
Coding stage 2.	Using the conceptual framework developed through literature review to code and organise data per research question (Chapter 4 – Within-case analyses, synthesis across each case study and synthesis across case studies.)
Interpretation	
Reflection and synthesis of insights with reference to theory	Post analysis reflection of the pilot study and each case study (Chapter 4), connection of findings from the analysis to the literature (Chapter 5) synthesis of emerging themes around the research area overall (Chapter 5)

Table 6: Overview of the research design

3.4 Research procedures

This section summarises the research procedures followed during the collection and analysis of the data used in the study.

3.4.1 Data collection

In order to respond the research problem, fieldwork was conducted with the intention of capturing two aspects of the phenomenon under study, firstly, the structure and function of service design engagements and secondly their impact on entrepreneurial learning. Consistent to the interpretivist theoretical stance adopted in the study, the data collection techniques all fall under the category of naturalistic inquiry, which involves observing, describing and interpreting experiences of groups of people within their societal and cultural context (Armstrong 2010). That mode of inquiry is selected to align to the assumptions made about the nature of social reality in section 3.2. It can be contrasted for example to inquiry based on a positivist world-view that would require methods such as a quantitative analysis of longitudinal data. Given the lack of well established measures around learning in this specific context, as well as the nature of the phenomenon which is highly personal and subject to interpretation such data cannot be collected. For that reason three main data generation methods were used, namely in-depth interviews, observation and the analysis of documents including design tools and other related material. The main data collection methods for case study research are interviews, direct and participant observations, documentation analysis and physical artifacts Yin (2013). Collecting data from multiple sources is important for case study research as it allows the triangulation of evidence adds to the substantiation of constructs and inferences (Eisenhardt 1989).

The data collection methods used are discussed in turn below to provide the reader with a detailed understanding of the procedures followed in data collection for this study.

Interviews

In studies adopting an interpretivist stance interviews represent a very important part of data collection, along with observation, since the fundamental assumption is that reality can be

accessed through the social construction of language. Language is valid data in such studies, since it allows the generation of rich data that reflects the perceptions and values of the participants reflecting the importance they give to different aspects of their experience. (Newton 2010, Ritchie et al 2013). The main goal of the interviews was to generate theory inductively acknowledging the situated and contextual nature of the phenomenon. To achieve this measures were taken to capture nuances of the context in which the discussion was taking place, while avoiding the use of jargon or theoretical terms that could lead the discussion or confuse the participants. As far as they were concerned the study was broadly on the application of service design in entrepreneurship, without any mention to learning. My goal was to capture how they integrated the service design activities in their own narrative about their broader entrepreneurial process.

Interviews were used in all stages of the study as the main method of capturing the perspectives of various sets of participants as detailed in the research design. All interviews conducted were in-depth interviews, defined as “*conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular idea, program or situation*” (Boyce and Neale, 2006, p.3).

Semi-structured interviews were selected as an appropriate method of data collection, using a pre-defined interview guide with a small number of open ended questions that provided the researcher with a structure for the analysis stage and sets of comparable data. The questions on the interview guide were answered by all of the interviewees within each stage of the study-the pilot and the two sets of case studies. These questions allowed for the main themes of the study to be covered such as articulations of early entrepreneurial processes or the types of service design activities participants had participated in. Based on the responses to those core questions, follow up questions were asked to capture a more nuanced view of the

participant's experience and add texture to the data collected. These questions were of equal importance and created the space for new themes for investigation to emerge while providing participants with the opportunity to reflect on their learning in their own words. This was critical since the validity of an interview can be assessed by the extent to which the opinions and experience of the participant was truly reflected, including addressing the rich context that informed them (Punch, 2013).

This type of interview was also appropriate because at least for the pilot study and the enterprise education case studies there was a chance that the researcher will not have another opportunity to interview most of the participants. It was seen as the most appropriate way to capture the voices of the participants in a way that would allow me to construct a compelling and convincing research narrative given the limitations of the study.

Before each interview participants were provided with an information sheet and a consent form, and were briefed on the overall project as well as the particular part of the study they participated in. This helped build rapport and making sure they feel it is a safe and non-threatening environment ensuring confidentiality. To record the data from the interviews a combination of notes and audio recording was used.

Observations

Observations are one the most common data collection techniques in interpretive research, being an effective tool for collecting information about people cultures and processes. It is defined as "the systematic description of events, behaviours, and artifacts in the social setting chosen for study" (Marshall and Rossman 1989 p.79) allowing the researcher to make a detailed account of a situation on the basis of their senses gathering information about the behaviour of participants.

In case study research observations are a key element of case study evidence as they allow capturing behaviours and environmental information with regards to the phenomenon. Two types of observations are prevalent in case research, namely participant observations where the researcher becomes embedded in the phenomenon holding a specific role in the phenomenon and direct observations where the researcher is not involved in the phenomenon under study adopting a neutral, unbiased stance, to ensure that personal preconceptions do not affect the subjective inferences derived from the data (Yin 2013).

In developing the case studies around service design consultations direct observations were made using an observational instrument developed as part of the case study protocol to help me assess the occurrence of specific types of behaviours in the field (Yin 2013) namely the way service design tools were applied for example looking at the materials used, and the way the designers facilitated the session, as well as on the way the tools were received by the entrepreneurs in terms of the way they engaged with them to generate new insights about their venture. Field notes were also kept during the observations which acted as a running commentary of what was happening in the consultations.

Documentation

Documentary information is relevant to all research topics that investigate activities that produce a trail of written information and represents a commonly used evidence base in case study research. Documents provide an exact source of information with a broad coverage that can be reviewed repeatedly to enhance case study development and are this seen as a fundamental type of data for case study research (Yin 2013). Such documents can include for example project related documents, letters, newsletters or annual reports. While it can represent a core type of data collected, documentation data is primarily used to augment evidence from other sources (Yin 2013).

The documents that were used in this study included online blogs, websites, slideshows and wikis as well as material used during the service design engagements under study such as service design templates. With regards to the entrepreneurship education case studies, documentation was used primarily in order to corroborate information and make inferences about the structure of the programmes under study – NightRiders and YearHere. With regards to the service design consultation case studies document analysis was used to gain an understanding of the entrepreneur’s ventures before the consultations, for example looking at their purpose statements and offering online and to review the activities conducted during the sessions- looking for example at the documents produced such as a service walkthrough, value proposition breakdown or user experience map.

3.4.2 Data analysis

The data collection procedures described above resulted to a large and diverse body of data gathered through observing, enquiring and examining existing material. This section describes the procedures applied to make sense of the data, transforming them to intelligible accounts that contribute our understanding of the phenomenon. Wolcott’s model of description, analysis and interpretation (1994) was adopted in the study as a way of working with the data, moving from raw data to a rich, learning oriented account of the engagements examined that help address the research questions.

The term description refers to the creation of accounts that stay as close to the data as originally recorded, giving a voice to the participants and allowing the data to speak for themselves. The thematic analysis using the thematic networks technique described below was central to this process. This technique can be contrasted to adopting a quantitative approach to thematic analysis which would include considering for example the frequency of certain terms in the text as a way to approach and understand the data. In contrast the

approach adopted at the stage of description lacks this quantitative focus and rather makes connections based on themes and meanings participants expressed. This is a key part of the method adopted since it helps shape the emerging range of codes that will be used in analysing and interpreting the content of the data collected. In the study description takes the form of an introduction to each source of data in section 3.5. below, followed by an account of the data in sections 4.2 and 4.3. These accounts include a detailed description of individual activities as well as the presentation of quotes that reflect main themes that emerged from the thematic analysis. The process of analysis was then based on that description, during which the data were organised in a systematic way based on the research questions. In more detail, to address the first research question, the structure of the service design engagements was organised chronologically and using the MAPS framework described below. To address the second research question the thematic networks and the MAPS analysis were used to elicit the manifestation of new knowledge, both explicitly in language as well as implicitly through engaging in the design activities. Finally theoretical constructs from the experiential learning theory were applied to organise findings around the dominant logic and dominant learning modes prompted in the consultations. Finally, based on the description and analysis described above, interpretation involved looking at the research area more holistically identifying emerging themes from the data and linking them back to theory to reflect on the research areas as a whole. This is done in chapter 5. Conclusions and implications. Table 7 below summarises the application of the Description – Analysis- Interpretation model in the study.

D-A-I Framework	Application in the study
Description	Describing the raw data in detailed case accounts, focusing on the themes that emerge from the text/observations. The description of the data collected is presented in section 3.5, chapter 4 and the appendices.
Analysis	Organising data around the key theoretical constructs identified as relevant during the literature review. The focus is on the relevance of various themes to the research questions. The analysis of data is presented in chapter 4.
Interpretation	A broader synthesis of the insights on the problem area using

	inductive reasoning with reference to the theory used and existing literature. The interpretation of data is mainly discussed in chapter 5. on the conclusions and implications of the study.
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Table 7: Application of the Description – Analysis – Interpretation model in the study

The process of analysis for the pilot study and the two case studies is summarised below:

Pilot study:

Transcription

Coding 1. Emerging themes based on the transcript - thematic networks

Coding 2. Themes based on lit review

Insights from each interview individually

Synthesis of insights across the interviews

Case studies:

Interview transcription

Coding 1. Emerging themes based on the transcript - thematic networks

Application of the MAPS framework to capture the structure of the design process

Coding 2. Themes based on lit review

Insights from each interview individually

Synthesis of insights across the interviews in a case

Synthesis of insights across cases

Workshop:

Workshop transcription

Interviews transcription

Coding 1. Emerging themes based on the transcript- thematic networks

Application of the MAPS framework to capture the structure of the design process

Coding 2. Themes based on lit review

Insights from each workshop individually

Synthesis of insights across the interviews in a case

Synthesis of insights across workshops

Each of the processes are discussed in more detail below to provide the reader with an understanding of the analytical approach used in the study.

Transcription

In total, nineteen entrepreneurs eight designers and a representative from a funding body where interviewed in depth throughout the fieldwork of the study. All interviews considered in this study have been self transcribed by the interviewer as soon as possible after the interviews were conducted. This allowed for contextual notes to be added to the raw material to provide additional texture to the raw data. The transcription was done using the NVivo software for qualitative analysis.

Observations

In the case of workshops, a significant part of the data collected were the transcriptions of the audio and video taken, as well as the notes taken during the workshops. The role of the researcher in this stage of the research project was that of the organiser and the observer. In more detail the researcher made sure the designers and the entrepreneurs had everything they needed to run the intervention, participated in the “check-in” process run by the designers as an introduction to the sessions and whenever was asked the researcher had a limited amount of input in terms of the timing of activities to the extent that those related to running the sessions.

Coding 1. Using thematic networks to facilitate the analysis

Thematic networks is a technique of organizing the analysis of textual data gathered during data collection. The aim of thematic analysis is to elicit the recurring themes at different levels in a text, and thematic networks aim to make structuring and visualising that data more consistent by describing a set of steps in going from text to interpretation (Attride-Stirling 2001). It is used as a tool in the study as a organizing principle to facilitate the illustration of findings their further analysis.

Thematic networks organise themes identified in a text on the basis of three classes, namely, basic, organising and global themes. Basic themes are statements or beliefs based on a central notion that individually is not representative of the text as a whole. Multiple related basic themes provide the context for an organising theme. Organising themes are more abstract and more revealing of the text than basic themes. They cluster and summarise a set of basic themes allowing the researcher to break down the assumptions related to that theme enhancing the meaning of a higher level theme, the global theme. Global themes are the centre of a thematic network, representing an argument, or a position about a phenomenon.

They are used to summarise and interpret the lower level themes, revealing the meaning of the text in the context of the current analysis. Depending on the complexity of the data and the aims of the analysis a text may produce multiple global themes.

The output of the process is a series of thematic networks, or groups of themes, that are not themselves the analysis, but a tool for further analysis of the text by identifying patterns. It aims to help the researcher re-read the material in a more structured way and help the reader form an idea of the content of the material on which they can anchor the researchers interpretation of the data.

Steps taken for the thematic networks

Following the overview of the technique by Attride-Stirling(2001)the following six steps were taken to conduct thematic networks analysis of the data gathered:

Stage A. Breakdown of text

Step 1. Coding the material

- (a) Devising a coding framework
- (b) Dissecting text into text segments using the coding framework

Step 2. Identifying themes

- (a) Abstract themes from coded text segments
- (b) Refining themes

Step 3. Constructing Thematic Networks

- (a) Arranging themes

- (b) Selecting basic Themes
- (c) Rearranging into organizing themes
- (d) Deducing global themes
- (e) Illustrating as thematic networks
- (f) Verifying and refining the networks

Stage B: Exploration of text

Step 4. Describing and exploring the thematic networks

- (a) Describing the network
- (b) Exploring the network

Step 5. Summarizing the thematic networks

Stage C: Integration of exploration

Step 6. Interpretation of patterns

The thematic networks was a valuable first step in understanding the data, and draw initial conclusions with regards to patterns such as types design approaches mentioned and statements on the benefit of these approaches . Most importantly this material helped me create a map of the content of the raw data, which allowed me to be able to engage with the narrative of each of the study stages even after long periods of interruption.

Coding 2. Applying a theoretical framework

In the second stage of coding, I applied the theoretical framework discussed in section 2.4 above, creating a coding scheme to capture constructs that relate to the entrepreneurial process and learning. At this stage, I used the representation of the data developed through the thematic frameworks approach to help me navigate the raw data, and focus on parts of the interviews that related to the constructs under discussion.

Application of the MAPS framework

Another important part of the analysis was deconstructing the design engagements by analysing individual activities and their function as part of the engagement. The activities were categorised based on the Matching Analysis Projection Synthesis (MAPS) framework (Chow and Jonas 2009) which allows the systematic categorisation of design activities on a generic design process model viewing design as a process of inquiry and action. The design process is broken down to different activities that contribute to a wider inquiry combining induction – or analysis, abduction or projection and realization or synthesis.

Initially, the activities were categorised based on the domain of knowledge they contribute to (Nelson and Stolterman 2003) i.e. whether the activity is focusing on understanding the current situation, exploring potential directions or shaping a design. Secondly drawing from Kolb's experiential learning model (Kolb 2014) they were categorised based on the contribution of the activity in the micro-learning cycle about that specific domain i.e. whether the activity aimed at generating data, analysing collections of data, creating models or representations or some sort of tangible outcome.

The steps for applying this framework to the analysis of the case studies were the following:

Deconstruct the design sessions for each case study into activities

Categorise activities in terms of the domain of design inquiry they belong to, namely Analysis, Projection or Synthesis.

Categorise activities in terms of the micro-process of learning they belong to namely research, analysis, synthesis, realization

Identify elements of activities that relate to communication- facilitating the flow of the sessions.

Each step is discussed in more detail below:

For the purposes of this analysis, an activity is defined as a section of the session that had an explicit discernible goal or function within the design process. In most cases, activities were punctuated by clear descriptions by the designers as a way of facilitating the process. Each activity was evaluated based on whether it primarily focuses on the situation as it is (Analysis), as it could be ideally (Projection) or as it shall be given the various restrictions the entrepreneur faces such as time or capacity limitations (Synthesis) (Nelson and Stolterman 2003, Chow and Jonas 2009).

Then each activity was evaluated on the basis of the micro-process of learning it relates to, the stages of which mirror the experiential learning theory (Kolb 1984) which has informed various articulations of the design process (Chow and Jonas 2009). These stages are data collecting- (research), analysis of collections of data (analysis), a representation a defined system of factors (synthesis) and (realization). Each of the phases is further detailed and exemplified within the context of each of the domains of design inquiry in table 8. below. The x axis represents the three main domains of knowing in design (Nelson and Stolterman 2003), namely knowledge about the current situation (Analysis), knowledge about the ideal situation (Projection) and knowledge about implementation of potential solutions (Synthesis).

Each of these processes is further broken down in learning steps (Kolb 1984) on the y axis to capture the various levels of design as an inquiry. The communication layer is used to capture all the design activities that aim at facilitating collaboration as part of the engagements.

Each individual activity contributes to a learning cycle about one of the three domains of knowing. For example an individual activity may focus on generating data about the current situation, while another may focus on analysing collections of data on the current situation. In both cases the domain of knowledge is the same – the current situation- but the stage in the micro-cycle of learning is different. Additionally the dimension of communication is added to capture the ways in which these activities were delivered, how they were coordinated and how those involved were engaged in the process.

Unlike models of the design process that portray design as a well defined homogenous process (e.g. Design council 2005) the MAPS framework can represent various process models that have been adjusted to different contexts, such as Analysis and Projection or Analysis and Synthesis exercises that don't necessarily include all three elements of the process. This analysis provided a level of clarity with regards to the process the designers followed, the scope of each activity and the way it related to the current practice and aims of the entrepreneurs.

Although the above theoretical models cover a great spectrum of constructs, the following definitions from were also adopted in the interpretation and presentation of the entrecomp framework of entrepreneurship as a competence. This adds clarity to the research findings and aligns them to current research that aims to shape the practice of enterprise education.

Additional definitions adopted in the study	
Attitudes	Attitudes' are motivators of performance. They include values, aspirations and priorities.
Competence	Competence is understood as a set of knowledge, skills and attitudes

End user	An end user is the person for whom something was ultimately created or intended.
Learning outcomes	Learning outcomes are statements of what a learner knows, understands and is able to do after completion of learning. Such statements can be designed and used for educational planning and curriculum development or for different types of accountability such as legal accountability or professional accountability.
Resources	Resources are a term that encompasses personal resources (namely, self-awareness and self-efficacy, motivation and perseverance), material resources (for instance, production means and financial resources) or non-material re-sources (for instance, specific knowledge, skills and attitudes).
Skills	Skills are the ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments)
Stakeholders	Stakeholders are individuals, groups and organisations with direct and indirect interest in value-creating activity and its impact.
Value creation	Value creation is the outcome of human activity to transform purposeful ideas into action which generates value i.e. provides a benefit for someone other than oneself. This value can be social, or economic. Creating social value includes creating solutions to unsolved social problems and improving people’s lives by promoting social change e.g. the development of communities, increased job satisfaction, personal relationships or poverty reduction. Creating economic value includes increased profit, increasing the maximum amount of money a specific actor is willing and able to pay for the good or service, or offering other types of benefit that can lead to sustained competitive advantage, the creation of new ventures or business offerings.

(Entrepreneurial) Insight	The recognition of an opportunity for value creation through entrepreneurial activity that was previously unnoticed
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Table 8. Additional definitions adopted in the study

	research	analysis	synthesis	realization
Analysis	Gathering data on the existing situation e.g. Asking how many followers the company has on twitter	Analysis of collections of data on the existing situation. e.g. Discussing in detail how twitter is currently used as part of the service	Building a model of the existing situation e.g. Creating a persona to represent a type of existing user	Consolidating and aligning perspectives on the existing situation e.g. creating a business plan
Projection	Gathering data on potential future directions e.g. Considering projections about the number of people adopting emerging social media platforms	Analysing future trends and doing prognosis e.g. Considering the relevance of emerging social media platforms	Developing future scenarios e.g. Creating a storyboard of a use-case for a new service	Consolidating scenarios for the ideal future situation e.g. Presenting a polished vision for a new service internally within the organisation
Synthesis	Gathering data on requirements to be met e.g. Collecting data on available technologies	Analysing restrictions, making a list of requirements to be met e.g. Creating a design brief	Designing solutions based on the brief e.g. Testing and designing with users	Testing designs in the real world, deciding on implementation e.g. Prototyping a new service
Communication	Using moderation techniques, project management tools			

Table 9: Definitions of each MAPS category adjusted by Hugentobler et al. (2004)

Validation

In contrast to natural science, validation of research findings in interpretivist research cannot depend on any objective, external measures such as a validation of the research instruments of measurement used. Assessing the rigor and integrity of interpretive research involves understanding the way the researcher captured the data and how they were transformed to results, findings and insights (Gephart 2004), which is inherent in the way the research is conducted. The overview of the research procedures and the account of the analysis conducted above aim to address these aspects of the validation of the study.

Leitch et al.(2010) posit that such an evaluation additionally needs to include an ethical, substantive and researcher quality validation. According to this view, validity of interpretivist research cannot be demonstrated on the basis of external criteria at the end of a project, but rather needs to be embedded in the underlying research philosophy throughout the project. The three types of validation they suggest for interpretivist projects, namely ethical, substantive and researcher quality validation are summarised in table 3 and discussed in more detail below.

	Research design and data collection	Analysis	Interpretation
Ethical validation	<p>Moral stance: Responsible approach Committed to understanding the meanings participants ascribe to phenomena Supporting participants to be self-aware</p> <p>Practical value: Linked to the real life context - Intention to support the improvement of enterprise education highlighting how it can draw from the Service Design expertise Relevance to service design practitioners and educators</p>	<p>Giving voice to participants: All the participants views treated equally, no perspective is less important than others</p> <p>Choice of method: Remaining both faithful to, and critical of, the data and the theoretical perspective adopted</p>	<p>Generative potential: Opens up questions about improving entrepreneurial learning through service design Openness to emergent categories</p> <p>Transforming actions Introduces a new way to evaluate service design engagements</p>
Substantive validation	<p>Self-reflexivity: The initial process-oriented view on the topic is captured in the methodology and analysis chapters. Researcher’s prejudgments and pre-understandings are captured in the post analysis reflections embedded in the analysis.</p>	<p>Present disconfirming cases Paying attention to deviant (outlier) cases – such as the consultations with the third entrepreneur where designers could not fulfil the brief</p>	<p>Self-reflexivity Evidence of conceptual development Use of thematic networks- MAPS tables to trace the development of the emerging concepts Transparency Step by step synthesis of findings through the analysis chapter.</p>
Researcher quality	<p>Characteristics and attributes Good people skills; resilience; patience and persistence</p>	<p>Personal involvement: Catalysed the collaboration with Amity myself, conducted all data gathering myself, transcribed interviews myself</p>	<p>Rhetoric and persuasion Intending to communicate findings to both an entrepreneurship and a Service Design audience</p>

Table 10: Validation of interpretivist studies adapted by Leitch et al. (2010)

Firstly, the research is validated through a review of the moral stance of the researcher which needs to reflect a commitment to understanding meanings as they emerge in the real world. This is very intuitive for me and has been a core element of my research from the inception of the study. My intention was to capture the ephemeral character of entrepreneurship as a process and I had a hard time early on in my study when I tried to fit data from my pilot study to various existing stage or phase models of entrepreneurship (e.g. Davidson 2004). It occurred to me that for such diverse phenomena a focus on meanings and interpretations of the lived experience of individuals was more appropriate, and even more appropriate in a new context such as service design where context specific measures have not been developed.

This commitment to capturing meanings as they emerge is witnessed in this study at the stage of data collection, in my commitment to supporting self awareness in participants, allowing them to express their experience without imposing jargon and prompting them to elaborate on their statements following the long interview technique (McCracken 1988). Participants were asked to reflect on the engagements and activities in their own words, which gave them voice and allowed me to capture their representations of the various aspects of learning.

Similarly at the stage of analysis my intention was to identify themes and categories that are relevant to my research objectives, without allowing the theoretical lens of experiential learning dominate over the emergent categories that were grounded in the raw data. These categories are discussed separately as they reflect significant concepts and categories which the participants used to interpret their experience for example the concept of a design mindset discussed in the conclusions.

Another aspect of the study that is pertinent to the ethical validation of the study is the generative and non-dogmatic character of the findings, which intend to make us more articulate about the phenomenon of learning in service design engagements rather than generate formative statements to “close” the subject. The findings aim to allow us to create better questions that will expand our understanding of both experiential learning in entrepreneurship as well as informing the practice in this space, improving the ways service design is applied to support entrepreneurs, simultaneously answering the practical “so what” question.

The second aspect of the validation of interpretivist studies according to Leitch et al. (2010) is substantive validation which involves including a self-reflexive account in the written report of the study. In this study this reflection is included in the x part since it belongs more organically in the discussion around the findings. It includes a reflection on popular understandings of service design as well as personal biases that affected the way I approached the topic initially, as well as an account on how this changes through the study. Very briefly, this includes assumptions about the nature of the phenomenon itself- started with a purely processual lens, expectations with regards to the findings affected by popular discourse around design thinking more broadly. In that part of the thesis also provides the reader with an account of the characteristics that were mobilised in the research, while demonstrating my personal involvement with the research project which is necessary for the researcher quality validation of interpretivist research (Leitch et al. 2010).

Another element of substantive validation is presenting disconfirming cases and demonstrating openness to deviant cases. In this study this is evidenced in the discussion around the third entrepreneur in case study 2, where the third workshop did

not happen because of difficulties in responding to the brief put forward by the entrepreneur.

Substantive validation involves presenting evidence of conceptual development in the study, linking the raw data, with the emerging categories and the final interpretations. The process of evidencing conceptual development is described in section 3.3. on research design above and executed in sections 3.5 where the data are introduced, 4.3 where the cases are analysed and chapter 5 where a more extensive interpretations takes place. To further evidence the conceptual development in the study three excerpts from interim informal reports developed for supervision purposes after the analysis of each study are included in chapter 4. They demonstrate how questions around the research area evolved as the data were being collected and analysed.

Finally, to provide more context for the lens through which the data was analysed throughout the process of data collection and interpretation, some relevant information about the background of the researcher is presented here briefly. Firstly the academic background of the researcher is interdisciplinary including marketing and innovation management as well as entrepreneurship. This positions the researcher primarily as an entrepreneurship academic with a background in other aspects of management which is likely to shape the aspects of the phenomenon that are seen as relevant to the study. Having said that a great deal of effort has been dedicated through the four years of the duration of the research project to engage with the design literature and practice through the participation in formal modules as part of an MRes degree, publishing at the Service Design conference, getting valuable feedback through the peer review process for the publishing in the Design Journal and attending other conferences, design summer schools and along with my supervisor Daniela Sangiorgi attending

meetings of the Service Design Network in the UK where best practice is shared among academics and practitioners and the agenda for research in this space is evolved. This provides me with the background necessary to conduct this interdisciplinary research project but limits my ability to comment for example on the rational of designers in terms of the areas in which they focused on through the engagements. A more design-led account of the interventions could have painted the practice more broadly in a different light.

3.5 Sources of data

The section describes the sources of data for the empirical study conducted. As discussed in section 3.5 above the study was conducted in three stages, starting with a pilot study followed by two sets of case studies covering two types of service design engagement, namely enterprise education and consultations. Table 10. below summarises the sources of data collected and their relevance to the study. Each part of the study is discussed in detail in the sections that follow.

Method	Participants	Function
Literature review	-	Shaping initial research questions. Primarily around the process of entrepreneurship
Pilot study	Interviews with Entrepreneurs: Established Entrepreneurs: Michael Baron- Lancaster Small Business network (startup) Frances Batten- Northen Social Enterprise network (startup) Sebastian Petit– Moor Tech	Exploring interpretations of the concept of process in entrepreneurship. Where there was experience with service design the study aimed at identifying areas of applicability of SD and contributions broadly. Reshaping research questions

	<p>Start-up entrepreneurs:</p> <p>Kate Appleyard</p> <p>Felix Bishop</p> <p>Gemma Brian</p> <p>De Caine</p> <p>Nadine Creamer</p> <p>Katherine Evans</p> <p>Sally Fowler</p> <p>William Green</p> <p>Diane Grant</p> <p>Interviews with Designers:</p> <p>John Halley</p> <p>Deborah Iles</p> <p>Zahra Davidson</p> <p>Helene Remy</p>	
<p>Enterprise Education case studies</p>	<p>Case study 1. Snook – NightRiders</p> <p>Interviews:</p> <p>Sarah Drummond-Co-founder, Service Designer</p> <p>Lauren Currie- Co-founder, Service Designer</p> <p>Jacqueline Gun- Head of Spark programme at Untd</p> <p>Valerie Millward- NightRiders participant, Designer at Valerie Textile design</p> <p>Sian Phillips– NightRiders participant, Designer at Open Hex Events</p> <p>Documents:</p> <p>Project online content</p>	<p>Using the theoretical lens and questions developed after the pilot study to capture interpretations of the contribution of SD in Ent. Learning to start-up entrepreneurs</p>

	<p>Week by week breakdown</p> <p>Activity documentation</p> <p>Case study 2. YearHere</p> <p>Interviews:</p> <p>Zahra Davidson – Designer</p> <p>Two interviews with Diane Williams- Nascent entrepreneur</p> <p>Two interviews with Stephen Shaw- Nascent entrepreneur</p> <p>Two interviews with Brian Wilson- Nascent entrepreneur</p> <p>Documents:</p> <p>Activity documentation</p> <p>Entrepreneur project documentations</p>	
<p>Consultations case studies</p>	<p>Case study 1. Lancaster Small Business network</p> <p>Interviews:</p> <p>Michael Baron- Founder Lancaster Small Business network (3 interviews)</p> <p>Maria Mayor- Designer at Amity Service Design for social ventures</p> <p>Katie Finney- Designer at Amity Service Design for social ventures</p> <p>Workshop observations and documents:</p> <p>1.Observations and design material from workshops 1-3</p> <p>Case study 2. Northen Tech</p> <p>Interviews:</p> <p>Nigel Parry- Founder Northen Tech (3 interviews)</p> <p>Maria Mayor- Designer at Amity Service Design for social ventures</p>	<p>Observing the practice of service design in a consultation scenario with established entrepreneurs, in order to capture interpretations of the impact of the practice of SD on entrepreneurial learning.</p>

	<p>Katie Finney- Designer at Amity Service Design for social ventures</p> <p>Workshop observations and documents:</p> <p>1.Observations and design material from workshops 4-6</p> <p>Case study 3. Moor Tech</p> <p>Interviews:</p> <p>Sebastian Petit- Co-founder Moor Tech (2 interviews)</p> <p>Maria Mayor- Designer at Amity Service Design for social ventures</p> <p>Katie Finney- Designer at Amity Service Design for social ventures</p> <p>Workshop observations and documents:</p> <p>1.Observations and design material from workshops 7-8</p>	
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Table 11: Summary of the sources of data

3.5.1 Pilot study

The first source of data for the study was a set of interviews with entrepreneurs and designers as part of a pilot study. Pilot studies are small scale research projects that inform the research design of a larger study. The function of a pilot study is to ensure that methods or ideas developed through the literature review or previous primary research are practical and can contribute to the wider inquiry (Prescott and Soeken 1989). Moreover the pilot study aimed to inform the research questions and to help create a sensitising framework for the next stages of data collection.

As part o the pilot I did in depth interviews with a total of 17 people from both demographics, namely entrepreneurs including start-up and established entrepreneurs

and designers who work with entrepreneurs in some capacity. Details about the participants are included in Table 11. below. The interview guides for these interviews included broad themes from the literature that motivated the research, namely the early entrepreneurial process, the liabilities of newness faced by nascent entrepreneurs and ways the entrepreneurs think of their journey. In the discussions with designers the focus was on the perceived contributions of design in the early entrepreneurial process and the roles designers can have in supporting the early stages of venture creation.

In order to make the concepts reviewed in the literature more practical, and in line with the interpretive stance adopted, I aimed to examine how practitioners speak in their own voice about core themes in the literature, to capture how they talk about their individual journeys, the vocabulary they would use reflecting on the steps taken so far and the plans they had for the future.

Appendices 1 and 2 summarise discussions with two entrepreneurs and two designers respectively to give the reader a sense of the variety of the topics discussed during the unstructured part of the interviews in this early study.

Interview number	Participant name	Role	Topic of interest
1	Mike Baron	Director of Lancaster Small Business network	Developing professional networks and mobilising them in early stages of entrepreneurship
2	Frances Batten	Director of Northen Social Enterprise network	Community development, introducing innovations, combining legal forms in early stages of entrepreneurship

3	Felix Bishop	Director of Bay – LGBT community support	Transition from a charity to a social venture
4	Kate Appleyard	Founder Theatre One Social Enterprise	Spin off from the theatrical company to a social venture
5	Gemma Brian	Co-founder Northen Co-Housing	Developing Lancaster co-housing and the Green elephant
6	De Caine	Founder Cool Smoothies	Piloting a Healthy Nutrition based on a bicycle powered smoothy maker
7	Nadine Creamer	Founder UK Recruitment North	Setting up a non-traditional recruitment company for people with disabilities
8	Katherine Evans	Founding Northern consulting	Establishing a Mental health consulting service
9	Sally Fowler	Founder tech textiles	Shaping a business around an interactive quilt concept
10	William Green	Co-founder Northen Maker Lab	Community organising in launching a new social venture
11	Diane Grant	Founder Creative Consultancy for artists	Customer development in a small niche
12	Eleanor Goucher	Founder Lancaster Wellness centre	Starting a new business with limited resources
13	John Halley	Design academic working with social enterprises	Running design projects with local social ventures in Glasgow
14	Deborah Iles	Co-founder Government Designs	Launching a design-led business to design public services
15	Stephen Kirkwood	Co-Founder Red Industrial Design prototyping	Launching a design business with a social character

16	Zahra Davidson	Designer- YearHere	Shaping a design-led enterprise education programme
17	Helene Remy	Designer Roundlab	Working with organisations as a design consultant and researcher

Table 12: List of participants in the pilot study

3.5.2 Case studies - Enterprise education

The second source of data for the study was a set of case studies looking at enterprise education programmes that integrated service design. Two case studies were developed, the first looking at Nightriders, a service design-led programme for nascent entrepreneurs in Glasgow and YearHere an entrepreneurship and leadership programme with strong service design elements in London.

Both target start-up entrepreneurs and introduce a mix of business and design concepts as a way to provide entrepreneurs with skills to identify and develop opportunities and build companies around them. Details with regards to the data collection for each of the case studies are provided below.

Case study 1. Snook – NightRiders

Interviews:

Service Designers

Sarah Drummond-Co-founder, Service Designer

Lauren Currie- Co-founder, Service Designer

Representative of Untd- the funding body

Jacqueline Gun- Head of Spark programme at Untd

Programme participants

Valerie Millward - NightRiders participant, Designer at Valerie
Textile design

Sian Phillips – NightRiders participant, Designer at Open Hex Events

Documents:

Project online content

Week by week breakdown

Activity documentation

Case study 2. YearHere

Interviews:

Zahra Davidson – Designer

Two interviews with Diane Williams - Nascent entrepreneur

Two interviews with Stephen Shaw - Nascent entrepreneur

Two interviews with Brian Wilson - Nascent entrepreneur

Documents:

Activity documentation

Entrepreneur project documentations

Table 13: Summary of data sources case studies 1 and 2

Case study 1. Snook's NightRiders

The first case study developed to explore the contributions of service design in enterprise education is based on a programme run by service design agency Snook in 2013. It represented an ideal opportunity to study service design in that context, as it integrated service design tools and methods, both in its delivery as well as part of the content presented.

About Snook

Snook was established in 2009 by Sarah Drummond and Laura Currie with the aim to design experiences around products. Since then they have worked on a series of projects and have championed the Service Design approach as a way to shape commercial offerings and tackle social issues working with clients such as the Scottish government and the NHS. Examples of projects they have worked on include designing a CycleHack, a global service to promote cycling in cities, HullCoin a local digital currency at Hull in the UK to support the local community and Aye Mind, an online mental health service for young people (Snook 2016).

Snook offer end-to-end service design services primarily focusing on the public sector, including research, strategy building, public consultations, design of applications, service delivery and training to help develop design capacity for clients.

The NightRiders project

The case study focused on NightRiders, a service piloted in 2013 by Snook with an aim to introduce business basics, service design, design thinking and networking skills to aspiring entrepreneurs. It was funded as a pilot by Santander Bank and Unltd within the frames of the Spark project which aimed at developing new ways for peer support networks for social entrepreneurs. The main goal of the project was to enrich the enterprise support infrastructure in Scotland, offering a novel Service Design led model for approaching new venture creation. Snook envisioned this project to be the go-to destination for people with ideas for ventures in Scotland and eventually UK-wide. NightRiders targets nascent entrepreneurs, and it is structured and promoted to attract people who normally would not turn to more traditional enterprise support services, either because they lacked the confidence or didn't feel their idea was mature enough.

Moreover it was meant to supplement other types of support that mainly focus on helping entrepreneurs secure finance, assuming they are able to identify the best way to use that capital. In contrast NightRiders introduces Service Design as a way to think holistically about the emerging venture and its offering, supporting the entrepreneur in making critical early decisions about different aspects of their businesses.

The project run for 8 weeks with the entrepreneurs spending one evening per week with their peers and Snook. Before each workshop Snook had assigned some suggested readings or videos for the participants to go through, which would act as a starting point or inspiration for the discussion in the workshop. Each week the participants would discuss different aspects of their ideas using different service design tools to explore and refine different aspects of their venture.

The content of the course was developed by the co-founders of Snook, based on their experience working with entrepreneurs and a reflection on their own needs at the early entrepreneurial stage. On the eighth week of the programme, the participants showcased their projects and their progress to various stakeholders such as local community members, potential users and potential collaborators that could help take the projects forward.

Data used

Two types of data were used to shape the case study, a description of the programme itself, and accounts of the reflections of participants. Online material and activity documentations were used to provide an understanding of the structure of the programme, and in-depth interviews with entrepreneurs and other stakeholders involved in the planning and the delivery of the programme to understand different interpretations of the contributions of service design in entrepreneurship.

In more detail, the material available online, outlining each week of the programme including the presentations used for the delivery of each week's workshop were used to make an account of the structure of the programme which was used as a starting point to apply the MAPS framework in understanding the function of individual activities. Additionally as part of the interviews with entrepreneurs I captured documentation of activities which provided additional texture to that part of the data.

Finally, a total of five in-depth interviews were conducted as part of data collection for the case study. Firstly, individual interviews with Sarah Drummond and Lauren Currie, co-Founders of Snook, were conducted focusing on the structure of the programme, its intention, planning and delivery. Secondly, an in depth interview was conducted with Jacqueline Gun- Head of the Spark programme at Untd with regards

to the planning, delivery and outcomes of the programme. And thirdly, two in depth interviews were conducted with Valerie Millward and Sian Phillips two start-up entrepreneurs who participated in the programme.

Case study 2. YearHere

The second case study on enterprise education focuses on YearHere, an organisation that aims to provide entrepreneurial people with skills to solve inequality problems through enterprise. They offer an eleven month programme offering a mix of real life experience working at the frontline of service delivery, acquiring skills in business, service design and leadership as well as developing a network of potential partners and collaborators. It represented a great opportunity to study service design in entrepreneurship education because of its focus on service design tools for the development of new ventures.

About YearHere

YearHere was launched in 2013 with the intention to shape a new generation of social leaders to tackle social problems through enterprise and innovation in the social sector. Their aim is to empower entrepreneurs in Britain engage with social issues by offering experience working in the social sector and opportunities to get in touch with the service design practice as a way to do so. They offer a curriculum based around the concepts of “empathy, hassle and acumen” which provide social entrepreneurs with the tools to better understand social problems, adopt an enterprising attitude as well as the knowledge and practical skills necessary to do so.

Their programme is structured as followed, participants work in placements for a period of time to familiarise themselves with the sector and get exposed to real life

problems and opportunities. As part of this placement they are asked to deliver an innovation project to improve an aspect of the host organisation with limited resources. The second stage of the programme is a two month period of professional training and project work in collaboration with the public sector, commercial and social ventures. Service design tools are used in this stage to support community engagement and opportunity development. Finally the third part of the programme focuses on enterprise offering groups and individuals an opportunity to incubate new businesses for six weeks based on their experience and work throughout the year.

During the first stage of the programme, service design is taught as a tool to engage with the community, empathise, capture stories and working with the host organisations. In the consultation stage, service design tools are taught as a way to create accountability, provide direction and improve service offerings. Finally in the incubation stage service design tools are applied to generate evaluate and develop new venture ideas, focusing on the development of innovative offerings based on real needs of the service users.

Data used

As with the first case study, two types of data were used in principle, interviews, documents and online material with the intention to capture firstly the structure of the programme, and secondly the reflections of participants with regards to entrepreneurial learning. To capture the structure of the programme I drew from the interview with a designer delivering the service, the accounts of the users, as well as online material and documents on the content of the programme. To capture the impact of service design activities, I drew from a series of 7 interviews, namely one with Zahra Davidson who worked as a designer delivering part of the programme that

related to service design, and two in depth interviews with each of three participants in the project, namely Diane Williams, Stephen Shaw and Brian Wilson.

3.5.3 Case studies – Service design consultations

The third source of data that informed the study was a series of service design consultations with established entrepreneurs which took place from November 2014 to January 2015 at Lancaster University. They were organised as part of the study and involved a design consultancy and three entrepreneurs active in the space of community organising, electronics prototyping and alternative currencies. Table 13. summarises the data used.

<p>Case study 3. Service Design consultations with entrepreneurs</p> <p>Interviews:</p> <p>Service Designers</p> <p>Two interviews with Kattie Finney Co-founder of Amity – Service Designer</p> <p>Two interviews with Maria Mayor Co-founder of Amity – Service Designer</p> <p>Entrepreneurs</p> <p>Three interviews with Mike Baron Director of Lancaster Small Business network</p> <p>Three interviews with Nigel Parry Founder Northen Tech</p> <p>Two interviews with Sebastian Petit Founder Moor Tech</p> <p>Observations</p> <p>A total of eight two hour consultations</p> <p>Documents:</p> <p>Online content from ventures</p> <p>Activity documentation</p> <p>Fieldnotes from observations</p>
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Table 14: Summary of data sources case study 3

3.5.4 About Amity

Amity is a Manchester based Design consultancy which mainly works with charities and social ventures. It aims to introduce social entrepreneurs and people active in social change to design practices to help them maximise their impact.

They apply service design to offer facilitation, coaching and community organising services. Their core offering includes empathy sessions to support organisations in engaging with users and other stakeholders, as well as running workshops to help organisations develop strategic direction. They also run "new business labs" to help entrepreneurial firms understand their users as a basis for new service offerings. Common outcomes from their engagements include product or service prototypes, deep insights on users and other stakeholder groups and an implementation plan for the services prototyped.

3.5.5 The consultations

In order to conduct the data collection I invited Amity to conduct a total of 9 workshops with three established entrepreneurs based in Lancaster. They agreed to participate in the study to learn more about the industries the entrepreneurs worked in and to grow their professional network.

Two of the entrepreneurs were individuals that I got in touch with as part of my pilot study and the third was a colleague in my department who was also running his venture. They shaped a broad design brief based on suggestions by Amity, describing a problem or opportunity space in their venture, which became the starting point for the consultations.

The consultations were conducted in the Lancaster Institute of Contemporary Arts building at Lancaster University. Some basic material like whiteboards, markers, sticky notes and flipchart paper was provided.

3.5.6 Data used

To shape the case studies the following types of data were collected. Firstly, a total of four in-depth semi structured interviews were conducted before the consultations, one with each of the entrepreneurs and one with the two designers from Amity. In the interview with the entrepreneurs I collected background information about the current state of their businesses and the issues or opportunities that they would bring forward to Amity. Since two of the participants also participated in the pilot study I already had a lot of material on their background and early entrepreneurial stages. In the interviews with Amity I captured their approach to problem solving, previous experience working with enterprising organisations and expectations for the project. Secondly I observed each of the consultations, recording audio, taking pictures, recording some video and taking field notes. This helped reconstruct and analyse various aspects of the consultations including the use of various visual tools. Finally in-depth interviews were conducted with the participants and the designers after the consultations. These interviews allowed the entrepreneurs to reflect on the process of the consultations as well as their outputs.

3.6 Limitations of the methodology

Each of the techniques used for data collection and analysis have their own limitations, for example typical issues with interviews include bias, inaccurate descriptions of events and poor information recall. This was dealt with through

triangulation of data wherever possible, for example in documenting the various design activities the entrepreneurs engaged in during the engagements, information was used by both designers participants and documentary evidence.

Another limitation relates to the nature of interpretivist work in general, which requires reflexivity acknowledging the evolving judgments of the researcher. This is addressed by remaining reflexive throughout the process, which was evidenced in the research by the inclusion of reflections of the researcher after the analysis of the three studies.

3.7 Ethical considerations

Ethical approval for each part of the study was provided by Lancaster University, ensuring the safety, rights, dignity and well-being of the participants and the researcher. The researcher did not work with children or vulnerable adults in the study. Any confidential topics discussed in the interviews were not presented in the thesis. Participants who preferred to remain anonymous in the study have been anonymised.

3.8 Conclusion

The third chapter presented the research strategy mobilised to address the research questions identified at the end of chapter two. Firstly the philosophical assumptions on which the research is based are presented and justified, followed by an account of the approach adopted to dealing with data and an articulation of the case-study research design applied in the study. This was followed by an account of research procedures followed and the sources of data used framing the study philosophically and methodologically.

Chapter four presents the data used in the study, synthesising insights from each of the sub-studies into findings for each of the research questions.

4 Analysis of Data

4.1 Introduction to the chapter

Chapter three described the methodology used to collect and analyse data and outlined their sources. This chapter aims to present the body of data used in detail, in the form of an analysis describing the patterns of findings related to each of the research questions. The focus of this chapter is on the presentation and analysis of the data based on their relevance to the research questions, without drawing general conclusions or connecting the data to existing research, which is the focus of chapter five.

As a reminder for the reader the research questions that led the inquiry are the following:

1. What is the focus of service design activities in entrepreneurship
2. What types of entrepreneurial knowledge are generated through service design
3. How does the transformation of experience to entrepreneurial learning take place in service design

The data are presented individually for each data source for transparency, demonstrating how the inferences made in chapter five were built through the consolidation and interpretation of evidence through the analytical process. Firstly, the

data from the pilot study are presented, elaborating on the topics discussed with entrepreneurs and designers that lead the study towards entrepreneurial learning. This is followed by an overview of the data gathered from the two case studies on service design-led enterprise education. The structure of the two programmes is discussed, using the MAPS framework presented in chapter three as an analytical lens, followed by an overview of insights from the interviews with participants and organisers around each of the research questions. A similar structure is then followed for the cases on service design consultations. The chapter closes with a synthesis of the findings and links to chapter five which connects these findings with the literature to shape the conclusions of the study.

4.2 Analysis of the pilot study

As described in section 3.3 on the research design for the study, the aim of the pilot study was to provide the researcher with some hands-on experience talking to entrepreneurs and designers working in this space, to test the relevance and applicability of theoretical constructs around process and help me identify emerging categories which could be used to organise the data to be collected. The semi-structured format of the discussion allowed them to talk about their journeys in their own terms, which triggered a major change of focus for the study from a processual lens to a learning lens.

In more detail, drawing from the interpretivist and naturalistic tradition in which the study belongs, the research problem was initially stated broadly using the pilot study to refine the theoretical approach as well as the research questions themselves to discuss more intriguing questions (Armstrong 2010). At the inception of the study, the focus was capturing the process of entrepreneurship with the intention to draw parallels with the process of design as a way to explore commonalities and complementarities of the two practices. The idea was to study existing models of entrepreneurial processes and contrast them to the various cyclical and linear models of service design articulated in the literature. Retrospectively this appears to have been based on a very different perception of reality, one that is closer to a positivist logic while ignoring a lot of the messiness of both processes, assuming a more or less linear view of each one.

The pilot study acted as a reality check allowing me to immerse myself in the variety and complexity of the contexts in which entrepreneurs operate. The researcher had the chance to discuss with freelancers considering hiring people to scale their business, people with prototypes of technologies they were looking to bring to the market,

social entrepreneurs serving people with learning disabilities and community organisers setting up new maker spaces among others. It was clear that although the researcher had studied the topic for almost two years already at that point in there was a lot to learn in terms of making claims for entrepreneurs in general, ignoring the variety of individuals that can be characterised as entrepreneurial (Anderson and Jack 2002). Trying to rationalise and frame all the diverse steps taken from just that group in a model that was fair to and representative of the stories of just those twelve entrepreneurs would be impossible. At the same time the pilot study brought forward a new theme, which was learning. The analysis of the study highlighted learning as a major theme in the interviews, and on a higher abstraction level learning was the core story these entrepreneurs all shared. Their individual entrepreneurial processes were essentially learning journeys, which lead organically to more research around entrepreneurial learning and planning the next stages of the study based on this concept.

The tables below aim to provide the reader with a better sense of the areas covered in these interviews. Appendices one two and three include example summaries of interviews with participants, as well as tables that link quotes to the organising and global themes presented in this chapter.

Following the thematic analytical process described in section 3.4.2. above, the topics discussed in the pilot study interviews can be represented by two main global themes and five subthemes, which are represented in table 14 below.

Global theme 1. A dynamic social process		
Organising theme 1. A social process	Organising theme 2. Not a linear process	Organising theme 3. A challenging process
Global theme 2. It requires a specific skill-set		
Organising theme 4. Requires a set of skills	Organising theme 5. It is a learning journey	

Table 15. Representation of data from the pilot study - Global and Organising themes

The most common topic in discussing the early stages of venture creation was the extent to which it is a social process. Entrepreneurs and designers alike stressed the role of diverse stakeholder groups such as the entrepreneurial team, external stakeholders and the broader community including potential users and beneficiaries in social enterprise. Early informal work groups including shaping and managing them were seen as an important aspect of this early stage since it shapes the entrepreneurial team that will take on a challenge and shape a new organisation. The role of external stakeholders was also discussed, such as other ventures in the same market, intermediaries, interns and other types of professionals such as solicitors and accountants' entrepreneurs work with. They were seen as sources of knowledge, opportunities as well as restrictions for the entrepreneurs.

The second most common way to talk about their journey was the complexity of it, highlighting for example a constant process of trial and error and the impact of unexpected connections in their journey that provided them with new insights and resources. Other aspects of that perceived complexity related to capturing social impact for social enterprises, knowing what type of help they need and finding the

best way to work with the resources available to them. This organising theme related closely with the third one around the challenges involved in venture development. The entrepreneurs reflected on the labour and time they put into their ventures, the difficulty in making right choices in terms of legal entities, service delivery and even identifying the appropriate space to use and how they went about doing that. The following tables 15 and 16 summarise the global and organising themes that emerged from the interviews.

Overall the pilot study highlighted the entrepreneurial process as social, complicated and knowledge based. This helped me shape new research sensitivities towards these themes reflected in considerations around for example the way entrepreneurs reflect on and capture the social nature of entrepreneurship in service design engagements, how the complicated nature of their endeavours is reflected on or affects the process or is alleviated by the process, and finally how the service design engagement contributes to their learning journey.

While these themes reflect many interesting insights that map well on existing literature around the early entrepreneurial stages and the liabilities of newness, it was the latter theme around learning that had the most significant impact on the study, mainly because of the importance and priority the interviewees put in this particular theme, as well as its function in their stories as a meta-narrative for their journey more broadly. Learning and the knowledge that was collected through their journey was a constant reference point in the discussions had, with participants providing references to specific types of knowledge that empowered them in different stages in their journey, such as legal knowledge or business and financial planning. These discussions on different types of knowledge lead organically to a discussion around

their learning experience, or the process of acquiring that knowledge. Examples of what was perceived as important in that process includes formal training, trial and error, contact with other organizations and unexpected events.

From the perspective of designers learning involved researching the problem space, running user participation activities as well as modelling and prototyping solutions. This represents a notable difference between the narratives of the entrepreneurs and that of the designers in terms of the process followed by the two. In the interviews designers talked about a purposeful structured approach, while entrepreneurs talked about a constant struggle to learn whatever is necessary to run a business and respond to contingencies, captured well in this quote from participant 3:

Participant 3 “People don't realise it's not as easy as they think it is [...] the way I look at it is that since the beginning, if you imagine a bike in pieces on the floor we slowly put the pieces together and quite often we put things the wrong way around and put bits in the wrong places and then once every so often something comes on that smashes the bike in small pieces and so on”

This highlights the need to capture factors related to these different ways of learning and the implications of the activities as well as the context of a service design engagement in the learning journey of entrepreneurs.

Post analysis reflection- pilot study field notes:

In order to support the validation of the study, the following excerpt is from the pilot study field notes, written as an data-driven interim report –rather than a literature driven report- at the end of analysis. It focuses on learning in design versus learning by doing in entrepreneurship and is included here to provide the reader with a sense of the evolving understanding of the problem area through the analytical process.

“I believe that the difference in the way entrepreneurs learn in service design can be analysed based on three main factors, firstly the context we are looking at – a design

engagement versus the real life activity of the entrepreneurs, secondly the notion of a design process which is common among design practitioners and thirdly, the roles that designers adopt in relation to entrepreneurs in this context.

Firstly, we are talking about instances where the entrepreneurs have actively stepped out of their daily routine to engage in service design. This means they are not in the middle of the action, as they normally are, but engage hopefully with an open mind to a process that might benefit their ventures. Within this process they are given ample time to do for example stakeholder mapping to capture and reflect on how value flows between the main actors in the market, but they only have this luxury because they do not need to engage in their normal routine of communicating with existing clients to solve problems, cold calling potential new ones and so on. This temporary - artificial setting is ideal for imposing a structure to the activities of the entrepreneurs and the implications of this context are very interesting to consider.

The second factor to be considered is the process of Service Design and in fact the notion of a process itself. It feels like the notion of a generic design “process” that can be applied in problem-solving broadly, provides designers with a broad perspective on how projects can flow and what questions need to be asked at each stage to forward the project. Two questions related to this aspect of the research area would be where the entrepreneurial process can service design be applied, meaning what is within the scope of service design and how it can fit with the practice of entrepreneurs and what are the implications of linear models of the service design process.

Finally the roles of designers in the pilot study varied which I think changes the way they contribute to the learning of entrepreneurs. Acting as consultants or educators puts designers organically in roles that allow them to shape the activities. I would be

interested to explore how the different roles of designers can differ and what are the implications of designer roles in entrepreneurial learning.”

Global theme 1: A dynamic social process		
Organising theme 1. A social process	Organising theme 2. Not a linear process	Organising theme 3. A challenging process
It involves an invitation to the community which needs to have clear messages	Trial and error is a common approach in early stages of the venture development	Business development is time consuming and labour intensive
Previous experience with community work and contacts in the field can facilitate community organising	Opportunity can be the result of Identifying the potential of engaging with a group of people to create new value	Identifying the appropriate legal structure is challenging in early stages of the development of the offering
Informal work groups can benefit from defining clear rules for engaging with the project	Opportunity can be the result of identifying potential applications of a new technology	Structure and service standardisation may be lacking even after years of operation
Combinations of legal structures can bring together the community and social ventures	Identifying a space that can be used to further the goals of the venture	Finding the space and resources to innovate can hinder day to day delivery of a service
Social ventures due to their nature have very diverse groups of stakeholders	Gaining legitimacy through association with an established organisation	The process is highly situational, planning is necessary but highly amenable responding to the environment

The entrepreneurial team represents a set of internal stakeholders	Identifying new funding opportunities	Community organising can occur in different ways depending on the level of control the entrepreneur wants to have
In early stages the entrepreneurial team can be well defined or not	Identifying a new way to use existing resources, new potential offerings	
Key external stakeholders can take the following forms: other organisations with similar goals, intermediaries, professionals, interns, beneficiaries and those close to them, sponsors	Identify new needs of customers/beneficiaries	
External stakeholders can be used to bring new knowledge in the venture, benchmark, draw inspiration or form strategic collaborations	Making new connections that lead to new directions	
Informal working groups develop to organisations to access funding and be ready to deliver services	Using previous connections for different reasons	
Shaping a clear invitation for community participation should be part of the strategy	Identifying a need for external expertise	
Reacting to needs of the stakeholders involved shapes early venture development	Opportunities may be seen retrospectively as such	
Adopting a legal structure defines the level of control the entrepreneur has over the	Social value creation is multileveled, measuring needs to reflect that	

venture		
Communicating ideas and progress with key stakeholders is challenging but drives the venture development		
Previous experience can be beneficial in developing a venture (contacts, skills, worldview)		
Personal traits such as leadership, and drive to work alone affect the relationship of the entrepreneur with different stakeholders		
A series of consultations drive the development of core ideas and values of the organisation		

Table 16: Pilot study analysis Global theme 1: A dynamic social process

Global theme 2: A knowledge intensive process	
Organising theme 4. Requires a set of skills	Organising theme 5. It is a learning journey
Methodologies used for social impact measurement can be tokenistic	Business development requires constant learning
Adopting a legal structure defines the ability of the organisation to access funding	Learning can be the result of formal training
Access to resources is perceived as a driver for impact	Learning can be the result of trial and error
The process of entrepreneurship involves a set of basic skills (business planning, basic finance, legal considerations, attracting funding, marketing)	Learning can be the result of contact with other organisations
	Learning can be the result of disruptions to plans or unexpected events
	Day to day routine can be seen as hindering learning that is necessary for innovation
	Previous experience can be perceived as not conducive to running a venture (arts background, or limited formal education)

Table 17: Pilot study analysis Global theme 2: A knowledge intensive process

4.3 Analysis of the case studies

As discussed in section 3.3. above, in order to address the research questions, the case studies aimed to capture the structure of two types of service design engagements, as

well as the way entrepreneurial learning occurred during the engagements. Table 17 below summarises how the data from each case study are presented in this chapter.

The analysis of the case studies is organised as follows:

- to address the first research question, discussing the focus of service design activities for entrepreneurship, the structure of the programme is discussed, looking at the individual activities and their function, using the MAPS framework. The activities and their MAPS categorisation are presented in tables in the order they took place in, to allow the reader to get an overview of the experience of the entrepreneurs as part of this programme. The activities are then described individually in more detail including the justification of their MAPS categorisation and finally presented in a table together to represent the service design process adopted as a whole, to highlight the areas of emphasis for each of the engagements.
- To address questions two and three focusing on the type of knowledge generated and the process of transformation of experience to knowledge, I will be presenting quotes that illustrate the dominant logic of the entrepreneur in various instances during the process, or I will include observations that help illustrate each point.

Presentation of data – Case studies			
Understanding the structure of the engagements		Understanding how entrepreneurial learning occurs in the engagements	
Chronological list of activities and MAPS categorisation	Activities breakdown: Description and justification of MAPS categorisation	Presentation of activities using the MAPS framework	Patterns that relate to each research question – quotes and observations
<ul style="list-style-type: none"> • Provides the reader with an understanding of the flow of the engagements • Provides the reader with a sense of progression in terms of the MAPS framework 	<ul style="list-style-type: none"> • Provides details on each of the activities • Justifies their MAPS categorisation 	<ul style="list-style-type: none"> • Highlights the emphasis of the engagements in terms of the domains of knowledge and stage of the micro-learning cycle for each domain 	<ul style="list-style-type: none"> • Provides in-depth insights on the impact of the engagements in entrepreneurial learning

Table 18: Structure of the presentation of the case study data

4.4 Case study 1. Enterprise Education

4.4.1 NightRiders

The NightRiders programme was a structured around activities that combined business and service design principles and methods. The analysis of the programme into activities was done on the basis of the formal description of the programme by Snook, insights collected by the entrepreneurs and related material found online.

Business and service design concepts were introduced as complementary parts of a journey the entrepreneur needs to go through to shape a sustainable venture. Service design considerations such as identifying touchpoints with users, or shaping the user

journey were weaved into more traditional business topics such as business and financial modelling. The design principles of prototyping and iteration were very much at the heart of the programme. The broad philosophy of NightRiders is summarised by Sarah Drummond who co-developed it as follows:

Sarah: “You start with nothing and can holistically build a business model around a service, or a product and run things in a very prototype based way to see if they work and on a fairly low cost so you pitch an idea of what you want to do and then you test it and some of the testing has gone quite well and then you respond and say now we can take this further”

In order to provide the reader with a sense of the flow of the programme, the activities are presented chronologically in table 18 below, numbered on the basis of the week they run and the sequence within that week’s schedule. The table also includes their MAPS categorisation to provide a sense of the function of each activity based on the domain of knowledge they contribute to, as well as the stage of the micro-learning cycle they represent -See table 8. for the description of each category. This overview is followed by a more detailed presentation of each activity.

Activity	Maps categorization
1.1. Rules of engagement	Communication layer
1.2. Who are you pitch	Analysis research
1.3. What is your idea pitch	Analysis analysis
1.4. Business model canvas (1)	Projection synthesis

2.1. Opportunity cards	Projection analysis
2.2. Future scenarios	Projection synthesis
2.3. Three year plan	Synthesis analysis
3.1. Storyboarding/Journey Map	Projection synthesis
3.2. Identifying touchpoints	Synthesis synthesis
3.3. Prototyping	Synthesis realization
4.1. Introduction to business structures	Synthesis analysis
4.2. Business model canvas (2)	Synthesis synthesis
5.1. Business model canvas (3)	Synthesis synthesis
5.2. Stakeholder map	Synthesis synthesis
6.1. "The system" tool	Synthesis synthesis
6.2. Communicating your vision	Synthesis realization

7.1. Preparation for the pitch	Synthesis synthesis
8.1. Pitch	Synthesis realization

Table 19: Case study 1. NightRiders- Chronological summary of activities

Activities breakdown:

In this section each activity is presented by week, including its name, description and the justification of its MAPS categorisation. A description of the introductory taught parts of each week is included, categorised as a communication activity, as it did not involve any interaction with the entrepreneurs and it aimed at facilitating the delivery of the other activities.

Week 1.

1.1. Rules of engagement

Description:

The programme started with a description of what was expected from the participants. It focused on the benefits of being present and attentive in order to make the most of the sessions, describing the likely outcomes of the programme and introducing the principle of capturing the process as they went along. In more detail the “Rules of engagement” activity included instructions like “no open laptops / screens”, “be on time” and “be engaged”. In terms of the outcomes the entrepreneurs were “promised” that in the course of the programme they would learn something new, they will hear something they already know and they will get out of this as much as they put in. Moreover the participants were introduced to the practice of capturing

their own steps as they go along – for example taking pictures of the tools they use or keeping notes of their personal journeys as a way to reflect more actively on the process and to be able to share their stories with their networks. This was communicated as being a “capture wizard” and was communicated repeatedly to them in all of the following weeks.

Categorisation of the activity

The activity aimed at setting the standards for the participation in the sessions. It aimed at creating a common culture among the cohort, introducing the habit of capturing the process to support future reflection. For these reasons it is categorised as a communication activity.

1.2. Who are you pitch

Description

The second activity of the first week focused on introducing the participants to each other, providing them with a platform for presenting some basic information about themselves, their professional and academic backgrounds as well as personal interests. The participants were, prompted to talk about aspects of their previous experience that relate to the venture they would like to build in the future.

Categorisation of the activity

This introductory activity was about the current situation (Analysis) focusing on descriptive information about the entrepreneur (research). It aimed at helping the entrepreneurs reflect on what they bring to the venture and externalising it, by sharing it with their peers. For this reason it is categorised as an Analysis- research activity.

1.3. What is your idea pitch

Description

The third activity on the first week focused on introducing the idea of the entrepreneur to the cohort, including a brief description of what they have done to take it forward up to that point, and what they would like to achieve. At this point no particular structure was suggested and the articulation of the venture was expected to be basic focusing on the broad area of interest and early entrepreneurial activities such as setting up a website, collecting feedback from peers or conducting research on the product/service.

Categorisation of the activity

The activity primarily looks at the current situation (Analysis). Part of it focused on projection into the future and what the venture might look like, but that was not what the activity was trying to elicit primarily. Moreover it allowed the entrepreneurs to talk about their understanding of the current situation, based on the information they have collected (analysis). For these reasons it is categorised as an Analysis- analysis activity.

1.4. Business model canvas

Description

The entrepreneurs were introduced to the business model canvas tool, as a way to capture the main elements of their businesses. This includes the offering of the business, the customer segments, the channels through which the service is delivered, the way the relationship with the clients is developed and maintained, the main

activities of the entrepreneur, the main resources they have, their main partners and a sense of common income and expenditure streams. They were then prompted to create a representation of how the business may operate in the future.

Categorisation of the activity

The activity prompted the entrepreneurs to think about the way their venture could look in the future in general terms (Projection) by considering a set of pre-defined aspects of a business (synthesis). For these reasons it was categorised as a Projection-synthesis activity.

Week 2

Introductory taught part of the session: Introduction to Service Design

Description

The second week had a significant taught part at the start, which focused on Service Design. It included an introduction to service design as a practice in general, service design applications for community engagement, introduction to user journey mapping, introduction to creating personas, storyboarding and prototyping. This early presentation formed the basis for the service design activities in the rest of the engagement.

Categorisation of the activity:

This activity aimed at introducing the practice of service design and how it relates to entrepreneurship. It did not have a practical element and only acted as a broad strokes introduction that aimed to facilitate and tie together future activities. For this reason it is categorised as a communication activity.

2.1. Opportunity cards

Description

The first activity of the second week was using a tool called “opportunity cards”. The tool is comprised by a set of cards that represent future trends in different industries as a starting prompt for discussion. Examples of trends included in the cards include the raise of the social web, data driven technology and social investment. The entrepreneurs were prompted to go through the cards, identify trends that relate to what they wanted to do and discuss those trends in the group.

Categorisation of the activity

The activity aimed primarily at prompting discussions about the ideal future state of the business (Projection) based on future trends. The trends were presented as collections of data in a easy to manage format (analysis). For these reasons the activity was categorised as a Projection- analysis activity.

2.2.Future scenarios

Description

The second activity for the day involved the entrepreneurs discussing future direction of their business based on the trends identified as relevant in the previous activity. They had to communicate those scenarios on paper making models of their projections. They were not required to include any specific aspects of the business but rather create a concrete description of one or more future scenarios as a starting point for further discussion on specific elements of the venture.

Categorisation of the activity

The activity focused on the ideal future state of the business (Projection) and required that the entrepreneurs create a model of that situation (synthesis). For these reasons the activity was categorised as a Projection- synthesis activity.

2.3. Three year plan

Description

For the third activity of the session, the entrepreneurs were asked to work backwards from the scenarios they developed in the previous activity, identifying the steps they need to take in order to make those scenarios a reality.

Categorisation of the activity

The activity focused on the implementation of ideas (Synthesis) on the basis of an analysis of requirements that need to be met (analysis). For these reasons it was categorised as a Synthesis – analysis activity.

Week 3.

Introductory taught part of the session: Introduction to business concepts

Description

Similarly to week 2 the third week started with a taught part that focused on business concepts. In more detail it included an introduction to business modelling, financial modelling, business identity, strategy and creating a mission, legal structures for businesses. Additionally, the presentation reiterated concepts around prototyping in service design and their relevance for entrepreneurs as a preparation for the activities of the day.

Categorisation of the activity

Very much like the taught part of the previous week, this activity aimed at introducing business practices for those who are not experienced in this space. It's function in the broader process was to provide the vocabulary for talking about different aspects of new ventures, facilitating future activities. For this reason it is categorised as a communication activity.

3.1. Storyboarding/Journey Map

Description

The first activity of the third week involved creating a story or use-case around the offering of the new venture. To do that the entrepreneurs were prompted to consider the user perspective of engaging with the service as a starting point, going through each part of the experience in detail describing the service along the way. For example they would describe the user journey starting from initially learning about the service, using it and leaving feedback on a website. They were asked to express these stages as visually as possible, creating a storyboard or a series of panels of rough sketches that outline the sequence of actions involved in experiencing the service from start to finish. They were then prompted to use the actions identified to create a user journey map, analysing the satisfaction levels of the user during each of these actions.

Categorisation of the activity

The activity focused on a future scenario of a use-case without particular consideration on the implementation of the service (Projection). The output was a description of the user experience the venture will aim to create. To achieve that the

entrepreneurs were prompted to create a model of the situation (synthesis). For these reasons it was categorised as a Projection- synthesis activity.

3.2. Identifying touchpoints

Description

The second activity of the week built on the user journey activity, prompting the entrepreneurs to consider the various interfaces between the business and the users along the user experience articulated in the previous model. The entrepreneurs were prompted to consider touchpoints or service evidence such as artefacts (e.g. a leaflet), environments (e.g. an office space) or encounters (e.g. with an employee) and list them. They were then prompted to include those interfaces on their journey maps, which they created during the previous activity.

Categorisation of the activity

The activity looks at translating the journey map to business functions. Focuses on the visible aspects of the business from the user perspective, requiring a consideration of considering real-life restrictions (Synthesis). Moreover the outcome of the activity is a tangible model of the situation described (synthesis). For these reasons the activity is categorised as a Synthesis – synthesis activity.

3.3. Prototyping

Description

The last activity of week three was on prototyping. Building on the models developed in the previous two activities, the entrepreneurs were prompted to consider what would be the simple versions of the business offering they could somehow pilot in the

real world. This was put forward as the best way to test assumptions about the offering of the venture, and different ways of doing that were introduced.

Categorisation of the activity

The activity aimed to prompt the entrepreneurs to consider real-life tests that would help validate and refine their ventures. It looked at a future state of their business with a clear practical and action driven orientation (Synthesis) with a focus on testing elements of the offering in the real world (realization). For these reasons the activity was categorised as a Synthesis-realization activity.

Week 4

Introductory taught part of the session: Introduction to useful tools

Description

The fourth week had a brief taught part reiterating the function of the “business model canvas” tool, introducing the “business model you” tool which aims to help people re-design their career using some of the principle from the business model canvas and introducing the stakeholder mapping tool. These were briefly covered as a preparation for future activities.

Categorisation of the activity

This was another communication activity that aimed to present tools that would be used further down the line during the engagement. For this reason it is categorised as a communication activity.

4.1. Introduction to legal structures

Description

The first activity of week four involved considering the alternative legal structures available for new ventures. It involved going through some material covering the alternatives and reflecting on which would be the most appropriate given the needs of the entrepreneurs. The delivery of the activity involved outlining the alternatives, highlighting the pros and cons for each structure and facilitating a discussion about the relevance of the structures to each of the ideas.

Categorisation of the activity

The activity focus on implementation of the ideas of the entrepreneurs in the real world (Synthesis) based on restrictions and requirements that need to be met from a legal perspective (analysis). For these reasons it was categorised as a Synthesis-analysis activity.

4.2. Business model canvas

Description

The second activity of week four involved re-doing a business model canvas, based on the insights developed since the first one during week one. This is the first time the entrepreneurs had to re-iterate working on the same tool.

Categorisation of the activity

The activity focused very much on implementation of their ideas based on the new knowledge gathered up to that point (Synthesis) with the output being a model of the situation in the form of a business model canvas (synthesis). For these reasons it was categorised as a Synthesis-synthesis activity.

Week 5.

Introductory taught part of the session: Reaching out

Description

The taught part of the fifth week covered the steps entrepreneurs need to make in order to make their business visible. It included information on demonstrating ones work, being findable online, telling a story versus just presenting a product and persevering in a competitive market.

Categorisation of the activity

This activity aimed at introducing best practice in marketing new products and services, focusing on specific skills the entrepreneurs need to develop. It aimed to introduce concepts that would be used in activities in the following weeks and for this reason it is categorised as a communication activity.

5.1. Business model canvas (3)

Description

The first activity in week five involved refining the business model canvas the entrepreneurs worked on in week four. They had the opportunity to reflect on the various elements of the business included in the canvas in light of their readings and activities so far. It was their second opportunity to refine the business model canvas they created in week one.

Categorisation of the activity

The activity focused on the implementation of their of their ideas (Synthesis) with the output being a model of the situation (synthesis). For these reasons it is categorised as a Synthesis-synthesis activity.

5.2. Stakeholder map

Description

The second activity of week five was the creation of a model of the various stakeholders involved in the delivery of the service. Doing a stakeholder map involves identifying the various actors involved in the service as well as their mutual relations. It aims to create a systemic view of a service around the flow of value around individuals and institutions. To make this representation the entrepreneurs were prompted to consider the networks they are a part of, the ecosystems that exist around them already – services or groups they could benefit from and the networks they would need to be in to develop their offering.

Categorisation of the activity

The activity involved reflecting on the development of their venture considering practical aspects of the broader environment (Synthesis) with the output being a model of the situation (synthesis). For these reasons it was categorised as a Synthesis-synthesis activity.

Week 6.

Introductory taught part of the session: Financial planning and pitching

Description

The taught part of week six focused on introducing a financial planning tool focusing on identifying how much money the entrepreneurs will need in running their venture, how the money will be spent and how much time they can dedicate to find the financial support they need. It also introduced the programme of week eight which involved a presentation and introduced the concept of a start-up pitch.

Categorisation of activity

Much like the other taught parts of the sessions, this was an introduction to activities that will be done in this and future sessions and for that reason it is categorised as a communication activity.

6.1. "The system" tool – financial planning

Description

The first activity of week six involved doing some basic financial planning for the new venture. It was presented in a visual form with boxes the entrepreneurs had to fill in. The prompts were how much money do I need and why, what support I need and why, how much time can I dedicate to finding support. It aimed to help entrepreneurs clarify their financial needs and identify actionable steps towards getting the support they need.

Categorisation

The activity built on previous work to discuss a realistic future scenario (Synthesis) with the output being a set of financial requirements that need to be met (analysis). For these reasons it is categorised as a Synthesis-analysis activity.

6.2. Communicating your vision

Description:

The second activity of week six involved developing the message they would share online to promote their work and reach out to people in their network. They were prompted to actually share that message with as many people as possible to kick-start discussions about their work.

Categorisation

The activity focused on a realistic near-future scenario (Synthesis) prompting the entrepreneurs to test their ideas and offering in the real world (realization). For these reasons it is categorised as a Synthesis-realization activity.

Week 7

Introductory taught part of the session: Pitching

Description

The taught part of week seven focused on storytelling, as a preparation for the pitch on week eight. It included watching examples of good pitches and discussing their structure as well as stressing the importance of stories versus blunt descriptions of features.

Categorisation of activity

This activity acted as an introduction for the core activity of week seven and for this reason it was categorised as a communication activity.

7.1. Preparation for the pitch

Description

The activity involved the entrepreneurs shaping their presentations for the pitch on week eight, they were prompted to decide on the information that is relevant, and shape a compelling structure for the pitch based on best practice.

Categorisation of the activity

This activity was a combination of Projection and Synthesis as it combined communicating a vision as well as the current state of the new venture. It is categorised as primarily a Synthesis activity since its function was to ask for support and funding, which by necessity requires it to be grounded to facts around the validation of the concept, the plan and capacity of the entrepreneur as well as an articulation of the resources available (Synthesis). Moreover as an output it represents a very tangible product of design (realization). For these reasons it is categorised as a Synthesis- realization activity.

Week 8.

8.1. Pitch

Description

The entrepreneurs were invited to pitch in front of an audience of various stakeholders related to their projects, such as funding bodies, investors and representatives of organisations working in the industry they entrepreneurs are interested in.

Categorisation

As with activity 7.1. the delivery of the pitch was a combination of Projection and Synthesis, primarily focused on convincing the audience about the realistic potential of the venture (Synthesis). It also represents a tangible product of a design process (realization). For these reasons it is categorised as a Synthesis- realization activity.

Table 19 below categorises the activities described according to their MAPS categorisation to provide the reader with an overview of the function for each activity in the process.

	research	analysis	synthesis	realization
Analysis	1.2. Who are you pitch	1.3. What is your idea pitch		
Projection		2.1. Opportunity cards	1.4. Business model canvas (1) 2.2. Future scenarios 3.1. Storyboarding/Journey Map	
Synthesis		2.3. Three year plan 4.1. Introduction to business structures 6.1. "The system" tool- financial planning	3.2. Identifying touchpoints 4.2. Business model canvas (2) 5.1. Business model canvas (3) 5.2. Stakeholder map	3.3. Prototyping 6.2. Communicating your vision 7.1. Preparation for the pitch 8.1. Pitch
Communication	<p>Best practice: “Rules of engagement” Introduction to Service Design Introduction to Business concepts Introduction to tools (e.g. business model canvas and stakeholder mapping) Introduction to financial planning and pitching Introduction to pitching</p> <p>Facilitation: Workbooks for each activity</p>			

Table 20: Case study 1. NightRiders- Categorisation of design activities using the MAPS framework

Within case analysis-NightRiders

Patterns that relate to research question 1. What is the focus of service design activities for entrepreneurship?

Overall the activities in the workshops focused on creating a refined model of the venture, then considering simple ways to test hypotheses embedded in that model in the real world followed by some related information on legal models, finance and networking. The data collected suggest that the activities in NightRiders covered all three domains of knowledge with an emphasis on Projection and Synthesis. The workshops started with a statement of the idea of the entrepreneur – “What is your idea pitch” activity- continued with a business model canvas to allow them to elaborate on it in a structured way. This was followed by an overview of future trends to inform this vision and a three year projection considering in operational terms what needs to happen to deliver that vision.

These Projection/Synthesis activities were followed by three interconnected Service Design activities that aimed to help the participants move from a refined projection to a simple prototype of their service. This was done in four steps, namely, understanding user experience, identifying interfaces with the venture, listing the business functions related to these interfaces and planning a simple prototype of a selection of these functions. In more detail, the first activity –Storyboarding- aimed at understanding the experience of users as they engage with the venture, this involved shaping a detailed use-case scenario visually through a storyboard and examining it in detail. Then this use-case was used to evaluate the user experience overall through a user journey map, capturing what the user thinks and feels along the various points of the storyboard developed. This helps the entrepreneurs build a narrative of the user experience they want to create, which is then translated to business functions as part

of activity 3.2. looking at touchpoints. In the prototyping activity the entrepreneurs were challenged to plan a prototype of their service choosing from the business functions identified to test certain hypotheses about how the service can work. For example a participant took this opportunity to consider how she would present her products to potential users. She set up a simple outdoor stall and used it to practice her sales technique and get feedback on the product.

The last section of the workshops introduced practical business concepts around legal types, financial planning and networking. These were identified as core elements of a new venture the entrepreneur needs to consider. Service Design was used to inform the discussion around networking specifically, through the use of Stakeholder mapping.

Patterns that relate to research question 2. What types of entrepreneurial knowledge are generated through service design

The users gained entrepreneurial knowledge in four main areas, namely service specifications, insights about users, industry specific knowledge and knowledge of the methodology of service design.

Service specifications

This represents a core output of Service Design, a documentation of specifications of different aspects of a service, including the experience of the user, individual interfaces or touchpoints of the service and specifications of the wider service system that allows its delivery. In NightRiders, participants had the opportunity to shape and refine common Service Design specifications namely models of future scenarios, the journey map and a stakeholder map but also broader venture specifications namely a business model canvas and a cashflow statement.

User insights

Empathising with users was a big part of NightRiders. Entrepreneurs were involved in developing a journey map, considering the touchpoints and doing prototyping activities as a way to anticipate the expectations and needs of users. As a result insights on their users were a big part of the information generated through the programme.

Sarah: “we use customer journey maps thinking about what it is like for a person to go through this process, so for example for cycleback, what it might be to be a participant of cycleback, who can be the organisers and what can be a journey for them so we think how things need to be emotionally supported”

This was perceived as complementary to traditional perspectives on doing business which were seen more product focused rather than user focused:

Sian: “You may be thinking about producing something and think about the end product and an idea but I don’t think you are thinking about the process of engaging with it, service design is completely key for opening that up, it is probably overlooked especially if you coming from a business background, I think that service design steps in to fill that gap very well”

These insights helped them ensure product-market fit as well as understanding operationally how the service will be delivered.

Sian: “You cannot stop thinking these things until you know really if they need what it is that you are doing and how you were going to achieve it”

Industry specific knowledge

The use of service design tools supported the development of industry specific knowledge, for example stakeholder mapping was used to reflect on what actors relate to the venture and the relationships between them.

Valerie : “initially I didn’t understand how many kinds of people out there and how many bodies would relate to my work to complete it we had to do research and approach companies relevant to us”

This was perceived as a beneficial exercise because it helps identify gaps in the market and makes that information more actionable

Sian: “We were looking to make the bottom line line-up but it also helped us identify a gap in the market where we could fit, how the service will benefit new users and how it fits the context of other organisations and things that are happening across the city”

Valerie : “..but even just having to write it down was really helpful [...] you have it all stored up at the back of your head you know roughly who would be interested which kinds organisations

and businesses are similar to yours until you actually put that down into a kind of diagram is quite easy to put obstacles in front of myself before doing that exercise”

Sarah: “You are sitting on your own as your own entity as your organisation, trying to make something work, you are trying to make people come together to solve a problem most of the time that is what it is about, it is about networking people together so solve a problem so in that way you need to think more about the relationships you need to build.”

Finally this search led to identification of potential funders and mentors.

Valerie : “...a stakeholder map we had to do that we had to research and approached other companies would potentially give us helpful funding and advice and help us identify target market”

1. Service Design as a toolkit

Finally the entrepreneurs reflected on knowledge of the process itself being as a valuable output of the programme. They see it as something they can apply in the future to flesh out and develop new ventures.

Sarah: “We do give them toolkits, like packs and things to run through also just a process so they know what they need to do.”

“You start with nothing and can holistically build a business model around a service, a product and run things in a very prototype based way to see if they work and on a fairly low cost so you pitch an idea of what you want to do and then you test it and some of the testing has gone quite well and then you respond and say now we can take this further”

The service design process is seen as a way to respond to uncertainty, constantly reflecting on what the value the venture offers and whether other types of value can be generated.

Sarah: “You can't afford to have a linear business model necessarily or a long term business models because things change so fast, that you need to be thinking in that way so I think it is kind of similar, being sustainable and delivering value and considering what the value is”

Patterns that relate to research question 3. How does the transformation of experience to entrepreneurial learning take place in service design

Dominant logic - Exploitation through iteration and refocusing

The first lens we apply in considering transformation is whether the activities helped the participants explore opportunities for example by helping them create new knowledge on alternatives or shaping prototypes of variants of the idea for testing, or exploit and refine them, working on the systems of the delivery of an offering, or the

improvement of certain aspects of it (Politis 2005, Wang and Chugh 2014).). All the NightRiders participants that participated in the study suggested that the process helped them do the latter. They frame it as *narrowing down*, and *going deeper* which was perceived as very positive.

Valerie : “I think it probably helped me more to narrow down in general I think In my case it helped me focus more, and limit my alternatives in a creative way.”

Sian” I think it helped us go deeper, we were very open to start and in a sense would try anything , for us it was about focus”

Here alternatives are seen as distractions, that do not contribute to the development of the venture. This alludes to the chaotic nature of the entrepreneurship journey and the fact that one of the things entrepreneurs suffer from is an undefined frame on which to work on, a lack of direction and structure in their practice. This dominant logic of exploitation was explained in two different ways by the participants, being attributed to the repetition of tools, that helped them improve their work after each iteration, as well as the overlapping nature of the tools, that results to beneficial complementarities.

When describing the iterative nature of the process they talk about *building on previous ideas* after each iteration

Valerie : “...for a lot of the tools we did two of each one before and one after so we were actually learning from our initial ideas and building on them and reusing our peers to help us to make a better solution”

The overlap between the tools was purposefully built in the programme by the organisers to help build up this knowledge from different perspectives

Sarah: “For Snook we take service design methods but try to think about business model and the plan all at the same time and just being that visual with it as well, using design to inform strategy and be very visual on the process to get there how an organisation looks and feels and works operationally like all of that mashed up in a process essentially”

From the participant’s perspective, this is seen as a process of *refocusing* between *slightly different perspectives*

Sian: “A lot of the tools there is a lot of overlap and you start example by thinking about the user and use a journey map, then when you do something like the blueprint thinking about operations you can go back to the users and say these are the people that we are aiming at and suddenly it falls into place because you have done that process already”

“I was talking about refocusing because you go through these things again and again but from slightly different perspectives it really drives it home it also means that you look at it and the first time you go may be basic and the second time you go over it is easier because you have had time to process it even if you’re doing it subconsciously you reach a point where you understand where your are coming from”

This recursive process-where the output of one process becomes input for another one- is exemplified in the programme by the use of journey mapping, followed by a reflection on touchpoints based on that. The function of using different tools to answer different questions around the offering is reflected in the following quote:

Sarah: "...blueprinting as well, so service blueprints, any form of visual schematic which show the front end of the service the touchpoints that you need to deliver, the back stage operations and then aligning these tools with for example a business model canvas when you are at an early stage when you try to think what the model is, and what you are trying to deliver you constantly figuring out what the value is, what the proposition is for the user, the clients, the organisation that might be running it but also how it makes money or it is sustainable."

Modes of learning – Assimilative though modelling and convergent through planning prototypes and working with templates

The second lens we apply to understand the transformation of knowledge in service design is that of the learning modes that were dominant in the workshops. Looking at the activities in NightRiders an interesting insight is the focus on synthesis, that involved somehow modelling and visualising touchpoints, the user experience, the networks in which the business is active and future scenarios. An implication of this deliberate, ongoing production of models of different aspects of the business is the necessity to draw together and merge new and pre-existing knowledge, expressing them explicitly on paper. This is a form of theory building, an exercise in solidifying and expressing perspectives in a way that makes them temporarily solid and actionable. This represents instances of a assimilative learning. The designers who shaped the programme discussed how visual thinking fits well with the development of new ventures:

Sarah: "...and underpin it with visual thinking throughout the whole thing, which is the design trade [...] so being able to play with models and to play with strategy and visualise strategy and visualise the organisation so like that a business plan becomes much more tangible, and actionable than the standard filling in the boxes like this is what I think a market is, and you have to do that but all three aspects should be part of it, it is a rounded set of skills and thinking."

One result of this type of assimilative learning activities the entrepreneurs engaged with, they gained a better sense of how different aspects of the business work together. They described it as understanding better the different pieces of the puzzle through visualisation.

Valerie: "You can visualise how each part slots together, like a puzzle... It's like a puzzle and design helps visualise that. It does so in a number of different ways. It helps people visualise and illustrate how the business would work, you can visualise how each part slots together"

The participants had to consider a variety of business aspects in a visual way such as the following:

Sian “You are thinking visually about your project and then quite a lot of the business case as well, for example considering how viable it is, who would pay for it, and alternative services”

This was contrasted to a number-led view of the organisation, can create a false sense of what is going on operationally. Service design was seen as a way to consider elements of the venture that are hard to articulate otherwise and ask questions you wouldn't ask otherwise and understand if the service will “*actually run*”.

Sian “especially for us, since it wasn't a product these processes behind the scenes are hard to articulate” “We knew we wanted to host events and we have collected some information on the main things to consider but we wouldn't present them or visualise them with such a tool, I guess it makes you ask questions that you wouldn't otherwise ask.. You find your weaknesses which I think is quite vital”

Valerie : “..you can step away from thinking about numbers and figures, obviously these are important. But even if you have all the money down but your service doesn't actually run you can't see it”

Overall this sense of how the pieces of the puzzle fit together changed their perception of entrepreneurship in general, making it more accessible and empowering them to take advantage of opportunities in the future.

Sian: “why with service design it's about the thought process really being able to visualise some processes, you read about entrepreneurs... but by looking at it through service design as framework it becomes very visual and very understandable you can immediately access it whereas if you are reading about it, it is not as easily accessible.”

Valerie : “...I feel more able to chase opportunities in the future”

Another factor that contributed to assimilation being a main learning mode in the workshops was the way the service design engagement was delivered, through a workbook, with each activity being accompanied by a template that allowed the participants to focus on specific areas of the business each time, temporarily bracketing out the rest. This structure on the process along the engagement and was really well received by participants:

Valerie : “We just had to fill in the boxes there was no anxiety or worry about how we do this, for what I was supposed to do it was very straightforward and broken down” “because it had a focus for each week you did pick up the pace and it forced you to make decisions they will give you the right amount of knowledge but also, a bit of fearlessness”

This mode of delivery allowed the participants to explicitly express a temporary theory about an aspect of the business such as the market composition or potential collaborators in the broader network of the business, contributing to the assimilative learning mode.

In turn the assimilative learning mode facilitated convergent learning, or learning through planning action, articulating goals and expectations from an action based on a worldview. In NightRiders this took the form of reflecting on what it would take to run a prototype of the business, based on a model of the business functions and the desired experience for the user. This is captured well in the following quote:

Valerie : “..but even just having to write it down was really helpful [...] you have it all stored up at the back of your head you know roughly who would be interested which kinds organisations and businesses are similar to yours until you actually put that down into a kind of diagram is quite easy to put obstacles in front of myself before doing that exercise”

It reflects the prototyping-oriented nature of service design. The designers of the programme suggest that this is one of the main benefits entrepreneurs gain from working with service design gained from the workshops, the ability to model before you invest a lot of resources on actually implementing something.

Sarah: “I think the benefit was that they learned to prototype and blueprint [...]they were learning how to visualise a venture rather than writing down what it might be. [...] Firstly (they gain), a mindset of prototyping, Taking on a challenge when you do not know what the solution is going to be having an idea but being able to manipulate it at this early stage that is a really positive set of values of mindset before if you are too headstrong in terms of what you want to deliver before testing it then it will probably fail with a lot of investment behind it or it could not fail but not be right, so that is important when you start up, a quite flexible process.”

Table 20 below summarizes the findings from the NightRiders case study for each research question.

Research question	Findings
RQ1. What is the focus of service design activities	Elaborating on the idea statement Shaping future scenarios Understanding the user experience Identifying business functions Doing a prototype of the service Stakeholder mapping
RQ2. What types of entrepreneurial knowledge are generated	Service specifications – venture specifications User insights Industry specific knowledge -Actionable stakeholder view of the market Service design as a toolkit
RQ3. How does the transformation of experience to entrepreneurial learning take place	Dominant logic - Exploitation through iteration and refocusing Modes of learning – Assimilative and convergent learning

Table 21: Summary of findings from case study 1 - NightRiders based on the research questions

4.4.2 YearHere

YearHere was structured around a front line placement, service design and business modelling training as well as leadership and networking training. Service design was embedded across the activities as a tool to support various activities from user research and community organising during the placements to idea development and evaluation during the incubation stage. Unlike NightRiders where the project required an one day engagement per week, YearHere was an intensive one year course. For this reason the activities presented below represent groups of sessions around a core theme that lasted up to multiple weeks. The analysis of the programme into activities was done on the basis of the formal description of the programme by YearHere, insights collected by the entrepreneurs who participated and material found online. The activities are summarised in the table below chronologically and described in detail in the following section.

Activity	Maps categorisation
1. Kickoff boot camp	Analysis research
2. Frontline placement	Analysis research
3. Innovation bootcamp	Analysis synthesis
4. Innovation project	Synthesis realization
5. Consulting kickoff	Analysis analysis
6. Consulting project	Synthesis realization

7. Venture lab kickoff / Venture lab	Synthesis realization
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Table 22: Case study 1. YearHere- Chronological summary of activities

Activities breakdown:

1.Kick off boot camp

Description

The first activity in the programme consisted of a boot camp, or an intensive set of sessions that facilitated the induction of the participants to the programme. It was structured to include a welcome to the programme, an introduction to the structure of the programme in general and the placement in particular – since it was the first major commitment from the participants- as well an introduction to tools to help participants do their innovation projects as part of the placement. This included an introduction to design ethnography, stakeholder mapping and other tools to help capture and communicate problems faced by organisations.

Categorisation of activity

The activity aimed at providing skills to the entrepreneurs that would allow them to make an account of the current situation of organisations (Analysis) by using collections of data (research-analysis). Since the focus of the activity was primarily on collecting primary data the activity is categorised as an Analysis-research activity.

Frontline placement

Description

The second activity in the programme was a placement within a social service organisation that aimed to allow participants to develop a better understanding of typical impact models, organisation and operational needs in the social enterprise sector. The placements led up to an innovation project to put them in a position of leading a change within an organisation. These projects were self directed and aimed at contributing to the day to day operation of the host organisations. Service design was put forward by the organisers as an approach to understanding and improving the services of the host organisations.

Categorisation of activity

The activity aimed to support the development of new services and the improvement of existing ones. The tools and approaches taught as part of the placement fall in all of the categories of Analysis, Projection and Synthesis, but for the placement in particular the focus is on gaining in depth insights on the current situation (Analysis) by collecting and compiling information (research, analysis). Since the focus is more on collecting data the activity is categorised as an Analysis-research activity.

Innovation boot camp

Description

This activity aimed to prepare participants for their innovation projects by introducing design tools and approaches. It included training in brainstorming and participatory research methods.

Categorisation of activity

The activity aimed at equipping the entrepreneurs with skills that would allow them to understand the current situation (Analysis) and representing their findings (synthesis) to inform their projects. For these reasons it is categorised as an Analysis- synthesis activity.

Innovation project

Description

As part of their placement the entrepreneurs had to create a new service, or improve the existing services offered by the host organisations. The innovation project built on insights developed through the placement and culminated to a prototype of a new offering within the organisation. The focus of the activity was to challenge the entrepreneurs to be innovative and entrepreneurial in a resource-constrained environment.

Categorisation of activity

The activity was about changing the current situation (Synthesis) within the host organisations based on requirements identified through research, by implementing a new service (realization).

Consulting kickoff

Description

The fifth major activity in the programme acted as an introduction to the consulting project which involved working on a brief from a real-world partner. In preparation for that project, the consulting kickoff involved training in professional skills such as

shaping a brief and running meetings as well as training around researching markets and industries.

Categorisation of activity

The activity aimed to help entrepreneurs develop skills to both understand (Analysis) and change (Projection, Synthesis) the situation within host organisations. Since the focus was primarily in professional skills to facilitating the collaboration with the organisations, the activity is categorised on the basis of understanding the current situation (Analysis) through working with collections of data (analysis).

Consulting project

Description

The sixth major activity in the programme was the consulting project that involved an 8 week engagement with a host organisation –such as a local authority or a corporation- in order to provide the entrepreneurs with experience in a consulting role. As part of this activity, the participants for example conducted research, organised events and run community engagement activities. Much like the innovation project it aimed at the delivery of tangible outputs to add value to a host organisation.

Categorisation of activity

The activity aimed at delivering a tangible output (realization) to shape the future situation of an organization based on realistic constraints (Synthesis). For these reasons it was categorised as a Synthesis-realization activity.

Venture lab kickoff – Venture Lab

Description

The venture lab kickoff and the Venture Lab involved teams of participants working to develop a new social venture. To do that they were expected to draw from their insights up to that point, and prototype their idea with real users before pitching it at a crowd-funding event. To help them in this task they participated in workshops and sessions facilitated by faculty members and collaborators including IDEO and other design agencies on practical topics around entrepreneurship such as the lean start-up methodology and design thinking. As part of the activity the participants learned models for evaluating the financial feasibility of ideas, business modelling tools and got advice from mentors.

Categorisation of activity

The activity combined elements of creating a vision (Projection), research (Analysis) as well as ways to implement ideas (Synthesis). Due to the focus on shaping a viable financially sustainable business the activity is characterised as a Synthesis activity. Although the activity allowed for other types of project outcomes to accommodate all of the participants, the focus was primarily the development of ventures, and for that reason the activity is categorised as a realization activity.

	research	analysis	synthesis	realization
Analysis	1. Kickoff bootcamp 2. Frontline placement	5. Consulting kickoff	3. Innovation bootcamp	
Projection				
Synthesis				4. Innovation project 6. Consulting project 7. Venture lab kickoff / Venture lab
Communication	Mentoring Peer-support days			

Table 23: Case study 1. YearHere- Categorisation of design activities using the MAPS framework

Within case analysis- YearHere

Patterns that relate to research question 1. What is the focus of service design activities for entrepreneurship?

In contrast to NightRiders, service design was not the main element of the YearHere programme but an element of a broader programme around entrepreneurship and leadership development. Service design activities were embedded across the various stages of the programme, serving different purposes at each one. In the front-line placement service design was applied primarily as a tool for empathy, to facilitate understanding the problems of service users. The participants were introduced to different service design methodologies during the kickoff bootcamp before they start working with their host organisations, to develop skills in framing problems, conducting design research and engaging service users to collect insights. In the following parts of the programme, namely the innovation and the consultation project it was used primarily as a methodology for engaging people in to collect insights and co-create solutions that lead to new offerings. In these sessions service design was used as a structured way to collect insights and turning them into useful ideas. Finally, in the third part of the programme entrepreneurs used service design to evaluate ideas from the user perspective assessing their feasibility. The application of service design in the programme is summarised in the table below:

Patterns that relate to research question 2. What types of entrepreneurial knowledge are generated through service design

Due to an appreciation of the complexity and wide scope of the YearHere programme which lasted for almost a year, inferences with regards to the entrepreneurial knowledge that emerged through service design activities are made solely on the

participants' reflections rather than the author's evaluation on the structure of the programme. We include here reflections on insights around improving the services of existing organisations the participants engaged with because I think they fall under the category of insights that help them develop opportunities and run a small businesses.

Firstly, the participants reported that applying service design allowed them to collect knowledge specific to the offering of the organisations, making complex processes visible and thus amenable to change. They highlight the structure it helped them impose on the situation, for example framing it as “discipline”.

Stephen: “especially the need to be very disciplined and defined things very clearly, making a synopsis of what is the service.”

Beyond helping them map the existing situation and capture the specifications of their own services, the participants stressed the role of service design tools in understanding and communicating the benefit of services.

*Brian: “... it was really useful to know the kinds of things that you need to be thinking about, definitely on the user experience side, making you think a little bit more about what people are going through see what is going to be difficult for them what the pain points are going to be”
“[the designer] has the ability get a very complex idea of how a system would work and explain that in a very simple way or a graphic of some sort”*

Stephen: “It is very important because it makes you think in greater detail about the offering the how and why it benefits them”

This reflects a better understanding of the service itself, as well as of the users, tying in with the second major knowledge type they reported, which is user insights. Participants, saw service design as a tool for empathy with users or people delivering a service. For example they used video when shadowing colleagues as a way of understanding the current services better while building rapport that would be valuable in the later stages of the project:

Zabra: "So some people were making videos following some of the people they work with and I think it did help build those relationships and you can do that quite successfully through a lot of design techniques, and of course there is many ways about those things it's a way which I guess I understand better but it's also a nice way of connecting that discovery and that empathy with other people so it almost two birds with one stone when you make that discovery and you're able to use your own artefacts to relay to people what you have discovered"

In fact a good understanding of the users was seen as a prerequisite for completing certain service design activities. A participant discussed the benefits from using a user journey map, but suggested that it would be easy to make assumptions if he hadn't spent time conducting extensive research with them beforehand.

Stephen: "You really need a strong understanding the person and their motivation for doing something because otherwise when you go to the user emotion level of the user journey map you just stop so I found that very useful [...] you may miss the things that they would feel and include what you would feel, you really need to be disciplined in that I think" ".you need a good understanding of potential users we also use personas for that, based on interviews or interactions we had different kinds of people who had come to the event, we amalgamated personas, to consider how they would view the event and we plugged it in to the user journey map"

Patterns that relate to research question 3. How does the transformation of experience to entrepreneurial learning take place in service design

Dominant logic - Exploitation through iteration and overlap

Participants stated that service design primarily helped them refine and develop ideas and offerings. For example during the incubator stage, a participant was given a template to build a persona, or a profile that features characteristics of a specific stakeholder group. He found the questions to be helpful in refining what he wants to achieve.

Stephen: "I had this idea for an innovation project, and my supervisor suggested I use this tool. She suggested I answer those questions about the users and present back to her, it was really useful in refining exactly what it is that I want to do"

He also reported using a template that combines a high-level description of the service, an articulation of the user and the value they get from it and finally a description of how it will be implemented. This exemplifies the service design approach of changing perspectives to create a comprehensive representation of a service.

Stephen: “I used a set of questions that was provided to us in a workshop to ask for to consider the following, what is the service, who is it for, how it will benefit them, and how it would be implemented. This was very useful because it was broken down, into these five sections”

Similarly to the previous case study, iteration and the overlap between tools were the main reasons why they framed their learning process as one of refinement. Certain activities were applied repeatedly to capture their progress, while tools might be used simultaneously to discuss for example different aspects of the emerging ideas such as their viability for example:

Dian: “That was guiding us to find out who our target audience would be for this program and whether this is an idea that can work. How a program might look and how the business model might work as well so we running all of those things side by side”

Modes of learning – Assimilative through modelling and convergent through planning prototypes and working with templates

Assimilating learning through modelling

The participants demonstrated different types of learning modes, which can be attributed to the variety of contexts in which they used service design. One of the most dominant modes of learning in the case study was assimilating learning, that involves the integration of different elements to shape a new conception of reality. This was in

part due to the focus of activities on synthesis, which the organisers considered a fundamental contribution of the service design activities.

Zabra: “We see it as equipping people the ability to communicate the things they are engaged with. “

The most notable contribution of service design activities to assimilating learning was around of blueprinting exercises that captured the operations necessary to deliver a service e.g.:

Stephen: “We mapped out what was going on behind the scenes what the user would see and what the user would feel I found that very useful”

Brian:” she [the designer] has the ability get a very complex idea of how a system would work and explain that in a very simple way or a graphic of some sort, we use these skills to illustrate how our processes we're going to work, which was really valuable and also supported the team pitching through their overall insights on the process and I think it was really effective”

These exercises were seen valuable in developing a common understanding in the team, considering how different pieces of the solution would work together and refining them to increase the chances of them working in the real world. In that sense they can be viewed as a preparation for the prototype.

Brian:” Once we hit on the idea we were all happy with, the next phase of ironing it out and rehashing it. That was where we got the most form these tools, we needed to fully understand the idea ourselves before we could start going too in depth with it.” “We really had the chance to work through some rigorous models and toolkits to see if it can stand up in the real world”
Dian “...It helps evaluate ideas, makes you ask questions based on the weak points of an idea.”

The assimilative learning mode allowed participants to spent time with different models of the organisation before they engage in action, leading organically to convergent learning, which emerges as a secondary mode from the case study. It involved learning through choosing a course of action based on the insights from their

reflections and theory building in terms of what the venture could look like. The challenge of this stage is to identify the most appropriate way to test an idea to generate feedback on the most important aspects of the business.

Dian: "You start to think about how do you start to test the system and push the boundaries and it is not always easy"

Instances of convergent thinking manifested for example while moving from a concrete articulation to the service to a plan to test their idea for Brian and his team:

Brian: "So if you spend a month also coming up with an idea and talking about it and doing a business model and thinking about all the things around it how it might work or won't work It was important to find a way to actually go out and do it and look at ourselves doing it and see whether it works at all or really well or what that means"

It is only included here as a secondary learning mode because the participants did not stress its importance in comparison to the synthesis/convergent mode, or the accommodative mode discussed below.

Accommodating learning - by running a prototype

The second dominant mode of learning in YearHere was accommodating learning, which is based on shaping new experiences, in this case prototypes of their businesses on the basis of the work they did in the workshops. This mode is a big part of the programme which required participants to engage in realization activities throughout its duration. In fact it was seen as a fundamental part of the programme which meant to demonstrate how quickly one can create something new and bring it to the real world as a way to learn.

Zabra: "There was not enough prototyping happening, so the idea with this project was to tell them that this is what you can actually do in 24 hours. So if you do have two days we ask you

to use it like you used time in this 24 hour challenge that we gave to you. That was quite a fun and successful projects generated a little bit of a buzz.”

The prototypes allowed the entrepreneurs to familiarise themselves with their ideas and identify new information needs and improvements they can make. It was seen as a valuable exercise before committing significant amounts of resources on them or launching them to the public e.g.

Brian: “I think I was one of the most valuable parts of the incubator for us, being able to pilot. Because we experienced it we knew that there was something there something that we wanted to carry on working on.” “We didn’t want to go too big at once and we also wanted to observe the process very closely ourselves, to see how it worked and how it could be different”

Prototypes were also seen as a way to validate a concept and be able to demonstrate something tangible to potential investors.

Brian: “Getting out and giving it a go it was a priority for us, so that we had something concrete to show to potential funders. We could say this is a brief that we have fulfilled for this client and this is the intended impact and here is where we could go next with this.”

Finally in the context of consulting to an external organisation, prototyping was seen as a good way to allow service delivery people to have ownership over a project, get in touch with it early, and develop their capacity to run and scale it before the venture is launched.

Dian: “But I don’t want to just go away and make something or design something and then just come back and give it to you then I got together a focus group people from the centre and we had four workshops one a week so they felt they had a stake in it and some ownership and at the same time they became the champions the ones forward take it back to the various different programs because they have a variety of services and they would role that out”

4.4.3 Synthesis of findings across the enterprise education case studies

This section synthesises the findings from the two enterprise education case studies examined, based on the research questions. These are summarised in table 23 below. An excerpt from the reflections of the researcher after the analysis of the case studies is also included.

With regards to the first question, around the focus of the activities, it is obvious that that the two programmes adopt very different approaches in applying service design. In NightRiders Service Design is the backbone for developing skills related to entrepreneurship, while in YearHere it is used when it is necessary to enhance other activities for around social leadership along with entrepreneurship. This is reflected in table 24 below, which synthesises the activities delivered in both programmes based on their MAPS categorisation. In the first the emphasis of initial Service Design activities is on Projection that acts as a starting point for the development of an offering to be tested. In the second the emphasis shifts depending on the context, moving from user research, to co-design with various stakeholders, to idea evaluation.

In NightRiders the focus is on elaborating on an initial idea and painting a picture of what it might look like in the future. From that the user experience is analysed which becomes the basis for a discussion on business functions the entrepreneur needs to put in place. In order to kick-start the venture, the entrepreneurs were also prompted to do a prototype of their venture based on the knowledge they gathered. This user centred approach was replicated at YearHere, both engaging with those responsible for the delivery of the service as well as in evaluating ideas during the incubation stage. Service design was embedded across the wider programme, with an emphasis on empathy especially in the the hands-on part of the placement. This was supplemented

by skill development workshops around service design and service design templates that supported the evaluation of ideas for example leading the entrepreneurs into considering specific questions around the service they are aiming to build and how it creates value for the intended audience.

Across the two cases empathy with users and visual thinking was put forward as the dominant characteristics of the approach. Overall as an approach to teaching elements of entrepreneurship it was really well received by participants and funders who found it supports decision making, making entrepreneurship more accessible and structured. Entrepreneurs felt empowered by the tools that allowed them to model complex systems and work on both the strategic and the operational level.

With regards to the second question around the types of knowledge created, participants stressed a few types of knowledge stemming from the activities in particular, namely service specifications – which was expected since this is the object of design in these activities, but also user insights and industry specific knowledge. The user insights are the result of activities around empathy such as persona building, user experience mapping and participatory sessions with users. Industry specific knowledge was gained primarily through de-constructing similar services and modelling the sector as a way to identify opportunities for new offerings, collaborations and funding. Moreover the participants highlighted that knowledge of the process of service design itself will make them more able to identify and act on opportunities in the future, by making the situation more structured, tractable and actionable through visualisation and modelling.

Finally with regards to the third question around the process of transformation of experience, entrepreneurs in both programmes stated Service Design activities

contributed to exploitative learning, meaning, it helped them primarily narrow down their focus and refine for example the user experience they want to create, or reflect on how it translated to business functions they need to have in place. They highlighted three ways in which the activities supported that focus on refinement. Firstly, it was done through the iteration of tools, which was seen as an opportunity to build on previous work and reshape it in light of new insights. Secondly it was achieved through the overlap or the recursive character of tools which helped them work at the strategic and the operational level while being mindful between the connection between the two. Thirdly this focus on exploitation was enhanced by the application of different lenses to view the venture. This is similar to the recursive nature of the process, but stresses the sheer variety of lenses that can be applied, versus the complementarity between them. They stated for example that doing a scenario, a storyboard and a user journey allowed them to escape the limitations of any one of the lenses and gain a more spherical perspective of what the offering and the venture could look like.

The learning mode that was dominant in this process was assimilative learning, or learning by synthesising facts and insights to form new understandings of a situation. This was attributed primarily to modelling and visual thinking which was used both to allow them to work on a macro level –sector level analysis through stakeholder mapping, meso level- an operational view of the organisation through a service blueprint and the micro level-considering for example how a particular interaction affects the user experience. At each of these levels service design allowed entrepreneurs to manipulate elements of their venture when everything is still negotiable and adjust it to their current understanding of the situation. This was complemented by convergent and accommodative learning that related specifically to

planning and executing prototypes. In both cases prototyping was seen as a fundamental stage of service design, prompting entrepreneurs to identify the most meaningful way to run a quick trial of their offering to see if and how it would work in the real world before they invest time and money on it.

NightRiders	YearHere
RQ1. What is the focus of service design activities for entrepreneurship	
<p>Structure:</p> <p>Emphasis on shaping future scenarios, understanding the user experience and identifying business functions. This was used as a basis for building a prototype of the service. Stakeholder mapping to support networking and venture development.</p> <p>Feedback:</p> <p>Focused sessions, ramped up nicely</p> <p>Helped them make decisions <i>“you achieve goals very very fast it gives you a way to keep the momentum going”</i></p> <p>Encouraged prototyping and testing learning about the audience</p> <p><i>“Less intimidating than existing avenues”</i></p> <p><i>“The design-led way of delivery was why it was successful”</i></p> <p>Not enough business related activities <i>“facts and figures to take away and figured out”</i></p>	<p>Structure:</p> <p>Service design embedded in a wider programme, emphasis on empathy with service users due to the hands-on nature of the placement. Skill development for participatory sessions and co-design. Idea evaluation from the user perspective during the incubation stage.</p> <p>Feedback:</p> <p>Applicable to different stages of the process, user engagement, idea evaluation, service development.</p> <p>Helps entrepreneurs make visual representations of the service and how complex systems would work.</p> <p>Demonstrates how useful the user perspective is in shaping a service.</p> <p>Helps entrepreneurs work from the macro-strategic to the micro-interface level.</p> <p>Flexible and adaptive, each bootcamp was <i>“all geared towards one skill which had to do with this stage that we were about to enter”</i></p>

	<p>The programme as a platform for experimentation “<i>it gives you the legitimacy to try things and ask questions, to work in a different way than to if you are doing it independently</i>”</p>
<p>RQ2. What types of entrepreneurial knowledge are generated through service design</p>	
<ul style="list-style-type: none"> • Service specifications – venture specifications • User insights • Industry specific knowledge -Actionable stakeholder view of the market • Service design as a toolkit 	<ul style="list-style-type: none"> • Service specifications • User insights
<p>RQ3. How does the transformation of experience to entrepreneurial learning take place in service design</p>	
<p>Dominant logic</p> <p>Exploitation through iteration and refocusing</p> <p>Dominant modes of learning</p> <ul style="list-style-type: none"> • Assimilative through: <ul style="list-style-type: none"> ○Synthesis, modelling and visual thinking ○Gaining a broader perspective ○Working with templates • Convergent through planning prototypes 	<p>Dominant logic</p> <p>Exploitation through iteration and overlap of tools</p> <p>Dominant modes of learning</p> <ul style="list-style-type: none"> • Assimilative through: <ul style="list-style-type: none"> ○Synthesis/modelling ○Gaining a broader perspective ○Working with templates • Convergent (secondary) through: <ul style="list-style-type: none"> ○Planning prototypes ○Accommodating through running a prototype

Table 24: Summary of findings from case study 1 based on the research questions

Post analysis reflection:

The following excerpt is part of an interim report made after the analysis of the enterprise education case studies for the purposes of demonstrating progress internally to the department. It is included here to demonstrate the development of the researcher's understanding of the data, capturing the experience of the participants as soon as possible, in order to remain faithful to their interpretations and personal experience of the phenomenon. Moreover it aims to complement the analytical focus of the chapter, capturing the evolving interpretation of the data collected as data accumulated. Finally it aims to act as a substantive validation (Leitch et al. 2009) demonstrating the researcher's reflexivity as discussed in chapter three above.

Regarding the Service design process in different contexts:

None of the two programmes were limited by a specific service design process. NightRiders had to adjust the process to the 8 week programme and the nature of the workshops. They assigned readings before each workshop, then introduced tools and worked on them as a group. They also had to embed business and networking concepts as much as possible in the programme because they thought that made the difference for them as entrepreneurs. YearHere demonstrated that SD tools can be used to serve different purposes based on the needs of the project. They introduced tools as and when they became relevant supplementing a broader curriculum around enterprise, leadership skills, social leadership and personal development.

I think these case studies really attest to the flexibility and adaptability of the service design activities, which can be done individually to enhance entrepreneurial learning at the cost of departing from a "complete" design process. In YearHere individual

activities were used in an acupuncture logic to facilitate a micro-enquiry related to the venture. For example, in considering what is the best stakeholder to approach at this stage for a pilot, the structure of the stakeholder map or a system map accelerated the learning of the entrepreneur. This approach is really promising for embedding service design in enterprise education programmes more broadly.

Could we consider the additional non-service design topics discussed in the NightRiders programme as a starting point for understanding the gaps in the scope of service design when it comes to entrepreneurship? They included extensive business modelling, financial modelling such as basic cashflow, information on legal structures and the importance of networking.

Structure: Projection and Synthesis

The majority of the activities focused on Projection and Synthesis, rather than understanding or describing the current state of the venture. This is an interesting contrast to traditional research in business that is more similar to a causal approach i.e. analyzing alternative means to fulfil given goals, considering the environmental conditions with the aim to predict influential trends. The research was conducted less explicitly mainly through empathising with users, and considering the different actors active in the market through stakeholder analysis. The only purely research oriented activities were the initial descriptions of the project/idea and the individual.

Regarding the roles of designers:

In NightRiders the Service designers were simultaneously successful entrepreneurs with consulting and facilitation experience, which is the ideal scenario, really. They had insights from applying service design in their own ventures and shaped the

programme based on their own reflections on what worked. Moreover they were in a position to deliver that content well, being both knowledgeable on the topic and expert facilitators. In YearHere the Service Designer was responsible for contributing to the development of the curriculum, and was on the ground working with the groups. Service design was introduced by other experts as well during the boot-camps. So designers played various roles here as well, teachers, mentors and experts.

Prototyped but didn't highlight accommodating learning activities:

In both programmes they planned and executed prototypes but didn't highlight accommodating learning – from the actual experience as much as the stages of assimilating and converging learning. They appear to learn primarily through creating new representations of the situation and planning prototypes on those models. Is this a result of limited prototyping from the participants, or simply a learning preference?

	research	analysis	synthesis	realization
Analysis	A.1.2. Who are you pitch B1. Kickoff bootcamp B2. Frontline placement	A. 1.3. What is your idea pitch B5. Consulting kickoff	B3. Innovation bootcamp	
Projection		A. 2.1. Opportunity cards	A. 1.4. Business model canvas (1) A. 2.2. Future scenarios A. 3.1. Storyboarding/Journey Map	
Synthesis		A. 2.3. Three year plan A. 4.1. Introduction to business structures A. 6.1. "The system" tool-financial planning	A. 3.2. Identifying touchpoints A. 4.2. Business model canvas (2) A. 5.1. Business model canvas (3) A. 5.2. Stakeholder map	A. 3.3. Prototyping A. 6.2. Communicating your vision A. 7.1. Preparation for the pitch A. 8.1. Pitch B4. Innovation project B6. Consulting project B7. Venture lab kickoff / Venture lab
Communication	A. 1.1. Rules of engagement			

Table 25: Categorisation of design activities across the enterprise education case studies A: NightRiders B: YearHere

4.5 Case study 2. Service design consultations

In this section we review the findings from the second case study focusing on service design consultations with entrepreneurs. The structure in which the findings are presented is the one used for the first case study, summarised in table 17 above.

Workshops with Entrepreneur 1.

Activities	MAPS categorisation
1.1.1. Check in	Communication
1.1.2. Framing the session	Communication
1.1.3. Purpose and offering	Analysis - analysis
1.1.4. Redesigning the purpose statement	Projection - synthesis
1.1.5. Creating a persona	Analysis - synthesis
1.1.6. Check out	Communication
1.2.1. Check in	Communication
1.2.2. Framing the session	Communication
1.2.3. User Journey	Synthesis - synthesis
1.2.4. Learnings from the User Journey	Synthesis - analysis
1.2.5. Check out	Communication
1.3.1. Check in	Communication

1.3.2. Recommendation: Focus on early adopters	Synthesis - synthesis
1.3.3. Recommendation: Communicating the mission clearly	Analysis - synthesis
1.3.4. Recommendation: Creating a pear market	Projection - synthesis
1.3.5. The app as the centre of the service	Synthesis - synthesis
1.3.6. Check out	Communication

Table 26: Case study 2. Entrepreneur 1. Chronological summary of activities

Activities breakdown

1.1.1. Check in

Description

In every session the designers asked the participants to state how they feel and what they "bring with them" in this collaboration. This is a brief exercise that acts as a warm up and an opportunity for the designers and the entrepreneur to discuss external issues that might distract them or otherwise affect how they approach the session.

Categorisation of activity

This is a communication activity that aims to facilitate team work in the session

1.1.2. Framing the session

Description

The designers framed the session as an "understand session" that aims to help them get a sense of the service offering. They stated they would use that as a way to reflect

on the venture as a whole and better understand the challenge Michael wants to address. They would then tailor a process to address that challenge.

Categorisation of activity

This is a communication activity that aims to manage expectations and aims to facilitate the flow of discussion.

1.1.3. Purpose and offering

Description

The designers asked the entrepreneur to talk about the offering of the venture and why they do what they do. The discussion started with the purpose of the organisation with the designers asking for any existing purpose statements, focusing specifically on the activities the service facilitates, and the stakeholders the service is targeting. Then they asked more questions about him as an individual and the motivations behind starting this venture.

Categorisation of activity

This activity seeks to generate information about the current situation of the service. For this reason it is categorised as an Analysis-analysis exercise

1.1.4. Redesigning the purpose statement

Description

The designers then challenged Michael to come up with an alternative purpose statement based on the things discussed in the previous activity. They framed this activity around understanding what actions the service facilitates, which was seen as a core element of the purpose statement along with the main stakeholders of the venture.

Categorisation of activity

This activity aims to create an image of a possible future for the service drawing on information collected about the current situation. For this reason it is categorised as a Projection - synthesis activity.

1.1.5. Creating a persona

Description

The designers asked Michael to create a "persona" or a representation of different characteristics of potential users. They described it as

Katie: "A fictional representation of the users of the service [...]an amalgamation of people or even business users it doesn't have to be one person".

They also provided him with some prompts to help him build the persona:

Katie: "you can do it by filling here their name, occupation, status and hobby as a starting point of understanding them".

The persona generated helped the designers understand who was the intended user of the service, from Michael's perspective. This became a reference point for every subsequent discussion about the venture.

Categorisation of activity

The main function of this activity was to create a model of the current situation- namely to model characteristics of users- and for this reason it is categorised as an Analysis- synthesis exercise.

1.1.6. Check out

Description

Similarly to the check in, this activity aimed to allow participants to share their impressions of the session, and what they take away from it. There was a structured prompt at each session that related to the specific activities that took place earlier in the engagement, for example “describe what you learned about the users from this session”.

Categorisation of activity

This is a communication activity that aims to facilitate team work while promoting reflection between the sessions

1.2.2. Session 2 Framing the session

Description

The designers presented the plan for this session in response to the brief that Michael described at the first session. The main goal of the second session would be to understand how users interact with the different elements of the service and how they gain value from it.

Maria "In the last session you told us that what you wanted to achieve by collaborating with that was too has a clear message to communicate about the Pear card as well as a clear definition of how the system works. In order to do that we will focus on understanding how potential customers interact with the ecosystem of the service and clarify how the pear card solves problems for those customers"

Categorisation of activity

This is a communication activity that aims to manage expectations and aims to facilitate the flow of discussion

1.2.3. User journey

Description

The designers started the session with an activity that builds up on the previous work done defining a persona. The interaction with the user was visualised step by step with an emphasis on the actions of the user and how they feel.

Maria: "We want to visually capture the journey that he follows before during and after he uses the card, breaking it down to as many moments as you want. For each one, what we are looking for here is a picture rather than a sentence a picture of him doing that action".

Moreover, to provide some detail to the user journey, for each moment the entrepreneur would have to consider the following:

- What unmet needs does Rob – the persona- have
- How is he feeling and
- What he wants to achieve

Categorisation of activity

This activity aimed at creating a model of the situation as it shall be, for this reason it is categorised under Synthesis, synthesis

1.2.4. Learnings from the session

Description

The designers spent some time reflecting on the learnings from the user journey exercise. One of the designers framed the reflection activity as follows:

Maria: "I think that what was interesting in this process was that we looked beyond the interaction at the shop so we can examine the customer journey, thinking of the engagements that you need to consider along the way. To design the service effectively you need to consider the various moments individually, that is why it can be a bit hard. But there might be gaps or opportunities in your initial plan and this helps tease them out."

Categorisation of activity

This activity had elements of Communication, Synthesis and Analysis to it. Communication: Explaining the function of the exercise. Clarifying that it should be done from different perspectives and that Michael can use it individually. Analysis: The designers looked at the model of the situation generated through the previous activity (the user journey) using it to identify key moments in the journey. Synthesis: Drawing from the whole of the discussion, Michael talked about a gaming element that would aim to replicate an very strong experience he had with the service to motivate users to stay engaged. Since it focused primarily on creating new information about the implementation of the service, it is categorised as a Synthesis-analysis activity.

1.3.1. Check in

Description

As with every session the designers asked the entrepreneur to reflect on how they feel and what they expect from this session. They also answered the question themselves.

Categorisation

This is categorised as a communication activity that aims to improve the flow of the consultation, acting as an opportunity to share anything that might be relevant as well as to allow the designers to better manage the expectations of the entrepreneur.

1.3.2. Recommendation: Focus on early adopters

Description

The first recommendation of the designers was a focus on early adopters, or people who are already aware of the necessity to support the local community.

Maria "These are people who are already interested in creating a community around this and use their money in this way. This is n't about a loyalty card, but about building a community as your purpose Local ethical trading should be our target market Such early adopters are likely to know others and have networks with people with those interests"

Categorisation of activity

This activity aims to describe the situation as it will be as a result of the design activity so far. For this reason it is categorized as a Synthesis - synthesis activity.

1.3.3. Recommendation : Communicating the mission clearly

Description

The second recommendation from the designers focused on communicating the service offering.

Firstly, their research into the online presence of the service highlighted a lot of difficult language and confusing concepts around the value of the service. This is understandable to an extent since the service is about facilitating local links in the economy and deals with various economic terms. To help him shape the new message they asked Michael to explain the mechanism through which additional value is created within the local economic system. He used the metaphor of electricity to explain the process which they found inaccessible and confusing. They then reminded him of another metaphor he had used in a previous session and suggested he uses this one.

Secondly, the designers identified a problem in the broader message of the service. They thought that the concept of the loyalty card is incompatible with the ethical

trading function of the service. In more detail they suggested that loyalty cards are often seen as marketing schemes rather than a way to be part of a community. The strong marketing character of this practice would contaminate the broader message about community building.

Categorisation of activity

This activity was a reflection on the current situation with very few elements of projection into future scenarios. For this reason it is categorised as an Analysis synthesis activity.

1.3.4. Recommendation 3. Creating a pear market

Description

The third recommendation of the designers was a new service offering revolved the concept of pears as units of contribution to the local economy.

Maria: "We thought a person can accredit business. The more you spend with the community the more Pear points you have. It then becomes a competition amongst the traders to trade more locally, more than the other people, it is not about trading locally, but about how much. It all swifts then It is about rewarding who contributes more to the community. So it is about demonstrating how ethical you are Young people are more interested in organisations that are interested in social impact.

Michael: "This is very powerful I haven't come across that at all. The community doesn't prove the loyalty to the businesses, the businesses prove their loyalty to the community.

The pears become the main interface in terms of the information they share. It is about promoting the positive and ignoring the negative those who don't have points do bad I am warming to this idea"

Categorisation of activity

This was a description of an alternative model for the service with little consideration to implementation in reality, for this reason it is categorized as Projection synthesis activity.

1.3.5. Recommendation: The app as the centre of the service

Description

The next recommendation of the designers was to make the mobile app the main interface with the service. This is captured well in this quote:

Maria: "Based on the discussion on the journey last time, we suggest you rethink it. So we think the first interaction for any user should be the app, because the biggest challenge we found when we did the journey, was getting someone to register after making a purchase and learning about it. So we want to suggest to make downloading the app the thing they needs to come first."

This was followed by a discussion on a new user journey. The discussion revolved around the following questions:

- What is the user journey? Downloading the app at a store
- How do we make a clear distinction between the app and the site

What is the main function of the app- allows them to see where to shop.

How can we build a campaign to promote it

- The importance of visualisation
- Can we use a key-ring rather than a card - Membership number printed on it?
- Integration with other apps
- Importance of simplicity and visualisation

Categorisation of activity:

The activity aimed to illustrate a new user journey based on engagements on the existing one. It describes a future scenario based on information on realistic constraints. For this purpose it is categorised as an Synthesis - synthesis activity.

All of the activities from the workshops with the first entrepreneur are organised based on their MAPS categorisation in table 26 below to provide the reader with a sense of the structure and focus of the Service Design process adopted by the designers.

	research	analysis	synthesis	realization
Analysis		1.1.3. Purpose and offering	1.1.5. Creating a persona 1.3.3. Communicating the mission clearly	
Projection			1.1.4. Redesigning the purpose statement 1.3.4. Creating a pear market	
Synthesis		1.2.4. Learnings from the User Journey	1.2.3. User Journey 1.3.2. Focus on early adopters 1.3.5. The app as the centre of the service	
Communication	1.1.1., 1.2.1., 1.3.1. Check in - 1.1.2. 1.2.2. Framing the session - Understanding the situation and designing a process/ Establishing expectations - " A sense of the look and feel of it" 1.2.5., 1.1.6., 1.3.6. Check out			

Table 27: Case study 2. Entrepreneur 1. Categorisation of design activities using the MAPS framework

Within case analysis- Entrepreneur 1.

Patterns that relate to research question 1. What is the focus of service design activities for entrepreneurship?

The sessions with Michael were structured as iterations of Analysis and Synthesis, with two Projection activities. In the first part of the consultations the designers aimed to understand the offering of the entrepreneur and challenged him to reconsider their purpose statement to reflect a different, more refined vision for the organisation. Based on that understanding of the future, they shaped a user journey drawing from an in depth persona to develop an in depth understanding of current users of the service. This was followed by more activities to refine that new offering, painting an increasingly detailed picture of a new direction for the venture, in terms of its communication strategy and a new offering.

Looking at the overview of the consultations on table 26 above, the lack of realization activities is apparent, meaning that the designers did not present a consolidated document or model for the entrepreneur, and were not focusing on informing his actions directly within the frames of the consultation. It was in essence a strategic consultation limited by the six hour format adopted –three two hour sessions - in which the entrepreneur needed to provide enough information and context to the designers so that they could lead him through a process of refinement and exploration to add value to the organisation. The recommendations took the form of a presentation / discussion essentially representing directions for future work based on what was discussed rather than a report based on extensive external research. During the reflection at the end of the last session Michael credited the designers for being

practical rather than presenting him with a report that would never lead to anything.

He framed it as “*working at the systemic level, the back-end engineering level*”.

Michael: ‘I didn’t know what to expect not sure what the output would be I have done so many similar activities ,coming up with slogans and stuff like that, it doesn’t really translate into actionable results at the back-end engineering level. You worked at the systemic level, working under the hood and provided really practical actionable steps that will make a change in the real world And I think this is quite valuable, other consultancy agencies just produce reports and people put them on the bookshelf’

This could be attributed to the type of input they had from the entrepreneur, which was targeted primarily to a specific offering – the loyalty card- limiting the scope of the project preventing them from being in a position to comment on the business broadly in more detail. This approach points to a need for the designers to focus as much time as possible to working with the entrepreneur on what he saw as priority, engaging him in a co-design process to refine the service proposition at hand rather than invest the time on considering more aspects of the business in less detail. In fact the lack of primarily research-oriented activities in the consultations, supports this argument. In other words the limitations of the consultation format adopted meant that the designers had limited time to conduct research and were dependent on the entrepreneur as the main source of information and insights about the business and the sector more broadly. This led to the consultations being very much focused around a specific need the entrepreneur saw as a priority with limited scope for exploration beyond that.

Patterns that relate to research question 2. What types of entrepreneurial knowledge are generated through service design

During the three consultations, the design activities provided a platform for Michael to reflect on and reconceptualise various aspects of his venture, from the mission

statement, the needs of his customers, the offering of the loyalty card and his communication strategy. The two main types of knowledge generated as captured in the study can be grouped under the themes of strategy and empathy.

An approach to strategy

They designers demonstrated how the application of a service design lens can inform decision making at the strategic level of a venture. They made suggestions for example on the role of the purpose statement as a tool for reflection rather than a statement set in stone, or on a completely new service offering that flips the current strategy on its head i.e. a service through which the retailers show their loyalty to the community rather than one where the community shows their loyalty to the retailers.

An instance of this was the discussion around strategy that was catalysed by a discussion about the flow of information on the website. During the discussion about the purpose statement of the organisation and how it is communicated, the designers ended up stressing the importance of having a single purpose statement, choosing simple wording and metaphors to communicate some of the ideas behind the offering that stem from economics. While this started as a series of fixes on branding and communication, it turned into a broader discussion about the nature of the strategy itself commenting for example on whether the offering needs to be fragmented between different stakeholder groups, and whether basing customer development on a detailed understanding of a complex economic phenomenon was the best approach to take.

The necessity for empathy and tools to achieve it

Through the activities Michael reflected on the necessity to be able to relate to the users of the service more in order to serve them better. This became apparent when he

was for example unable to provide a lot of detail about his users when shaping the persona, and then by his interest in the prompts and the questions by the designers that helped him achieve that. For example he was excited when he was prompted to reflect on the personal motivations of users answering the question, “what would they tell their friends about the service” because he would never have reflected on that otherwise. Moreover he learned new tools to create empathy, for example by doing a journey mapping exercise with some of his users. Finally he was came to appreciate the necessity to consider the experience of the user in the broader context in which is exist.

This was reflected in his surprise with regards to the outcomes of the user journey exercise, before the exercise he was not able to see the value of considering the stages before and after the service interaction in detail, but in the end that is where most of the value of this activity came from. An example of refining the service offering by understanding the user experience was the discussion about a specific interface with the service, namely the leaflet that customers would be given upon registration in a retail space. An initial discussion around when they would be given the leaflet led to a discussion about training staff in retail spaces to promote the scheme, and considerations about whether it should be put in the bag along with the item sold at the store instead of being handed to the buyer. Other considerations that were addressed in that discussion were the information that would be included in the leaflet and how it would make registration as easy and appealing as possible. By the end of the discussion Michael realised there is no need for a leaflet since the information he wanted to provide could fit on the card which the user would be given anyways.

Patterns that relate to research question 3. How does the transformation of experience to entrepreneurial learning take place in service design

Dominant logic -Exploitation

While there were instances of both exploration and exploitation during the three consultations, the focus was primarily on exploitation and refinement. An example of exploration, or the creation of multiple versions of a service pursuing new markets or relationships with the users was the changes in the wording of the purpose statement and the alternative ways to deliver the loyalty card discussed. In discussing the purpose statement the designers guided the entrepreneur through a structured process of exploration, establishing categories of concepts that could be part of i.e. stakeholders and main actions, and then iterating on that to reflect slightly different points of emphasis. Similarly during the discussion about the delivery of the loyalty card service various alternative interaction and their implications were considered, for example using a leaflet, a keychain, a card, or an app to serve different purposes. While the contribution of such instances of exploration was significant and lead to transformation of existing experience and knowledge to new insights, it was primarily in the service of refinement rather than creating fully fledged alternatives, and the process of refinement was overall most significantly the source of learning.

As discussed in the reflection on the first two research questions, the consultation was structured as a series of analysis and synthesis cycles with a few instances of projection. In other words the focus was understanding and synthesising, which lends itself more to exploitation and refinement, than a projection- heavy design process. To exemplify processes of refinement, we can look at two of the *Analysis* activities focusing on understanding the purpose of the venture, its users and the way that purpose is communicated to them. In understanding the purpose of the venture the process started with a broad statement of its vision, which lead to a discussion about

the messaging with the various stakeholders. Based on that process of refinement included the following steps:

- Identifying the purpose statement is not targeted to anyone specific
- Identifying main stakeholders and actions the service facilitates that could be included in the purpose statement
- Actively making a choice of a group to target
- Fleshing out the benefit to this specific group
- Fleshing out the reasons why it is important to them
- Iterating on a structure and wording to communicate that

Each step involved an in-depth discussion and modelling of the situation with post it notes on the whiteboards, to help shape an alignment between the design team and the entrepreneur. The iterations lead to a simpler version that reflected the offering better. The initial statement was “to support businesses or customers recycle money by encouraging them to maintain a connection to local businesses in a virtuous circle” or and the final one was “to encourage people to recycle money in the local economy through maintaining a connection with local businesses”.

Another instance of exploitation and refinement in the consultations was the understanding of the users as a way to inform the service offering. Starting with a persona-building exercise the entrepreneur was asked to build an amalgamation of the characteristics of a type of users to keep in mind during the design process. The questions were initially broad to establish a base level understanding of the user, such as their education level, habits and relationship status. This was followed by a discussion of their relationship to the service uncovering for example concrete/functional benefits of the service such as how it compares to traditional loyalty cards, or how it can help them do more targeted marketing, as well as softer benefits for the users such as giving them hope for the future and making them feel connected to positive things happening in their community. Based on that understanding of the

persona the designers then run a user journey map exercise that took almost two hours, contextualising the chosen scenario/use case, and taking the time to deconstruct each step the user makes before, during and after the scenario under discussion.

In both instances the entrepreneur engaged in exploitative learning primarily by taking directed action and using existing knowledge, drawing from familiar experience of the venture and the users to generate deeper insights.

Dominant modes of learning - Assimilating learning through modelling for clarity, convergent learning through modelling for planning action

Michael primarily engaged in analytical thinking during the sessions, resulting primarily to assimilative and converging learning. During the early stages of the consultations he engaged in assimilating learning through reflecting and synthesising facts into new understandings and theories as to what is going on, and in the latter parts of the consultations he engaged in convergent learning, shaping goals and deciding on courses of action on the basis of this new understanding.

In three out of the first four first activities Michael engaged in a reflection, to help the design team get up to speed with the purpose and function of the organisation. This was done through a series of questions, with the answers being captured on sticky notes and put on the whiteboard for future reference. After each question the designers would consult the previous models, ask clarifying questions and reshaping those models to reflect new refined understandings of the situation. The three activities that primarily lead to assimilative learning were activity 1.1.3 Purpose and offering, activity 1.1.5 Creating a persona and activity 1.2.3. User journey. In these activities he had to externalise and put words on core aspects of the venture, namely broader goals and what it offers at the moment, who are its customers and what are their

characteristics and how they experience the offering. The latter one which was a Synthesis activity focused on implementation, lead to assimilating learning since it was primarily the result on reflection on previous experiences Michael had with retailers and users, and modelling that as a starting point for a discussion on the offering more broadly.

The activities that lead to convergent learning are 1.1.4 Redesigning the purpose statement, 1.2.4. Learnings from the user journey, 1.3.3. Focus on early adopters, 1.3.4. Communicating the mission clearly, 1.3.5. Creating a pear market and 1.3.6. The app as the centre of the service. In these activities Michael planned future action working with the designers to make insights from previous analysis as actionable as possible. In activity 1.2.4. he reflected on what needs to be in place to deliver the service the designers helped him shape in the user journey activity, thinking very practically and operationally. Activities 1.3.3. to 1.3.6. were recommendation based, that lead to a new cycle of modelling in more detail aspects of the new offering. Finally, in activity 1.1.4 he shaped a new way to talk about that his venture including this new offering.

Workshops with Entrepreneur 2.

Activities	Categorisation
2.1.3. What you currently do	Analysis - research
2.1.4. Motivation	Analysis - research
2.1.5. Purpose statement	Analysis - research
2.1.6. Redesigning the purpose statement	Projection - analysis
2.1.7 Value offering	Analysis - synthesis
2.2.3. Building a persona	Analysis - synthesis
2.2.4. Using the persona to develop the purpose statement	Synthesis - analysis
2.2.5. Stakeholder map	Synthesis - analysis
2.2.6. Consider why five times	Synthesis - analysis
2.2.7. Jobs, pains, gains	Analysis - analysis
2.2.8. Services, painkillers and areas of growth	Synthesis - synthesis
2.3.2. Recommendations	Synthesis - synthesis
2.3.3. Service walk-through	Analysis - analysis

Table 28: Case study 2. Entrepreneur 2. Chronological summary of activities

Activities breakdown

2.1.1. Check in

Description

This was an opportunity for participants to talk about their mood and anything that might affect their engagement with the process

The participants (as well as the researcher observing) were asked to also describe their mood in one word.

Categorisation of activity

This is a communication activity that aims to facilitate team work in the session

2.1.2. Framing the session

Description

The "Understand" session - Overarching description of the session to understand expectations for the development of the project.

The purpose of the first session was for Amity to understand Nigel's expectations of the process. They framed this process as necessary for designing a process for the next two workshops

Categorisation of activity

This is a communication activity that aims to facilitate team work in the session

2.1.3. What you currently do

Description

The first activity then focused on understanding the existing situation, the entrepreneur was asked to talk about his venture and his role in it. The description of the exercise stressed the importance of understanding what the entrepreneur does broadly, their target audience, and the value they create for them.

"...to uncover why you do what you do, your target audience, your perception of them, and your perception of the value you offer them."

In response to this prompt, Nigel talked about his background briefly and then moved on to describe Northern Tech, and the way the service is laid out at the moment as a mix of digital components, online training and training in physical classrooms.

Categorisation of activity

It aims to generate data about the existing situation, and for that reason it is categorised as an Analysis – research activity.

2.1.4. Motivation

Description

The designers asked Nigel to articulate why he does what he does, and asked him to capture that in post-it notes (one idea per note). To summarise, he focused on the fact that there isn't enough similar information online (that tracks the projects back to the manufacturer in such a transparent way). Additionally he stated personal reasons (flexibility, satisfaction from doing ethical work) and business related reasons namely that it is relatively easy to run online.

Categorisation of activity

This is an activity that focuses on the current situation (Analysis) collecting data about that situation (Research)

2.1.5. Purpose statement

Description

The designers asked entrepreneur 2. to reflect on their purpose statement. The entrepreneur used one from the website. “We document Arduino compatible projects workshops and sell kits introducing prototyping materials so learners could learn to deploy their own devices”

Categorisation of activity

This is an activity that focuses on the current situation (Analysis) collecting data about that situation (Research)

2.1.6. Redesigning the purpose statement

Description

The designers worked with the entrepreneurs to shape a new purpose statement. To achieve that they worked on a worksheet with the following questions/prompts:

- Identifying key activities enabled by the product
- List groups of people the product is good useful for
- Describe specifically how your products helps others
- What are action words
- Combining those on the back of the page
- Many dimensions to this, choosing one is limiting

- Work on more than one?
- The journey metaphor
- Moving to the whiteboard from the worksheet

Activity outcomes:

- The new statement: “The purpose of Northen tech is: Curate a learning journey for electronic prototyping materials, through providing key resources to empower learners”
- Identifying the importance of making it viral.

Categorisation of activity

This is an activity that focuses on a desired future situation (Projection) while synthesizing knowledge about existing facts as well as future directions (Analysis). (One could argue that this activity could be considered a Synthesis-Synthesis activity, but it doesn't read like solving a problem and addressing current problems, but rather creating a vision that the business could strive towards, so it is categorised as an exercise of Projection).

2.1.7 Value offering

Description

Amity asked Nigel to reflect on the value proposition of the organisation, the prompts where:

1. Why is The service interesting or important for the clients?
2. How it might fit to their lives?
3. What is unique about it the users may talk about?

Categorisation of activity

The activity is about capturing information about the current situation (Analysis) by considering the situation broadly considering the needs of users, empathizing with their lives and considering how the offering can be embedded in their lives (Synthesis).

2.1.8. Discussing expectations

Description

At the end of the first session, the designers wanted to clarify the expectations of the entrepreneur. Similarly the entrepreneur wanted to understand what the designers get out of this and what is the best way they can work together. The entrepreneur provided the following suggested areas of engagement:

- A reboot of the service
- A kickstarter campaign
- A description of next steps to provide him with a sense of direction

Categorisation of activity

This was a communication activity aiming the coordination of the designers and the entrepreneur.

2.2.3. Building a persona

Description

The activity focused on creating a representation of potential users to help decision making about the different features of the service. It resulted to many discussions about who is the most appropriate person to represent and use as a persona. For example the entrepreneur reflected on focusing on the brokers or the end users who were the children. The designers presented Nigel with two alternatives for the process of the persona creation. They would either work to develop a persona of the people

who support the learners, like teachers or parents, or the learners themselves. Nigel decided to base the process on the final users of the service rather than what he considers to be the "brokers" around them.

What is a persona?

Katie "And right those are sticky notes and we use those to create a persona. A persona is a representation. A combination of the things you know about the learners it can be a collection of characteristics of the people you see and interact with. Those who have the learning experience, it is a summary in a way. We need you to start by writing a name and picture, a little sketch of what the learner looks like."

Nigel then worked with the designers to build a persona based on a pupil who goes through the service. The basic questions he had to answer to build the persona where:

- Gender
- family status
- My interests
- 3 reasons why I will use the service
- 3 Reasons I won't use the service

Categorisation of activity

This activity aimed at creating a model of an aspect of the current situation and for that reason it is categorised as a Analysis – synthesis activity.

2.2.4. Using the persona to develop the purpose statement

Description

Connecting purpose statement and the persona: Starting with the purpose statement and trying to expand it considering the persona.

Categorisation of activity

Synthesis - synthesis: this is a discussion that aims to elaborate on a projection made earlier in the engagement (the new purpose statement) by considering the current

situation as it is captured in the persona. It takes in account an analysis of requirements articulated previously to create a new element of the service and for this reason it is categorised under Synthesis-synthesis. Although in the MAPS framework Synthesis-synthesis activities usually refer to activities around testing something in the real world, this activity is beyond the scope of a Synthesis-analysis and partly for that it is categorised as a Synthesis-synthesis activity.

2.2.5. Stakeholder map

Description

The aim of the activity was to identify the various actors that relate to the user journey

This was important to provide context to the persona and identify opportunities for improvements on the service. The main ones were the hobbyists, the educators who also go through the user journey in a way. This brought the discussion back to who the focus of the design engagement should be.

Categorisation of activity

Synthesis - analysis

The activity draws on information about the current situation (stakeholders) but applies this knowledge to better contextualize the persona. The function of the persona was to bridge the current situation with the projection made earlier on (the new purpose statement) making the stakeholder map a Synthesis - analysis exercise as well.

2.2.6. Consider why five times

Description

The designers asked Nigel to answer the question: "Why do you want to empower Connor that way?" and subsequently asked the why again four times for each of Nigel's responses. The responses were:

1. He can use the digital medium as a form of expression and exploration
2. Appropriation, feeling in control, skilled
3. Self esteem self directedness
4. Lacking in confidence, responsibility, choice and achievement
5. Phase of life

Categorisation:

This exercise seeks to make sense of existing information about the current situation so it is categorised as an Analysis- analysis exercise.

2.2.7. Jobs, pains, gains

Description

The designers helped Nigel develop a "learner's profile" by asking three main questions, namely:

What tasks they need to do in order to demonstrate creative skill through the service?

What are the potential negative outcomes that might arise

What are the benefits that the user will enjoy through demonstrating creative skill through the service?

Categorisation of activity

This activity aims to further refine the offering of the service by understanding in detail the user journey as evidenced by key moments such as key tasks, potential problems and moments of success. Information about the present situation is used in

order to contextualise the projection made, or to evaluate the projection made. For this reason the activity is categorised as a Synthesis - analysis exercise.

2.2.8. Services, painkillers and areas of growth

Description

Building on Activity 5. the designers asked the entrepreneur to respond to the findings of the previous activity. For each task that needs to be achieved, they helped him think of material that can support that. For each potentially problem they might face they helped him develop a "painkiller" or something to mitigate those. Finally for each benefit the user gets they helped him articulate an area of growth.

Categorisation of activity

This activity aims to develop offerings and identify areas for future growth. For this reason it is categorised as a Synthesis - synthesis activity.

2.3.2. Recommendations based on the work so far

Description

- The designers offered a set of recommendations based on the work that had been done up to that point.
- The recommendations where the following:
- Create a brand for hobbyist to differentiate it from the brand that targets schools.
- To create more visual material for the instructions and simplify the material used for students.

- To create online courses and web material that would allow students to run the projects without external
- To create challenges and schools to complete,

Categorisation of activity

The recommendations were articulating a future state of the venture grounded in the realistic restrictions identified in the previous sessions (Synthesis) and took the form of suggestions and directions (synthesis).

2.3.3. Service walk-through

Description

The designers invited Nigel to walk them through an use case of his service. Maria (one of the designers) would play the role of the user, and Katie (the other designer) would document the journey as well as Marias reactions as they went along.

The focus of the feedback was very much on what the user is feeling and experiencing more broadly.

"Maria: I am going to approach this with a beginners mind, so I'm going to ask very silly questions, and I'm going to use this time out gesture and let Katie know what I am feeling in what I am experiencing."

Nigel chose an easy project that was well documented on the website and was fairly representative of the projects he works with.

Categorisation of activity

The activity aims to better understand the current situation based on feedback from a first time user. For this reason it is categorised as an Analysis, analysis activity - making sense of data on what is.

The activities from the workshops with the second entrepreneur are organised based on their MAPS categorisation in table 28 below to provide the reader with a sense of the structure and focus of the Service Design process adopted by the designers.

	research	analysis	synthesis	realization
Analysis	2.1.3. What you currently do 2.1.4. Motivation	2.3.3. Service walk-through 2.2.6. Consider why five times	2.1.5. Purpose statement 2.1.7 Value offering 2.2.3. Building a persona	
Projection		2.1.6. Redesigning the purpose statement		
Synthesis		2.2.5. Stakeholder map 2.2.7. Jobs, pains, gains	2.2.4. Using the persona to develop the purpose statement 2.2.8. Services, painkillers and areas of growth 2.3.2. Recommendations	
Communication	Check in. / Out Framing the sessions 2.1.8. Discussing expectations			

Table 29: Case study 2. Entrepreneur 2. Categorisation of design activities using the MAPS framework

Within case analysis- Entrepreneur 2.

Patterns that relate to research question 1. What is the focus of service design activities for entrepreneurship?

The sessions with Nigel were structured mainly around the domains of Analysis and Synthesis, with only one Projection activity. The designers spent a considerable amount of time capturing the offering of the venture, which is complex, guiding him through a reflection on his main activities and purpose, his motivation and what he thinks the value of the offering is to the users. They then worked with the entrepreneur to build a persona which would be at the centre of the design activities that followed. The persona was used to develop a new purpose statement, evaluate the current service and identifying new service propositions. Overall this can be characterised as a more complete design process than the one with entrepreneur 1., including more activities elaborating on more aspects of the service. This was a result of the brief the entrepreneur gave the designers, which revolved around the need to prioritise things that could be possibly improved, and creating a roadmap for its implementation.

Nigel: “So there is all kinds of stuff that you can do that might actually contribute, stimulate revenue in the business to keep everything going and would be nice to know what to do first so prioritising possibly against a plan.”

Much like the rest of the consultations with entrepreneurs, there was a lack of realization activities, which as elaborated above, points to the strategic level of the interventions and the fact that the consultation format adopted is limiting, not allowing a lot of iteration and practical experimentation in the real world. In his reflection at the end of the last workshop, Nigel highlighted the various outcomes of the different activities as “assets he can harvest in the future” and characterised the five why’s activity as a valuable tool he can use in his practice.

Nigel: "I'm really pleased with the process and the fee like I have many assets and I look forward to harvesting those in the future as well, the whiteboards and all the notes from before and in terms of learning I quite liked continuing to ask why after beyond the point when you would normally stop, it is a concrete strategy that I think I could use again, so that's a nice and effective thing"

Patterns that relate to research question 2. What types of entrepreneurial knowledge are generated through service design

The consultations allowed Nigel to reflect on and improve various elements of his venture, including for example the key customer segments to target, understanding the main one in depth, improving the usability of the website and teaching resources, delivering material in sessions with schools and opportunities for new service offerings. The main types of knowledge generated through this process as captured in the study can be grouped under the themes of empathy and service specifications.

User insights and the importance of empathy

Through the consultations Nigel had the opportunity to reflect on the importance of empathising with users and adopting their perspective. Especially the activities that used the user persona to understand the offering in depth had a lot of impact. He reflected on the characteristics of the users he was able to unpack with the help of the prompts from the designers, identifying the importance of somehow understanding how people feel when making business decisions.

Nigel: "I am feeling that a lot of reflection place today in connection to self-esteem and skill demonstration, it is something that I have learned today, its centrality seems significant and resonates. It is something that it should be central, you know how people feel."

He also saw user-centred activities as a good approach to understanding the problem more broadly.

Katie: "I think that the principles of the process could work pretty well, in different types of challenges. So the idea is that you look at the needs of users and their motivations and then you design several alternatives on top of those. Nigel: Indeed it makes sense as a process of understanding the problem well."

This may be a result of the sheer number of the activities that linked to the user persona analysis, which was used to redesign the purpose statement, build a stakeholder map, fleshing out user motivations problems and tasks, informing a broad range of recommendations and partly to evaluate the existing service. For the latter exercise the technique for maintaining a user centered-approach changed, with the designer approached the service walkthrough “with a beginners mind” using the persona as part of the activity, to complement the insights generated. On its own merit, the service walkthrough activity was an opportunity for Nigel to see first-hand how new users react and feel as they interact with the service.

Maria: “I am going to approach this with a beginners mind, so I’m going to ask very silly questions, and I’m going to use this time out gesture and let Katie know what I am feeling in what I am experiencing.[...] so why do the land here and then have to click there [...]if I didn’t know anything I would be wondering what is an Arduino [...]I thought wow all the things that you can do with a bit of technology and your imagination, it is amazing ”

Service specifications

As expected, service specifications were part of the output of the workshops, representing a big part of the entrepreneurial knowledge generated. These specifications or improvements targeted both the operational side of the service starting from individual touchpoints like a website or a piece of promotional material, but extended to strategic recommendations about the structure of the learning journey of users. Example of the operational level of specifications include for example comments on the usability of the website, highlighting areas of the site that could be more visual and what content needs to be made more accessible. Examples of strategic work would be structuring the broader learning journey that the venture curates.

Kate: “By the end of the final session in a few weeks we would like to have outlined the learning journey. So this will be the focus of the final session that journey.”

An examples of an area the designers worked on to deliver this vision was branding for different user groups:

Kate: “Another thing you can consider is making the brand simpler and friendlier for kids it would make sense to make it playful with simple vocabulary, to target parents and children.”

The strategic scope of the consultation was also reflected on the long-term scope of some of the recommendations, such as the recommendation to start building a portfolio of projects done with the kits, which was seen as a positive contribution by Nigel

Nigel:” That is something that is less significant right now because there is only the three kinds of kits for now but in the longer term would be sensible as you are talking about the weekend challenges to be building that portfolio up.”

Patterns that relate to research question 3. How does the transformation of experience to entrepreneurial learning take place in service design

Dominant logic - Exploitation

Primarily the entrepreneur engaged in exploitation through the consultations, either by focusing on one aspect of the venture at a time and developing that, or by engaging in user-focused empathy activities to deepen his level of understanding around that. This took many forms, for example improving the purpose statement. The designers provided Nigel with a structure to frame the statement on, building it around actions and stakeholders. This allowed the entrepreneur to experiment with a few alternatives and consider for example what the value for users is, such as learning and empowerment, as well as what the venture does to deliver that for example designing or curating resources. In the process he identified just how many permutations of the purpose statement are possible with this tool, which he saw as a limitation.

Nigel: “That’s where I have a bit of a problem I think that choosing one, because of the nature of the business there are many couplings which is visible here as well you could end up with a matrix: even maybe, and maybe end up with several dimensions for every box so you’ve got people were learners, or people who are buying from us.”

Eventually with the guidance of the designers, he chose to focus on one type of stakeholder, the learners for the purpose statement, which informed the persona creation and every subsequent activity.

Another instant of exploitation, viewed as choosing to engage with a specific opportunity was activity 2.2.5. where the designers led the entrepreneur through a discussion around stakeholders involved in the service. With the intention to narrow down the discussion around a key stakeholder, the designers aimed to map out the system of actors involved in the service and the relationships between them. As part of the activity, three groups of stakeholders were most prominent, namely hobbyists, educators who adopt the service to deliver workshops, and learners, who are the end recipients of that service. Nigel was then prompted to consider who would be the most appropriate stakeholder to consider in the following activities. He picked the learners, thinking that they are the most demanding group, and serving them well would mean the service can satisfy the needs of other groups of users as well.

Nigel: "I think that focusing in that way is likely to work for the exceptional users as well, so there are hobbyists as well but again if you can give them a clear learning journey and ensure the quality of that journey and they can see the resources and support then it is going to influence them as well so I think it is the right focus".

In doing so he clearly acted in an exploitative way aiming to deepen his current insights on this aspect of the business and make it more efficient.

Finally, another activity that prompted exploitative learning was activity 2.3.3., the service walkthrough. As part of that activity, the entrepreneur had the opportunity to see a user go through the digital aspects of his service, reacting to each step engaging in a simplified version of a think-aloud protocol where the designer would share what comes to mind for each step. This process highlighted for example bottlenecks in the service flow, parts of the site where there was lack of sufficient information and comments on aesthetic choices.

During each of these comments the designer who participated in the study would first report to the designer capturing the journey on a whiteboard, and then discuss with the entrepreneur on what could be improved and why. This was a rich source of feedback and discussion, prompting exploitative learning, and generating a list of specific areas of improvement of the service.

The main source of exploration in the consultations were the recommendations from the designers during the third workshop. The recommendations focused on the following:

- Branding and visual communication,
- Strategic directions- i.e. shaping the learning journey of the users, including new ways to engage with users through online courses and workshops for newcomers
- Improvement of a touchpoint in response to a bottleneck identified i.e. providing a paper template to guide users when using the breadboard, and In more detail, they offered advice with regards to

These represent new variations of the offering and constitute exploration since they depart from what the entrepreneur is familiar with at the moment. Another instance of exploration was during activities 2.2.7 and 2.2.8 where the designers helped the entrepreneur shape new ideas with regards to projects and kits based on the persona developed. It was not considered a dominant logic in the workshops because it was a relatively small part of the activities.

Dominant modes of learning

Overall three types of learning modes were observed in the consultations, namely assimilating, diverging and converging. The dominant mode of learning in the workshops was assimilating learning. As with the previous service design interventions discussed above, this was the result of extensive modelling work, involving mapping and integrating various

bits of information into consolidated models for example of the user journey, characteristics of a type of user. An example of assimilating learning

The designers provided Nigel with a framework to consider the value he thinks the service offers to users.

Katie: “So before we close we would like to understand a bit more about your perception of the value you are offering so we have a few questions to guide this, what is most important for your customers, how it might fit in with the lives and what is unique about it”

Then gave him time to answer these questions and did a follow-up discussion for each point mentioned. Since each of the responses was written on a sticky-note it was used to create a representation of these points, which changed during the discussion (being further annotated and rearranged as the discussion went along, with the final version being a point of reference for the rest of the workshops. While the function of the activity was primarily to get the design team up to speed with the offering of the organisation, from the entrepreneur’s perspective it acted as an opportunity for reflection, interpretation and representation of the value offered. Engaging in assimilating learning through modelling and visualisation was the norm for the majority of the activities in the consultations with a few exceptions discussed below.

Examples of instances of converging learning was observed in activities 2.2.4 and 2.2.8 which involved drawing from the evolving understanding of the service to design new elements, namely a new purpose statement and new service offerings. In activity 2.2.4 the designers built on an existing model of an understanding of the situation to choose a course of action, namely to shape a new vision for the venture that maps better to a specific type of user. This represents one of the few instances of Synthesis- synthesis activity where the entrepreneur engaged in building something tangible along with the designers. Another is

activity 2.2.8 where new service offerings were described based on the previous analysis of the needs of the persona developed. This was very concrete descriptions of directions the entrepreneur can take in developing the service further for example adding troubleshooting resources, selling bagged kits for tested builds and offering resources to support workshop facilitation.

Finally, there was also an instance of diverging learning, driven by the user-centred activity of the service walkthrough. In that activity learning was a result of observing the reactions of the participant first hand, informed by the subsequent discussion and modelling on the whiteboard. I would also argue that using the persona as a point of reference in various activities could qualify as diverging learning because it acts as a proxy for direct experience, blending to an extent apprehension with comprehension.

The lack of accommodating learning points to the lack of hands on activities due to limitation of the consultation format. The entrepreneur did not have time to test ideas in practice within the frames of the consultations. Although there was no subsequent data collection after the workshops to verify it, it is likely that the entrepreneur did engage in accommodating learning after the completion of the consultations, trying new things based on the feedback and recommendations he received.

4.5.1 Workshops with Entrepreneur 3.

Activities	Categorisation
3.1.2. Why you do what you do	Analysis - research
3.1.3. Design Brief	Synthesis - analysis

3.1.4. Analysis of secondary data	Analysis - analysis
3.2.2. Persona	Analysis - synthesis
3.2.3. Empathy map	Analysis - synthesis
3.2.4. Storyboard	Projection - synthesis

Table 30: Case study 2. Entrepreneur 3. Chronological summary of activities

Activities breakdown

3.1.2. Why you do what you do

Description

The workshops started with a discussion around the motivations behind Moor Tech

Sebastian talked about the problems associated with rural life they try to address through technology and the access to the internet specifically.

He gave multiple examples. These for example included inability to look for jobs effectively, having access to public sector services, no opportunities to grow professionally problems accessing transportation information and services at times. The designers gathered information on the problems the organization seeks to address

Categorisation of activity

The activity aimed to produce data about the current situation and for this reason it is categorised as an Analysis research activity.

3.1.3. Design Brief

Description

Following prompts from the designers, the entrepreneur articulated the brief for the consultations. He detailed the project he wants help with at this stage, which was about articulating the social impact of a project around installing super-fast broadband in rural areas.

Categorisation of activity

The activity intended to produce data about the desired future, grounded to current restrictions and existing information. For that reason it is categorised as a Synthesis – analysis activity.

3.1.4. Analysis of secondary data

Description

Amity then asked for access to local people involved in the project to gain more information on the situation. Sebastian had just finished a series of consultation sessions and preferred to share that information with them rather than linking them to the users directly.

Categorisation of activity

The activity focused on using collection of data (analysis) on the current situation (Analysis). For this reason it is categorised as an Analysis- analysis activity.

3.2.2. Persona

Description

They started the second session with the creation of a persona. Similarly to previous workshops, this exercise focused on creating a representation of potential users to help decision making about the different aspects of the service. It was made using the following template:

Katie: "You need to start with the name of the person, You can draw a picture if you want and then answer the following questions: What is the reason for them to use or not use your service, what are their interests, how would you describe their personality, and what is their relationship to technology."

The goal of the activity was to understand the users of their services in detail, getting a picture of their daily life and synthesising all the available information on them drawing from the consultations Sebastian had run with the users.

Categorisation of activity

The activity involved creating a model (synthesis) of the current situation (Analysis) and for that reason it is categorised as an Analysis-synthesis activity.

3.2.3. Empathy map

Description

The designers lead the entrepreneurs in developing an empathy map "*in order to elaborate on the persona developed*". The point of this activity was to empathise with the persona by answering a few more questions about what he perceives in his environment, and trying to understand what he is thinking and feeling. The function of the activity was described as: “a great foundation on which to know more about him like sensory experiences so this is what he thinks and feels what he sees what he says and does in what he hears”.

Categorisation of activity

The empathy map allowed the entrepreneur to understand the persona more fully by further considering various aspects of their day to day experience. It was an elaboration on an existing model of an aspect of the current situation, and for that reason it was categorised as an Analysis – synthesis activity.

3.2.4. Storyboard

Description

The persona served as a tool to explore an alternative future scenario, where the various web services are in place. This was meant to facilitate the development of an understanding of the impact the services would have, starting from the difference they would make in the day to day life of potential users.

Categorisation of activity

This activity helped generate a model (synthesis) of a conceptual desired future (Projection).

All of the activities from the workshops with the third entrepreneur are organised based on their MAPS categorisation in table 30 below to provide the reader with a sense of the structure and focus of the Service Design process adopted by the designers.

	research	analysis	synthesis	realization
Analysis	3.1.2. Why you do what you do	3.1.4. Analysis of secondary data	3.2.2. Persona 3.2.3. Empathy map	
Projection			3.1.5. Scenario building 3.2.4. Storyboard	
Synthesis		3.1.3. Design Brief		
Communication				

Table 31: Case study 2. Entrepreneur 3. Categorisation of design activities using the MAPS framework

Within case analysis- Entrepreneur 3.

Patterns that relate to research question 1. What is the focus of service design activities for entrepreneurship?

Firstly, this consultation cannot be considered complete, since the third workshop with the designers never took place. It was cancelled by the designers because the brief given by the entrepreneur evolved into something they felt they could not meaningfully contribute to. The brief started as an articulation of the social value of a project, but was later changed to a review of a mission document the entrepreneur had written up to give out to potential investors, this was seen as something that falls outside of the scope of the service design engagement and lead to the end of the collaboration. The two consultations that did take place are used in the study since can still contribute to the understanding of the process of engaging entrepreneurs in service design.

The sessions with Sebastian started with activities to understand the venture and continued with the development of a persona and a storyboarding activity based on that. The introductory activities revolved around his motivations and previous work, as well as an analysis of secondary data he had collected through a series of focus groups not long before the workshop. As part of this the designers asked for a detailed brief, potentially in response to the ambiguous articulation of the area of focus by the entrepreneur. Following those activities, they developed a detailed persona of a beneficiary of the service which was used for the storyboarding activity. The aim of the designers with that Projection activity was to create a representation of the desired scenario after the new service had been deployed to enrich the entrepreneur's understanding of the social value created.

Patterns that relate to research question 2. What types of entrepreneurial knowledge are generated through service design

User insights

In these consultations the new knowledge created was mainly around the users, since their experience and benefit was the focus of the consultation. This was primarily the result of activities 3.1.4. onwards, where the entrepreneur was guided through a structured inquiry around who the user is, what is their environment and how the service fits with that. Examples of insights from these activities are for example the role of the social environment in which the individuals are embedded, for example their friends and carers and how they benefit from the service.

Sebastian: I think it is a very complicated situation but what we have to do is to try and flesh out the stories behind certain groups [...] it can be difficult to capture how this happens in the real world so the fact that we you're able to go through that process with Amity was quite useful to try and build up that sort of vignette of that person"

Additionally there was some reflection on sector specific knowledge during activity 3.1.3. on the design brief. Sebastian had to consider the information needs of investors in order to frame the brief considering for example the theory of change that would be part of the application, and the role these workshops can play in supporting that. In this sense the workshops also contributed to his understanding of the sector.

Patterns that relate to research question 3. How does the transformation of experience to entrepreneurial learning take place in service design?

Dominant logic – Exploitation

The design brief for these consultations was to help the entrepreneur understand in more depth the social value of the offering of his business, in order to articulate it better to potential investors. This meant that for these workshops new knowledge was the desired output, rather than a part of or a side-effect of the design of a new offering for example. The dominant logic for the entrepreneur was exploitation, looking to create in depth insights about a service he is already very familiar with by engaging in empathy- oriented activities.

In the first workshop the focus of the designers was to learn as much as possible about previous projects of the venture, and the specific service they would work on – installing super fast broadband in rural communities. This interview was followed by the design of a brief to clarify the entrepreneur's needs and guide the consultations. In doing so the entrepreneur engaged in exploitation, narrowing the scope of the consultations around something he was familiar with, and framing it as a project of elucidating the nuances of the social value offering of the venture. He also engaged in exploitation when he presented secondary data to the designers based on consultations he had previously done with them. In doing so he further narrowed down the scope of the project presenting insights about the specific types of user he wanted to talk about – primarily disadvantaged people.

In the second workshop the designers helped him build a persona that reflects the characteristics of that demographic, in order to go further into understanding their needs. As a result he engaged in analytical thinking to identify what the most relevant characteristics of the users are and how they can be synthesised into a persona that could guide the design process. This exercise of refinement extended to activity 3.2.3. where the entrepreneur created an empathy map for the persona developed, answering more nuanced questions about his the sensory experience, for example what he sees or hears to describe his environment. Finally based on this understanding of the persona and its environment, the designers lead a storyboarding session, which is a representation of a use-case in a series of drawings in a narrative sequence. This helped further detail the experience of the user before, during and after they engage with the service as a way to capture the social value gained.

Dominant modes of learning – Assimilating learning through reflecting on existing knowledge and modelling for empathy

The activities prompted two types of learning for the entrepreneur, namely assimilating through modelling and converging through creating a design brief. The dominant mode of learning was assimilating learning because of the number of activities that involved reflection and analytical thinking to create a consolidated model of an aspect of the venture. In more detail, assimilative learning was prompted in the initial activity, where the designers interviewed Sebastian, which involved reflecting on and presenting past work. This was the case for the activity that involved presenting the secondary data from the research he had done with the demographic under study. In activities 3.2.2. to 3.2.4. he engaged in modelling for empathy, creating a persona developing it with an empathy map and building a storyboard. All of these activities involved integrating different pieces of information to shape a new concrete conception of reality, or assimilating learning.

4.5.2 Synthesis of findings across the consultations

This section synthesises the findings from the two consultation case studies examined, based on the research questions. These are summarised below in table 31. As with the previous two case studies, an excerpt with the researcher's reflections after the analysis of this bit of the study is included at the end of the section as well.

With regards to the first question, examining the focus of service design activities in the engagements, we observe at the first instance similarities between the approach in the three consultations, which is explained by the fact that they were run by the same design team. At a high level of abstraction the focus of the sessions was firstly to understand the venture, then the users and then using those insights in different ways, to serve the various needs of the entrepreneur.

In more detail, in all three of the consultations they used an initial interview, questions about the motivation of the entrepreneur and the purpose statement as a tool to familiarise themselves with the venture. The purpose statement became the first thing the designers worked on with entrepreneur, applying a structured way of changing it to reflect the common understanding that was developed in the session. This led to further discussions about the venture, deepening the initial insights collected. In the third consultation, where the scope was very specific, the designers did not work on the purpose statement of the organisation but spent that time understanding and codifying the expectations of the entrepreneur in the form of a brief.

After capturing the offering of the organisation the designers aimed to understand the users of the service guiding the entrepreneurs through a persona activity. This was done by synthesising primary and secondary data about who the most important type of user is and

what are their main characteristics. The output of that exercise was then used in different ways to serve the needs of the entrepreneurs. In the first case it informed an in-depth user journey around a key moment in the service delivery- the registration. In the second it informed the articulation of new offerings and areas of growth. In the third workshop it was used in a storyboarding exercise to help capture the social value generated by the service.

As reflected in the synthesis of the activities across the eight workshops in the MAPS framework below in table 32. there were no realization activities in the workshops, reflecting the conceptual character of the consultations that did not result to a formal report or real life prototype at any stage of the consultations. Similarly we can observe a low number of research activities, which is an implication of the format adopted. There was not enough time for the designers and the entrepreneur to engage in external primary data collection, having to depend on the reflection of the entrepreneur as the main source of information about the venture and the service offered.

Within the frames of the consultation model adopted the designers run iterations of Analysis and Synthesis, taking in information modelling that for future reference and challenging the entrepreneur by applying a new lens to keep building up the knowledge generated in the workshops. The most impactful activities based on the reflections of the entrepreneurs was the user-journey, the service walkthrough and the storyboard, all of which represent typical service design approaches of capturing the user experience across different elements of the service across time.

This approach was seen as working at the systemic level, resulting to valuable assets and actionable insights, valuable for capturing how the user experiences a service.

With regards to the second question, looking at the types of knowledge generated in the consultations, the participants mentioned service specifications, user insights and tools to

capture them in the future, industry specific knowledge as well as knowledge of service design which as a way to think strategically. Service specifications included small fixes to existing elements of the service as well as descriptions and models of how a new service could work, for example in the case of the loyalty card with Michael, the designers generated a description of a novel offering that reconceptualises the service completely. This was the main output from the consultations, and certainly the intended one by the designers, the services delivered by the ventures were the design object of the consultations. The exception of the third case were the service specifications were not highlighted as a main knowledge type created reflects the brief which focused on refining the understanding of the impact of an existing service for the purposes of investment rather than improving that service.

The second major type of knowledge generated was user insights. In the consultation with the first entrepreneur this was primarily the result of an in-depth user journey exercise that led to valuable insights about the moment of registration. The user insights generated included user motivations, use of technology, types of behaviours the user is likely to adopt which informed the specifications, shaping how the service can better work around those. In the consultations with the second entrepreneur those were primarily generated through the service walkthrough, and were around aesthetic preferences for the website, usability preferences such as how the user navigates a webpage and what they expect in terms of content. Other user insights generated in these consultations was an articulation of the motivations of the users and how they feel – as a result of the five whys exercise- which the entrepreneur highlighted as a useful and transferable exercise with valuable outputs he will be using in the future to understand users. Finally in the consultations with the third entrepreneur user insights revolved around the physical and social environment of the user of the service as a result of the storyboarding exercise. Although the entrepreneur was familiar with the users through previous engagements with them, he reported getting a lot of value from capturing

that information in the form of a story, what he characterised as a vignette that makes it more comprehensible and relatable.

A very interesting type of knowledge highlighted was the knowledge of the process of service design itself, which was seen by the first entrepreneur as a useful tool for “working at the systemic level”. This reflects an interesting pattern that occurred in the consultations with the entrepreneur, namely the shift in scope during activities. For example the designers would comment on a specific interaction, such as signing up to the service and that would catalyse a strategic discussion such as why the digital element is even necessary, or what the is the intrinsic value of signing up. This was repeated for other parts of the consultation, for example in a discussion around the website leading to a discussion around how information should flow and at which point do users need to understand the economic model behind the service. While this pattern can be witnessed in other consultations as well, it was prominent with the first entrepreneur and reflects the ability of service design to facilitate zooming-in and out when examining a service and the broader service system in which it is embedded. The entrepreneur stated he would do the walkthrough from the perspective of a user in the future as a way of refining the service.

Finally, the consultations resulted to the creation of industry specific knowledge, as reflected in the workshops with the third entrepreneur, who used the workshops to improve an application for funding. To empower the designers to do that he reflected on how social investment works, what previous attempts have been done and what are the information needs to support the application at the moment. In doing so and through the interaction with the designers he built on that existing knowledge refining his understanding of the sector more broadly. Other instances of such in-depth reflection on a specific sector in the consultations are for example the discussion around funding for technology projects in

schools with the second entrepreneur, or the analysis of the impact of spending locally in the economy with the first entrepreneur.

With regards to the third question, the entrepreneurs all engaged in exploitative learning primarily, focusing on improving their offering, based on an improved understanding of their users. Examples of exploitative learning in the workshops would be choosing a single type of user to focus on, fine-tuning the purpose statement, or collecting actionable feedback on the online part of a service.

The only instances of exploration in the consultations was the suggestions of alternative directions for new services as part of the recommendations, but these were not developed in depth and primarily reflected work done by the designers with minimal contribution of the entrepreneurs and for this reason they are not considered as a big part of the consultations. For the most part the application of service design to address the needs of the entrepreneur was an exercise of improvement and efficiency, which is likely to reflect their stage in the entrepreneurial journey. It is likely that a pre-start entrepreneur would use these six hours with the service designers differently, potentially engaging more extensively in exploration.

Finally, with regards to the third question on the dominant types of learning, the activities primarily prompted assimilating learning, or learning that involves integrating cues to form a novel conception of reality. This was achieved through modelling for clarity, for example working on the purpose statement in a structured way, as well as modelling for empathy for example creating a persona. In both cases the entrepreneurs engaged in analytical thinking, drawing together existing pieces of information, guided by a series of questions by the designers, who were synthesising an evolving representation of the entrepreneur's understanding. Such activities were used across the consultations, initially to provide the designers with an understanding of the offering and later on as a way to work with the

entrepreneur on shaping an offering. Other activities prompted converging learning through modelling for planning action, or prompting entrepreneurs to make choices on future directions. This mode of learning involves choosing courses of action based on a new understanding of a situation, in this case for example on setting priorities, choosing what part of the venture will be analysed, or what type of user will be used for a modelling activity. Finally one activity, the service walkthrough prompted diverging learning, or learning by direct observation of the user. This was an exception in the consultations which due to the format adopted, which did not include engaging with the existing or potential users. It was possible to do with second entrepreneur because the service he runs has a strong digital element that could be experienced as part of the consultations.

The findings of the second case study are summarised in table 31. below.

Michael	Nigel	Sebastian
RQ1. What is the focus of service design activities for entrepreneurship		
<p>Structure: Introductory “understand” activities, followed by iterations of Analysis and Synthesis, with two Projection activities. Focus on understanding and reframing the purpose statement and doing an in-depth user journey leading to diverse recommendations</p> <p>Feedback: Actionable, working at the systemic level</p>	<p>Structure: Introductory “understand” activities followed by Analysis and Synthesis activity mainly, only one Projection activity. Focus on understanding and reframing the purpose statement, doing an in-depth user persona, development of new service offerings, empathy with users through a service walkthrough.</p> <p>Feedback: It generated assets that can be harvested in the future, it demonstrated ways to deeply empathise with users</p>	<p>Structure: Introductory activities to gather information about the venture, followed by empathy-oriented activities to elucidate the social value created through the service. Focus on understanding a particular demographic in depth, through secondary material, a persona and an empathy map, followed by a storyboarding activity to capture more details about the use-case.</p> <p>Feedback: Quite useful in building a vignette of the user to flesh out stories around the service and how users experience it.</p>
RQ2. What types of entrepreneurial knowledge are generated through service design		
<p>An approach to strategy The necessity for empathy and tools to achieve it Service specifications</p>	<p>User insights and the importance of empathy Service specifications</p>	<p>User insights Sector specific knowledge</p>
RQ3. How does the transformation of experience to entrepreneurial learning take place in service design		
<p>Dominant logic Exploitation – focus on refinement based on existing knowledge. Activities around communication, empathy with users</p> <p>Dominant modes of learning Assimilating learning through modelling for clarity Converging learning through modelling for planning action</p>	<p>Dominant logic Exploitation – focus on refinement based on existing knowledge. The introductory activities as well as those around the user journey primarily lead to exploitative learning. Some elements of exploratory learning around the creation of new offerings and the recommendations.</p> <p>Dominant modes of learning Assimilating learning through modelling Some converging learning through planning new offerings/purpose statement Some diverging learning during the service walkthrough</p>	<p>Dominant logic Exploitation- Focus on creating deeper insights based on existing knowledge. Both the introductory and the empathy oriented activities had a strong focus on creating a refined understanding of the benefit of the service.</p> <p>Dominant modes of learning Assimilative learning through reflecting on existing knowledge and modelling for empathy</p>

Table 32: Synthesis of findings from case study 2. Service Design consultations

Post analysis reflection

About the process:

The initial part of the process adopted by the designers in working with the three entrepreneurs was similar fundamentally, regardless of their different needs. It can be abstracted to understanding the venture and the users, and using that as a basis to achieve different things, namely consider individual interfaces and strategy, improve an offering, or capture the social value created by the service. I find the purpose statement activity interesting because it does not fall into what I thought the scope of design interventions was, I wonder if this was something the designers chose to work on as a way to engage in discussions with the entrepreneurs in a structured way about the venture. The inquiry around the users was expected, but it led to different outcomes each time. The personas seem to be very flexible and adaptable with outputs that can be inputs to various other activities.

I think it is fascinating that the activities that are really the staple of service design, namely those that capture the service through time- the service walkthrough, the user journey map and storyboarding- had the greatest impact on according to the entrepreneurs. This really points to the value service design can bring to entrepreneurship. Overall, it really feels like the consultation format meant the process can't be what is characterised as ideal in the literature. There was no time for engaging users in research, or run prototypes. Was that something that could have been accommodated in the consultations with some planning? Was it a decision of the designers or was it primarily the format that resulted to this?

In terms of the roles of the designers, I would say they acted primarily as facilitators, mainly because they had to rely on the entrepreneur as a source of information. That meant they had to find ways to elicit information from them, and find the best way to use that information.

The check-in/ check-out activities helped, as well as the prompts for the activities. They seemed to put a lot of effort on communication.

	research	analysis	synthesis	realization
Analysis	<p>2.1.3. What you currently do</p> <p>2.1.4. Motivation</p> <p>3.1.2. Why you do what you do</p>	<p>1.1.3. Purpose and offering</p> <p>3.1.4. Analysis of secondary data</p> <p>2.3.3. Service walk-through</p> <p>2.2.6. Consider why five times</p>	<p>1.1.5. Creating a persona</p> <p>1.3.4 Communicating the mission clearly</p> <p>2.1.5. Purpose statement</p> <p>2.1.7 Value offering</p> <p>2.2.3. Building a persona</p> <p>3.2.2. Persona</p> <p>3.2.3. Empathy map</p>	
Projection		<p>2.1.6. Redesigning the purpose statement</p>	<p>1.1.4. Redesigning the purpose statement</p> <p>1.3.5 Creating a pear market</p> <p>3.2.4. Storyboard</p>	
Synthesis		<p>1.2.4. Learnings from the User Journey</p> <p>2.2.4. Using the persona to develop the purpose statement</p> <p>2.2.5. Stakeholder map</p> <p>2.2.7. Jobs, pains, gains</p> <p>3.1.3. Design Brief</p>	<p>1.2.3. User Journey</p> <p>1.3.3 Focus on early adopters</p> <p>1.3.6. The app as the centre of the service</p> <p>2.2.8. Services, painkillers and areas of growth</p> <p>2.3.2. Recommendations</p>	
Communication				

Table 33: Case study 2. Categorisation of design activities across the service design consultations

4.6 Analysis across the case studies

4.6.1 Patterns that relate to research question 1. What is the focus of service design activities for entrepreneurship?

Responding to diverse briefs

The focus of the activities across case studies varied significantly. This was a result of the different objects of design across the engagements. In the enterprise education case studies the aim was to equip people with skills and competencies to make them more able to identify and develop opportunities. The object of design in NightRiders was a new venture, complemented by some traditional business concepts, while in YearHere the object of design was different each time, with Service Design contributing by generating insights in various stages of different projects. There was a variety of objects of design within the consultation case studies as well. In the work with the first entrepreneur the object of design was a new service that needed refinement. This was small part of the overall offering of the entrepreneur. With the second entrepreneur the designers were tasked to help prioritise activities he could engage in to improve the offering overall. In other words their brief was to survey as much of the offering of the venture as possible and make recommendations on how to make it better. Finally with the third entrepreneur the designers were tasked with articulating the social value generated through an established service. In all but the latter consultation the designers responded to the brief successfully, and even in the latter one they delivered outputs that were seen as valuable.

Functions of activities

The approach taken in the study to understand these diverse processes, was to organise them using the MAPS framework which allows the systematic categorisation of design activities on a generic design process model viewing design as a process of inquiry and action (Chow

and Jonas 2009). As described in section 3.4, this is achieved by categorising the activities based on the domain of knowledge they contribute to – understanding the current situation, doing a projection or synthesising these into a plan for implementation and the micro-process of learning it relates to within each of these domains i.e. is its purpose to gather data, analyse existing data, model the situation or consolidate insights into some type of output.

The main domain of knowledge activities contribute to in enterprise education was the Synthesis domain, with a focus on implementation. This includes for example activities that aim to analyse restrictions and requirements to be met during implementation, designing the solutions to problems identified based on these requirements and testing designs with prototypes. Understanding the current situation was the second most common domain of knowledge service design contributed to, with an emphasis on conducting research and gathering primary data through design research and participatory methods. Finally projections were less common with activities focusing on using future trends to reshape an idea, telling stories about future scenarios and storyboarding services that do not yet exist as a way to refine ideas.

In the consultations the main domain of knowledge activities contributed to was Analysis, with an emphasis in understanding the current situation. The focus of activities was on capturing the different elements of the offering, the skills and interests of the entrepreneur, but most importantly capturing the characteristics of users and their experience. The second most common domain of knowledge was Synthesis focusing on compiling insights and creating requirements drawing from the empathy exercises, refining user experiences, developing new services. Finally, projection exercises were fewer, focusing primarily in shaping new exploratory purpose statements with the entrepreneurs and modelling potential futures to prompt discussion and capture the social value created by a service.

The difference in main focus between the two types of engagement can be attributed to the need for a deeper understanding of the existing venture in consultations. The designers had to run more Analysis activities before they could contribute in any meaningful way through Projection and Synthesis. Taking that in account we can argue that primarily activities focused on implementation, which explains the dominant logic of exploitation that was observed across the case studies.

In terms of how the activities contributed to learning within each of the domains of knowledge, the study suggests that the activities took the form of iterations of analysis and synthesis, organising collections of data and creating representations for example of the characteristics of users, their experience and the main stakeholders in the industry. There is a notable difference between the two case studies in the amount of realization activities, which highlights the focus of enterprise education on prototyping and hands-on engagement with users and potential clients, versus the more conceptual contribution of the consultations.

4.6.2 Patterns that relate to research question 2. What types of entrepreneurial knowledge are generated through service design

To answer the second research question we have to draw both from the structure of the engagements and the intended outcomes of activities, as well as from the reflections of the entrepreneurs, who assigned their own meaning to those activities. On the basis of the data presented above, the following inferences can be made with regards to the types of entrepreneurial knowledge acquired through service design.

Firstly the most dominant type of entrepreneurial knowledge generated across both case studies was service specifications. These primarily took the form of descriptions of new services and suggestions for improvements on existing ones. Some of them were presented formally as part of recommendations or through a modelling activity while others emerged

organically through discussion around an interface or the experience of the user. In the two enterprise education programmes discussed, the main output was a set of specifications of services that in combination with more traditional business input provided -such as financial and business modelling- can be seen as specifications for a venture more broadly.

The second dominant type of knowledge gathered through service design was user insights, for example user preferences, motivations and behaviours that allow the entrepreneurs either to identify new opportunities or be more effective in pursuing existing ones. Typically in service design this is primarily the result of observation and prototyping (e.g. Segelström and Holmlid 2009). Since none of the case studies had significant amounts of engagement with potential or current users – with the notable exception of YearHere and the service walkthrough activity with the second entrepreneur in the second case study - the primary source of learning about users was a result of reflecting, externalising and reshaping existing knowledge about them in empathy oriented activities. Examples of that include reflecting on the demographics of users and doing a systematic synthesis of their perceived preferences into personas, using those personas to shape new offerings, creating journey maps to capture how they experience the different stages of a service. The value and function of such knowledge for entrepreneurship was demonstrated very clearly across the cases. In the consultations, personas became the launch-pad for various other activities, reflecting on one hand the centrality of user-centeredness in the practice of service design and a meaningful way to engage in entrepreneurship on the other. Such accounts of preferences and characteristics of users lead to enquiries into reshaping the purpose statement, shaping new offerings, identifying bottlenecks in the service, improving interfaces, capturing social the value created, improving marketing material and branding and fundamentally reframing existing services.

In fact the impact of the activities around empathy was underlined by the feedback from all of the entrepreneurs in case study two. All three of them saw the activities counter intuitive and time-consuming at first, but were pleasantly surprised by the insights generated. As a result we can argue that a separate and potentially more valuable piece of entrepreneurial knowledge developed is the need for empathy with users and other stakeholders, and the tools to do that more effectively.

This links to the final overarching type of entrepreneurial knowledge developed across case studies, which is knowledge about the service design approach more broadly. The entrepreneurs across the board commented on the relevance of service design activities with their practice, framing it as a useful toolkit or approach to strategy which is applicable to different stages of the process and works both at the systemic and the operational level.

4.6.3 Patterns that relate to research question 3. How does the transformation of experience to entrepreneurial learning take place in service design

Dominant logic

Based on the literature review on experiential learning in entrepreneurship, the first measure for addressing the third research question was the dominant logic of the entrepreneur, which reflects the extent to which they engaged in exploration-departing from existing knowledge aiming to create variations of alternatives- or exploitation – generating insights drawing from existing knowledge aiming to improve and refine existing offerings.

Across the case studies the dominant logic of entrepreneurs was exploitation, their focus being on refinement and efficiency rather than exploration of new alternatives. The entrepreneurs engaged in exploitative learning through the iteration of service design activities, allowing them to revisit previous work in light of new experience, as well as the

overlap between activities, that were often organised recursively. Examples of moments of exploitative learning in the consultations include for example choosing a specific type of user to focus on, narrowing the scope of the activity, or dedicating a considerable amount of time to model the user journey of a service in detail. Two examples of activities being organised in a recursive manner are the following taken from the consultation with the third entrepreneur and the NightRiders the respectively:

Deep empathy with users:

Analysing secondary data collected from focus groups, followed by a synthesis of a persona, followed by a detailed discussion about their social and physical environment and how it affects their behaviours, followed by a storyboard to capture how they engage with the service.

From a storyboard to a prototype:

Doing a storyboard to describe a service concept broadly, followed by a user journey map to consider in more detail the touchpoints between the user and the organisation, followed by a prototyping activity aimed at figuring out the simplest combination of touchpoints to deliver the service and how they can be organised.

The endpoint of the first example is the starting point of the second to demonstrate how a more complete design process would look like starting with deep empathy and ending with a prototype.

Learning modes

The second measure for understanding how transformation of existing knowledge and experience to new knowledge occurs in the sessions was the type of learning modes prompted

in the activities, a theoretical construct that reflects simultaneously the mode of prehension – learning by testing ideas or reflecting on their attributes- and grasping or perception – learning through direct experience or conceptual interpretation. The main learning mode prompted in Service Design across the case studies was assimilating learning, or grasping experience analytically through conceptual interpretation and reflecting on its characteristics rather than taking direct action. This was primarily the result of visual thinking and various forms of modelling during the consultations. Entrepreneurs were guided through various processes that required them to externalise opinions and perspectives in a way that makes them accessible and negotiable by the broader design team. The accumulation of such models facilitated discussion and lead to an iterative process of refinement, that primarily related to reflection and analytical thinking. The use of templates that act as guides for activities was also related to assimilative learning as it structures a very specific type of enquiry –e.g. filling out a form with three questions about the persona. Finally this type of learning was associated with gaining a “broad perspective” and thinking about the organisation holistically as a result of extensively modelling different aspects of the venture.

The second mode of learning prompted in Service Design was convergent learning which relates closely to assimilative learning and is equally based on thinking analytically but more biased towards action, being used here to capture instances of choosing a course of action based on a new conception of reality – which is the result of assimilative learning. This type of learning mode manifested either intentionally through planning a prototype or unintentionally as a result of working with models, such as a user journey and committing to make a change based on emerging insights.

The other two modes of learning that complete Kolb’s cycle of experiential learning were also represented in the study, for example there were instances of accommodating learning

through running a prototype or diverging learning through observing a user during a service walkthrough, but these were comparatively rare in the case studies.

4.7 Conclusion

The aim of chapter four was to present and analyse the data collected in the study, identifying patterns or themes that emerge in terms of the research questions. Service design has been demonstrated to be an adaptable process that can support entrepreneurial activity in various ways, having an impact that goes beyond the scope of shaping a new service. As an overall process it primarily contributes to the domain of knowledge of Synthesis, or implementation, supporting entrepreneurs in capturing and developing new service concepts and use cases while identifying requirements that need to be met for their realization. This is based on a firm understanding of the current situation through Analysis activities and informed by some speculative Projections that provided coordinates of possible directions. Entrepreneurs primarily developed entrepreneurial knowledge in the form of service specifications, user insights and the importance of empathy. Awareness of service design itself was also reported to be practical and actionable in their entrepreneurial practice. Entrepreneurial learning in Service design was primarily the result of an exploitative logic that led entrepreneurs to narrow their focus rather than explore. Moreover it was the result of assimilating learning mainly, which emerged by combining various types of insights analytically to shape new conceptualisations of reality.

The next chapter focuses on connecting those insights to existing literature, as well as reflecting on emerging themes beyond the scope of research questions.

5 Conclusions and Implications

5.1 Introduction to the chapter

The study aimed to examine three aspects of the application of Service Design in entrepreneurship], namely the process followed, the knowledge generated and the way that knowledge came to be. In chapter four the data that was used in the study were organised, analysed and interpreted leading to a set of findings that frame Service Design as an adaptable, non linear process that can be applied in different stages of the entrepreneurial journey to structure or complement entrepreneurial enquiry.

The aim of this chapter is to conclude the study expanding the interpretation of the results in light of the literature on the emerging findings from Service Design and Entrepreneurial Learning. An overview of the main findings of the study is presented in table 33 below.

RQ1. What is the focus of service design activities for entrepreneurship?
<p>A focus on implementation through iterations of analysis and modelling</p> <p>Based on Analysis activities which focused on understanding the existing situation, Synthesis activities involved understanding restrictions and requirements that need to be met during implementation-such as user needs and touchpoint specifications, designing solutions around these requirements, and testing design prototypes. With a focus on implementation, the activities can be seen as iterations of analysing existing data and building models for alignment, reference and interpretation. The aspects of ventures modelled were primarily characteristics of users in depth, service touchpoints and the user experience across those touchpoints, the network of stakeholders involved and the purpose of the organisation. The discussions that stemmed from these activities went beyond the scope of the service, to include diverse strategic and operational considerations</p>
RQ2. What types of entrepreneurial knowledge are generated through service design?
<p>Service specifications- Descriptions of new services and strategies, improvements on existing services.</p> <p>User insights- User preferences, motivations and behaviours. Opportunities for value creation based on those insights.</p> <p>The need for empathy- Entrepreneurs saw the value of applying a user-centred lens to their decision making more broadly as a valuable tool.</p> <p>Knowledge of service design- The process itself was seen a practical, actionable and transferable tool they can apply in their practice.</p>
RQ3. How does the transformation of experience to entrepreneurial learning take place in service design?
<p>Dominant logic</p> <p>Exploitation-focus on refinement based on existing knowledge, through the iteration of activities, their overlap and a recursive process where outputs from one process become inputs for another.</p> <p>Dominant modes of learning</p> <p>Assimilating learning – Grasping experience analytically through conceptual interpretation and reflecting on its characteristics. The result of visual thinking and modelling, leading to reflection and analytical thinking.</p> <p>Converging learning- Grasping experience analytically and choosing a course of action based on new models developed. The result of planning prototypes.</p>

Table 34: Synthesis of findings presented in chapter four

5.2 Conclusions on Service Design and Entrepreneurial learning

The study set out to explore how entrepreneurial learning manifests in Service Design, considering the structure of Service Design engagements, the process of learning and the outcomes of that process. Service Design was framed as a practice of enquiry and action in which information gathering informs design decisions and is constitutive to the practice (Buchanan 2004, Gero 1990, Hatchuel and Weil 2009, Nelson and Stolterman 2003). In fact this learning lens extended to the analysis, which considered each activity individually in terms of their contribution to knowledge (Chow and Jonas 2009). To connect the design process with entrepreneurial learning the theory of Experiential Learning was used to synthesise the dominant knowledge types discussed in the entrepreneurial learning literature (see table five). In doing so we positioned the study in relation to two major areas of research in the field, namely developing skills and resources required to explore and exploit opportunities, and understanding the way learning takes place in those processes. Drawing from the Experiential Learning theory allows us to contribute to the stream of research around experientially acquired entrepreneurial learning, using two questions posed by Politis in her theoretical contribution (2005) as the starting point for the conclusions for the study. Firstly, *what factors shape the mode of transforming of knowledge*, and *how does the mode of transformation affect the type of knowledge created*. As discussed in chapter two, transformation has been conceptualised in entrepreneurship as the evaluation and interpretation of insights (Dimov 2007), as the interaction of new information with an existing knowledge base (Corbert 2007) and as the actions taken based on previous events (Politis 2005). The first two interpretations are similar and reflected in the theoretical concept of the mode of learning (Kolb 1984) applied in the study. The latter is captured by the construct of mode of transformation used –making

the distinction between exploitation and exploration. The reflection around these two questions is organised around four main themes below.

5.2.1 Externalisation as a mode of transformation

The first question Politis poses problematizes the intermediate process of transformation that links previous experience of entrepreneurs with new knowledge. Viewing the process of transformation as an interpretation of existing knowledge in light of new information (Corbert 2007), we can argue based on the study that processing existing knowledge using external representations (Blomkvist and Segelström 2014) in Service Design, enhances the capacity of entrepreneurs to reflect (Cope 2005), making externalisation an effective way of transformation. In more detail, seeing entrepreneurs as reflective practitioners (Cope and Watts 2000; Schön, 1983) Cope highlights the importance of reflection in entrepreneurial learning, contrasting this view with that of entrepreneurs as solely “doers” (2005). Drawing from literature on adult learning (e.g. Boud et al. 1985, Daudelin, 1996) he frames reflection in entrepreneurship as the main function through which meaning is brought to experience, leading to novel understandings and appreciations that shape entrepreneurial action. This has implications for the discussion around Service Design because the study highlighted the function of the consultations primarily as a practice of reflection, based on existing knowledge of the entrepreneurs to facilitate assimilative learning.

In the Service Design literature, the function of visualisation has been examined both through early literature focusing on specific tools (e.g. Evenson, 2005; Zeithaml and Parasuraman 1990; Holmlid and Evenson 2006), as well as in later work discussing perceptions of practitioners (Blomkvist 2011; Segelström 2010, 2013) and the

function of visualisations in research (Segelström and Holmlid 2009). The term is used broadly to capture different types of externalisations of both current and future states of the service and includes prototypes (Blomkvist and Segelström 2014).

That research can make us more articulate on the ways in which the various types of modelling observed in the case studies, support reflection in entrepreneurial learning. Drawing from the space of distributed cognition Blomkvist and Segelström (2014) provide an account of the benefits of applying visualisations in Service Design, suggesting they:

- facilitate processing in inferential reasoning – visually rearranging elements to shape alternatives rather than combining pieces of information mentally
- lead to persistent points of reference- being able to reference material from previous activities
- facilitate re-representation – it is easier to transform visualisations into new states
- facilitate working with complex information by using multiple representations- user insights, stakeholder maps, representations of the user journey
- allow shaping arbitrarily complex structures – compared to testing structures in our minds
- create more natural representations of a structure
- lead to a shareable objects of thought – that facilitate for example co-design

In fact they link these benefits of externalisation to learning explicitly, suggesting that service design professionals see the first five of the above list of benefits as instrumental to the creation of new knowledge in consultations (ibid. p. 339). This paints a picture of the benefits of applying service design for transforming experience

to new knowledge linking the two literatures and opening an interesting space for further exploration.

A second view of transformation is that of action based on new information (Politis 2005) based on the idea that in reaction to new information entrepreneurs either draw from their existing stock of knowledge engaging in exploitation, or seek to generate and use new knowledge engaging in exploration. Due to the scope of the study we cannot make inferences about the actions taken by the entrepreneur following the Service Design engagements, but we can argue that the process can support both exploration and exploitation through more prolonged planning and testing through convergent learning (Kolb 1984). In more detail empirical data from the study suggest that applying service design contributes to spending more time de-risking an idea firstly by refining it through exploitation as well as through planning a prototype to test it before engaging large amounts of resources to it. In that sense service design supports both types of transformation through extensive abstract conceptualisation relying on conceptual interpretation and symbolic representation, to support exploitation through reflection as discussed above, and potentially mitigating the cost and uncertainty of engaging in exploration (Bierly and Daly 2007). In fact this bias towards this type of transformation has been the focus of work on opportunity identification and learning, looking at the impact of types transformation to opportunity identification (e.g. Shane, 2000, Baron 2004, Baron and Wand 2004, Shane and Venkataraman 2000). Extending this line of work Corbett (2007) suggests that processing information analytically through comprehension contributes to opportunity identification. This positions Service Design really well as an approach to opportunity identification as it was demonstrated to primarily support comprehension through extensive modelling that led to reflection and analytical thinking.

Concluding this section, Service Design was framed as contributing to two conceptualisations of transformation of experience to knowledge, by facilitating reflection through externalisation and analytical conceptual thinking.

5.2.2 Co-production of knowledge through empathy

As discussed in chapter four, across the case studies empathy oriented activities were central to the practice of designers serving diverse purposes and leading to various outcomes. This section considers the centrality of empathy in Service Design as a factor that affects the process of transformation of experience considering the role of designers as co-producers of knowledge in entrepreneurial learning.

Generating and maintaining empathy is seen as a primary reason for using externalisations in Service Design (Segelström 2010, 2013) and was one of the principle outcomes of the activities in the data examined, either through synthesising in depth personas, fleshing out use-cases through storyboarding or engaging potential service users. This reflects a perspective of services as vehicles for value creation (Vargo and Lush 2008, Grönroos 2008) suggesting that the value of the service is better thought as value-in-use, making interactions the focal point for service design (Sangiorgi et al. 2015). Understanding interactions involves understanding preferences, behaviours and motivations of users, ideally through design research, engaging with related stakeholders and making observations (Meroni and Sangiorgi 2011). In entrepreneurial learning and opportunity development literature, this process of engaging with stakeholders such as partners or potential investors and users during the development of an idea is seen as the process of interpretation that follows the initial intuition (Dimov 2007) and is seen as a process of explaining an initial insight – in this case an initial idea or opportunity-that idea to others through words or actions

(Crossan et al., 1999). In the study, the designers played a very important role in this interpretation both by helping participants connect with their own experience, guiding the reflection as well as by supporting the interpretation of the insights from the empathy oriented activities. The role of designers has been explored to a significant degree in the Service Design literature, with an influential view being that of the designer as an interpreter of the experiences of users using narratives and talk as a design material Wetter-Edman (2014). In the role of the interpreter of experiences, designers can be responsible for organising research material and synthesising different accounts into coherent scenarios (ibid.) similarly to the storyboarding exercises in the study. Similarly, they can also be engaged with organising and running co-design sessions - framed as creative cooperation during a design process (Sanders and Stappers 2008, Steen et al. 2011), involving experts and users alike in the development of new offerings. Although instances of co-design were limited in the study, primarily being observed in the enterprise education cases, due to the limitations of the consultation format adopted, activities around empathy demonstrated the centrality of that practice in Service Design. Overall, co-design is seen as a methodology that improves insight generation for the users, as well as the quality of ideas generated, in terms of originality and value for the users as well as facilitating project management, creating a platform for collaboration, information exchange and continuous improvement. (Steen et al. 2011). By supporting interpretation of experience through running co-design sessions and synthesising the material collected the designers can be viewed as co-producers of knowledge in collaboration with the entrepreneurs.

The study also captures two other roles that designers assumed, namely that of the subject expert and the evaluator depending on the type of intervention and the stage of

the entrepreneurial process in which they contribute. These roles relate to the broader scope of venture creation and are paralleled with the roles of educators in an experiential learning context identified by Kolb (1984). He describes four types of roles for those who seek to enable others to learn through experiential learning, corresponding to the four learning types represented in the experiential learning cycle. Facilitators support diverging learning through helping learners get in touch with their personal experience, subject experts enable assimilating learning by helping the learners connect their experience with the existing knowledge base, evaluators enable converging learning through better application of knowledge to meet requirements and coaches enable accommodating learning by helping learners apply knowledge to achieve their goals. Based on the learning types primarily prompted in the study, the designers can be seen primarily as subject experts and evaluators. As subject experts they linked initial insights and perceptions of opportunities by the entrepreneurs with a body of knowledge about designing and improving services, helping to shape desirable and operationally feasible offerings. As evaluators they helped entrepreneurs choose directions and plan prototypes in a way that tests specific assumptions about the venture prompting new cycles of experiential learning.

The role of the subject expert is captured well in YearHere, where tools were seen as capturing valuable aspects of the design process but the entrepreneurs were expected to use them in whatever way they saw fit with what they wanted to achieve, rather than being presented as serving a specific design process in a specific order for example.

Zahra: “we want our ethos to be much more about providing those tools, and allowing someone to understand how to use it, but much more about

providing tools and letting them choose to develop expertise in the ones that are most useful to them, rather than us say this is what you're going to need at this point, and this comes back to this idea leadership”

Similarly, the designers that worked with entrepreneur 2 in the second case study, acted as evaluators, proposing specific areas the entrepreneur could be working on, shaping a direction in response to the priorities identified through the design process.

5.2.3 Catalysing and shaping action

The study demonstrated that Service Design primarily contributed to entrepreneurial enquiries around desirability through user insights, and feasibility through service specifications. These two constructs are seen the main factors affecting entrepreneurial intention (Boyd and Vozikis, 1994, Krueger et al., 2000), or the likelihood of an entrepreneur to act on a perceived opportunity. This is attributed primarily to de-risking or reducing the amount of uncertainty the entrepreneur perceives in relation to the idea (McMullen and Shepherd, 2006). Linking the findings around the learning modes activated in the consultations to work on entrepreneurial intention and experiential learning (Dimov 2007) we can argue that Service Design is more likely to lead to convergent or situation-specific insights. These act as starting points for further evaluation and interpretation and are more appropriate for supply driven contexts (ibid), meaning that entrepreneurs that apply service design to develop opportunities are more likely to act on opportunities that require user testing to figure out the fit between an existing service and the needs of users.

Beyond catalysing action, service design contributes in shaping action, through the generative function of reflection conceptualised by Cope (2005). In more detail, reflection-which was the primary way of knowledge transformation in the data examined- is seen as critical for action, being the mechanism through which previous knowledge is “brought forward” (Cope 2005) and adjusted to the current situation. In this sense reflection is seen as generative, by triggering new experiences. Moreover Cope (ibid) suggests that the value of generative learning through reflection is that it allows for connections between contexts, resulting to double loop learning (Argyris and Schön 1978) challenging mental models and theories of action of the entrepreneur, that is transferable, resulting to more effective actions in a broader range of new situations (McGill and Warner Weil, 1989). This focus on action based on reflection as a source of knowledge maps perfectly on the concept of transformation of experience in Kolb’s model used in the study, allowing us to make inferences about the potential benefit of mobilising service design to plan action and shape hypotheses by engaging in convergent learning as observed in the data.

5.2.4 Scope of activities, design knowledge and entrepreneurial knowledge

Finally, considering the second question posed by Politis (2005), namely how does the mode of transformation affect the knowledge created, through the study we have demonstrated that applying a Service Design lens to transform experience, results to assimilative learning which generates service specifications and user insights, as well as assets that can be harvested for both operational and strategic purposes in the form of models of aspects of the venture more broadly – as for example in the case of a stakeholder map.

A useful way to consider the different outputs of the learning process in Service Design for entrepreneurship is to make a distinction between what Minniti and Bygrave (2001) call direct knowledge, which is specific industry or problem specific knowledge which is contrasted with the broader knowledge of being entrepreneurial which is transferable to future ventures, involving an expanding stock of knowledge around entrepreneurship that informs idea evaluation and decision making. The distinction is made clear if we consider the scope of the design process as a “*design space*” (Botero 2013) which is a term used in Service Design to capture the conceptual territory that expands and contracts through the design process, and includes the information that are relevant to the design process at each stage. Each activity in the study had a specific design space, guiding the entrepreneurs into a micro enquiry about a specific aspect of the venture, for example the characteristics of the main type of users when doing a persona, or the reactions of that persona when interacting with a touchpoint for the user journey. New knowledge generated through an activity that falls within the scope of that particular activity can be described as design knowledge, or knowledge that informs design decisions (e.g. Buchanan 2004, Hatchuel and Weil 2009). An example of this type of design knowledge from the study would be uncovering the motivations that drive children that use The service through the “Five times why” activity. Of course that is not to say that activities only generate insights around their intended function or intended design scope. In that same discussion for example the entrepreneur reflected on the broader industry prompted by the discussion around the social context in which the service is embedded. The design scope of activities expands or contracts as the activity unravels resulting to a wider or narrower scope compared to what was initially intended. Cumulatively, the scope of activities gives us a sense of the design space of the process overall. The knowledge described

as direct knowledge (Minniti and Bygrave 2001) is essentially the design knowledge that maps within the design space of the process, capturing for example service specifications and user insights that are specific to that specific design space. The broader, transferable insights that contribute to future evaluation of ideas (ibid) can be viewed as a different level of learning from the Service Design activities, visualised in figure 9 below. At this level the entrepreneurial knowledge generated was the value of empathy in making entrepreneurial decisions, as well as the capacity of service design to support entrepreneurial enquiry into new opportunities.

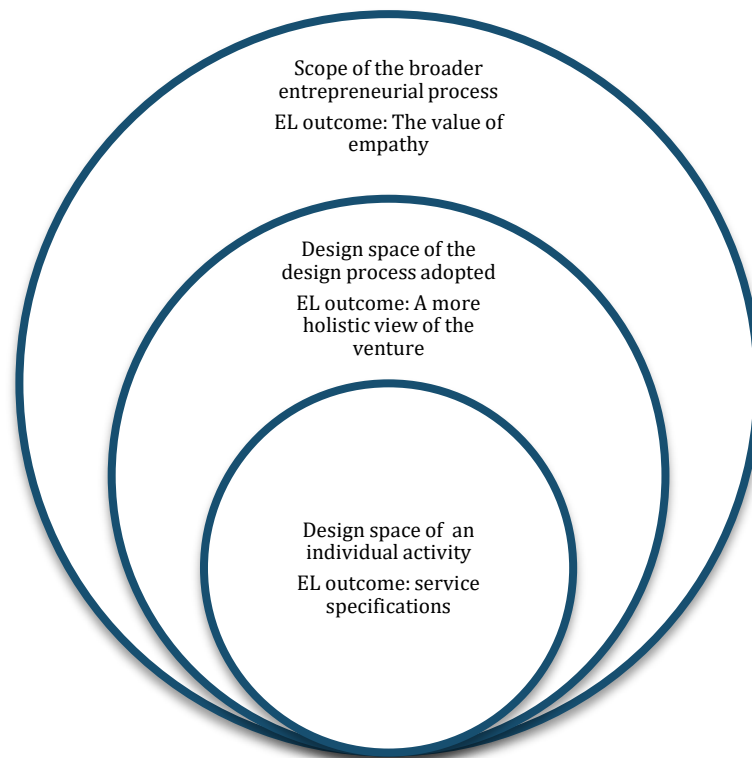


Figure 9: Three levels of scope and entrepreneurial learning in Service Design engagements

An example of a top-level transferable insight from the study would be the sense of structure for engaging with opportunities reported by participants. This was a common

thread across the data. Service design was viewed as a supporting structure for the broader process of entrepreneurship, captured for example in the following quote:

Sian " You read about entrepreneurs... but by looking at it through service design as framework it becomes very visual and very understandable you can immediately access it whereas if you are reading about it, it is not as easily accessible"

By making aspects of the service visible, service design helped make certain aspects of the venture visible which makes engaging with opportunities appear more straight forward. This further boosts the argument around externalisation as an effective mode of transformation made above.

Beyond these benefits of creating external representations of different aspects the venture, engaging in Service Design helped participants pre-rationalise or in other words plan an approach to engage with an opportunity. For example when evaluating an idea for a service, they were offered a simple template to help them think through some questions to answer. This provided them with specific questions to consider as well as providing them with a sense of what questions need to be asked in general by giving them a set of tools they can apply to generate new insights.

Stephen: " I used a set of questions was provided to us in a workshop to ask for to consider the following, what is a service, who is it for, how it will benefit them, and how it would be implemented. This was very useful because it was broken down, into these five sections especially the need to be very disciplined and defined things very clearly, making a synopsis of what is the service.

Valerie : "It forced you to make decisions, they will give you the right amount of knowledge but also, a bit of fearlessness [...] you find your part of the puzzle within the whole and break it down into manageable chunks. [...] it really gave me a sense of urgency because before that I just had frustration and anxiety [...]after nightriders I feel more able to chase opportunities in the future"

Dian: "We worked with many tools that help you categorise the things to work with and also to guide you in answering the right questions"

Valerie : "We just had to fill in the boxes there was no anxiety or worry about how we do this, for what I was supposed to do it was very straightforward and broken down. They were all really useful but disguised as being fun as well, the tools themselves were not very wordy they were visual very quick, it was as interactive as possible as well."

The recursive nature of the process also played a significant part in creating this sense of structure that “*forces you into place*” when conducting micro-enquiries into an aspect of the venture:

Sian “For a lot of the tools there is a lot of overlap and you start example by thinking about the user and do we use a journey map in, and then you do something like the blueprint and go back to the users and say these are the people we are aiming at and suddenly you are forced into place because you have done that process two weeks ago”

Building on the outcomes of previous activities allowed for an accumulation of design knowledge that made the process of engaging with an opportunity more tractable and actionable. This has also been framed as zooming in and out in Service Design (Meroni and Sangiorgi 2011) to capture the ability of the process to narrow the focus of consideration to a small part of the overall service system while keeping the broader system in mind, which through iteration provides a holistic conceptualisation the broader system.

These three aspects of service design, the broad level iteration of analysis, projection and synthesis, its capacity to make elements of the venture visible and actionable as well as its recursive nature, provided the entrepreneurs with a design driven “recipe” for entrepreneurship in the sense that they demonstrated alternative approaches to taking action when one identifies an opportunity or a problem space they want to contribute to.

Limitations of the scope of Service Design

Finally, in considering the scope of Service design it is appropriate to acknowledge the limitations of its scope as they manifested in the study. Primarily the limitations that manifested were around the financial modelling and legal knowledge necessary when setting up a new business. As discussed above, in the first of the enterprise

education case studies, service design content was presented alongside business specific topics e.g.:

Valerie: "It never really seemed to be separate it was well integrated so that we didn't know we were doing business. So it was very seamless. There was not a design exercise and a business exercise. All the tools combined both, it was about thinking about business while using design."

This was built in the programme as a result of a reflection on what nascent entrepreneurs need based on the experience of the organisers

Lauren: "Business, design concepts and networks was the result of my reflection also I could see that these are missing from other people, what they need at the start of the journey, I meet a lot of people in that stage"

Sarah: "these techniques I talked about blueprinting, storyboarding, customer research, going out and doing qualitative research and business thinking, so thinking about value proposition the business canvas model, the other part is networks and relationships, actually building those and having the confidence as an individual to go out and try these things these are taught separately, but if you teach those together, I think it makes a good model for equipping people with the right mindset, tools, and knowhow to build enterprises"

In the second case study business specific topics were framed as "acumen" to distinguish it from other skills participants were exposed to, including service design skills

Zabra: "We used the word acumen to express the actual skills that you might need, doing a business model and dealing with the technicalities of things, the smarts and the intelligence behind all the creativity and the enterprising qualities [...] in all of our courses we try to make sure they have a solid base on business modelling and the technicalities of what they were doing, as well as the generation of ideas. We wanted to balance creativity with viability."

Drawing from the empirical data collected we can argue that the focus of the process of service design positions it well for supporting the evaluation of the desirability of offerings of a venture, and to an extent the evaluation of its operational feasibility, but that does not extend to viability or legal feasibility, which remain well off the scope of design. In the instances where information around financial and legal considerations was included, participants recognised their value as well as the fact that they need more information, framing them as complementary and critical for entrepreneurship:

Sian: “it [balance with the business side] is completely key because actually to be honest you can talk about what your services are, but it all comes back to whether it can all be sustainable financially so you need to spend some time working out that as well”.

Dian: “...these are skills that are necessary if you want to make a living by design but I missed their reality and the business side of things so that is what I wanted to get from year here”

Sian: “These (legal advice) are the things we needed more of, we came from a design background and enjoy doing the business, but we did not enjoy doing the nitty-gritty. Before the program we talked around it we thought about whether it should be a charity what kind of business we should be, it is actually key [...] if anything I wanted more from the business side, but that is partly because I come from a design background. I was really hoping that we would get some idea of accounting but all information is out there you can find it so really comes down you getting the initiative.”

This mirrors the considerations by Kimbell (2009) who discussing service design consultations with science and technology enterprises highlighted the ability of the practice to unpack and examine the underlying business logic of ventures, as well as its limitations when it comes to embedding insights with regards to existing configurations of resources in those ventures.

5.3 Implications for theory

As discussed in the conclusions above the study extended the current theorisation of experientially acquired entrepreneurial learning by considering the entrepreneurial impact of a novel practice. In more detail the study responds to the call by Wang and Chow (2014) for research on the how the full experiential learning cycle happens in entrepreneurship. The study frames service design as a practice that links the processes of doing, feeling, watching and thinking (Kolb 1984) in a structured way, catalysing reflection-for- action that shapes future actions. Additionally by using experiential learning to examine opportunity identification and development the study contribute to the stream of research around the evolving space of opportunity research in entrepreneurship (e.g. Dimov 2007, 2015, Suddaby et al 2015). Moreover, the focus on externalisation responds to calls for a more nuanced view of how transformation of experience can occur (e.g. Politis 2005). Moreover the study makes a link between

entrepreneurial intent and service design framing it as an effective way to increase the likelihood of acting on opportunities and specifically supply driven contexts that need further insights from users. The thesis also captures the contribution of Service Design in terms of the types of knowledge created, proposing a conceptual framework of three levels of scope to categorise that knowledge, namely project specific design knowledge (Buchanan 2004), venture specific design and entrepreneurial knowledge, and broader double loop entrepreneurial knowledge (Argyris and Schön 1978). Finally the limitations of service design for entrepreneurship were articulated drawing from the data collected, identifying areas where service design for engagements can benefit from more traditional business expertise.

5.4 Implications for future research

The study aims to catalyse interdisciplinary research between the fields of Service Design and Entrepreneurship by advancing theoretical knowledge of the contribution of Service Design activities in Entrepreneurial Learning. The approach taken was to extend existing work around experientially acquired entrepreneurial knowledge to that domain, by deconstructing Service Design consultations and enterprise education programmes through a learning lens, relating them to the constructs of experience transformation, modes of learning, dominant logic, entrepreneurial knowledge, entrepreneurial intention, opportunity identification, and opportunity development. Moreover some concepts from Service Design were highlighted as appropriate for import in entrepreneurship research, namely that of the domain of knowledge, micro-learning stages, user centeredness, co-design, design space, design knowledge, external representations.

These theoretical constructs used to operationalise service design in the context of entrepreneurship, as well as the conclusions of the study discussed above provide a theoretical platform from which to further explore the dynamics of service design for entrepreneurial learning and entrepreneurship more broadly. Several propositions about the impact of Service design were articulated, in terms of how it helps transform pre-existing experience, how it contributed to entrepreneurial intention, and opportunity identification among others. An avenue for research could be to further test the propositions made, to confirm or reject the theoretical assumptions in this study, and expand our understanding of the value of this practice for entrepreneurs.

Moreover the application of the MAPS framework in the context of entrepreneurship can support research on design practices for entrepreneurship more broadly that don't necessarily fall under the banner of service design. In fact increasingly design thinking processes are applied in enterprise education as well as the practice of entrepreneurship, which can also be deconstructed through a learning lens using the MAPS framework. The intention of the research behind the MAPS tool (e.g. Hugentobler et al. 2014) was to help create a toolbox of design activities that can be reused depending on the context to build tailored process configurations and accelerate innovation. Adopting this framework for the analysis of service design and design thinking interventions in the field of entrepreneurship would also potentially serve a similar purpose beyond analysis, simultaneously allowing us to create our own toolkit to support the practice of entrepreneurship through targeted process configurations based on the learning needs of entrepreneurs. To achieve that, further research on elements of the model that were not operationalised in the research needs to be done, for example exploring how the aspect of the project context in MAPS can be translated and expanded to the domain of entrepreneurship.

Ideally future research on the topic would be collaborative across the two disciplines to more effectively synthesise native theories from both fields. In this study the focus theoretically was primarily on entrepreneurial learning, drawing for example on theory on externalisation or the roles of designers to consider the entrepreneurial impact of Service Design. Working with service design researchers the same research could mobilise additional sets of constructs that result to new insights and accelerate the link between the two domains. Such interdisciplinary work could for example consider the entrepreneurial impact of the focus of service design interventions as discussed by Wetter-Edman (2014) in terms of the themes designers focus on, or the most appropriate design tools to use in a social entrepreneurship context expanding on work from Kimbell and Julier (2012).

Finally, another strand of future research could examine the role of service design interventions in shaping the affect of entrepreneurs, namely the extent to which engaging in a systematic approach of designing a service shapes their level of bias in decision making and what methods are likely to help them de-bias or de-risk their decision making (Zhang and Cueto 2017). This research for example demonstrated that engaging in service design generates new user insights and service specifications, it would be interesting to explore how these outputs and specifically the various manifestations of these outputs in service design-in the form of a persona or a process diagram for example- affect decision making and bias.

5.5 Implications for practice

Educators and practitioners can benefit from this study, as it presents a novel connection between two practices. Service designers can draw from the study to support enterprise oriented projects, being able to articulate how the practice of

Service Design benefits the learning journey of both nascent and mature entrepreneurs.

For enterprise educators the study offers firstly an evaluation of a series of activities they can use as a starting point for considering how to best draw from the design expertise. I propose there are two modalities in which a service design lens can be applied in traditional enterprise education programmes, either as a full design process, in which case working with service designers is recommendable taking entrepreneurs through a design process where the design object can be a service or the venture itself as we saw in the case of NightRiders. The second one would involve a lower level of engagement with the service design expertise, solely adopting activities selectively to conduct small scale enterprise enquiries. For example running a stakeholder mapping session or a user journey mapping session as a starting point for discussion around the offer of a business.

5.6 Limitations

Empirical Limitation

The format of the consultations adopted did not allow for engagement with external stakeholders and observation which are a big part of the service design process. Future research would ideally focus on more complete service design processes. In collecting empirical data on the case studies the researcher was limited to conducting interviews retrospectively for the most part, with only a few of the interviews for YearHere taking place soon after or during the engagement itself. This may have lead to inaccurate recalling from participants.

Analytical Limitation

Due to the interdisciplinary nature of the study, the analysis of the service design engagements was limited by the researcher's ability to analyse aspects of the design practice in detail. This resulted to a limited account for example of the role of designers or the areas in which they focused on through the engagements. A more design-led account of the service interventions could have painted the practice more broadly in a different light.

5.7 Epilogue

In this work I have drawn a connection between two practice-based fields that can hopefully provide some coordinates for future research and amplify the impact that service design and design research more broadly can have in entrepreneurship research, education and practice. This cross-fertilisation with design is an increasingly common – and unavoidable in my opinion- trend, with bibliography on entrepreneurship and entrepreneurship education that draws from design as a research approach, pedagogy, or practice to be gaining traction (e.g. Neck and Greene 2011, Nielsen et al 2015, Dimov 2016). I consider this to be very promising trajectory for both fields and one that this thesis hopefully will help accelerate.

This study provides practical methodological insights around the evaluation of individual activities within the process of design – by using the MAPS framework- that can be used to unpack the entrepreneurial process itself, viewing it as a design process (e.g. Sarasvathy, 2012) . Applying the MAPS framework for entrepreneurship can allow researchers focusing on the applied quality of entrepreneurship unpack the individual entrepreneurial activities in terms of their aim, function in the broader scope of the entrepreneurial process as well as their outcomes in order to reflect how

each action contributes to opportunity creation (e.g. Neck and Greene 2011, Nielsen et al. 2015).

Finally this work demonstrates an approach to research that is compatible with the design science approach that is put forward by Dimov (2016), contrasted to the scientific or the humanities approaches that are common in entrepreneurship research. According to this view, researchers would work closely with entrepreneurs, engaging in building and testing, contributing to the creation of models that support decision making in entrepreneurship with the intent to produce pragmatic knowledge that has practical utility in the context of building new businesses. If we are to move towards that direction with the aim to support the practice of entrepreneurs, such interdisciplinary and hands-on work will be valuable if not necessary. The way of working with professional designers to support entrepreneurs as well as the methodology put forward in this research for capturing their contribution can be used as a starting point for that type of research.

It is a great time to be practicing and researching in this field, and I feel privileged to be in a position to contribute to the emerging discourse around design in this novel context.

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7 Appendices

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7.1 Appendix 1: Examples of pilot study interview summaries – Entrepreneurs

Interview summary- Frances Batten

Frances has an engineering design background and has an MBA, he runs a number of ventures around the themes of food security, open money while he is active in broader social innovation and community initiatives such as regeneration projects. He believes that the role of the entrepreneurs is to develop a support system infrastructure for other projects. During the interview I asked him to provide me a timeline of his activity as an entrepreneur describing the steps he took to set up ventures in his career.

1. Focus on the process:

1.1. “A design led organisational method” - How he describes his process

A big influence on how he sees his own process is permaculture design which he sees as a toolkit to solve problems more broadly. Permaculture is about integrating human society in the way nature works so this reflects both his environmentalist ethics as well as his intention to work with whatever resources are available at any given time.

In describing his approach to entrepreneurship he said “We have an organisational method in place”, which he summarises as problem identification, aim, project definition and invitation. He suggests that this is “a design-led approach” that allows him to “deal with a lot of complexity”. In fact Frances sees his perspective as design-led altogether. “Design allows us to cope with a large degree of uncertainty”. He makes a distinction between “design” and “planning” stating that design involves “having an aim and project definition that includes the strategic approach”.

1.2. Collaborations at the heart of his process

Before making any move professionally, Frances looks for others who are “at least as mad as him” and willing to work on it, he never starts to work on projects if he can’t shape a team around it.

In engaging others in his projects he identifies the following elements as significant:

1.2.1. “The working group”

This includes the people that get together to tackle a problem in the first place, at this stage they are all unpaid and they work towards developing operational and strategic direction of the group, which through this process becomes “reasonably formalised”. This process involves making “*a realistic appraisal of the situation and forces at our disposal and then we have to have some kind of for bringing the product into the market, into society*”.

1.2.2. “The invitation”

By this he means a document which defines the problem the way the initial working group sees it, as well as the way an extended group would work, including “risk and reward structures” that will sufficiently motivate the group of people that will work on the project.

The goal of the invitation is to attract people with the necessary skills but similar experiences and “temperament” as well. Those that do join the team work for a while in an “induction stage”, learning “the approaches and the culture”, until the working group sees how they fit with the wider project

A challenge with regards to the “invitation” is to go beyond stimulating interest in the “usual suspects”, meaning those that tend to turn up in community functions or are active in the area of interest already but to actually engage people who usually are not.

1.2.3. “A design authority”

Frances sees the early work group as the initial “design authority”, those who have a vision as to how a project needs to be developed, “directing” others. He sees this necessary especially in projects that have a significant open source element (like the

open money project he is part of). The “design authority” is seen as “the custodians of the design and the ethos of the project I suppose”. This draws from open source projects in computing where a core design or kernel is defined and then anyone can contribute in their own way following to an extent the directions of the design authority.

1.2.4. “The commons”

In organising the work of different actors within projects Frances uses the term “commons” to describe a pool of common resources available to all. These resources are meant to support different functions so that even if “people have different approaches to the project they can still work together on areas of common ground”. This process is meant to establish a measure of collaboration between “the different levels of opinion as to how problems should be addressed”. Moreover “the commons” represent a “platform for innovation” for Frances providing basic assets to people and allow for other things to emerge through that. This can’t be planned, it s an act of faith.

1.3.From a work group to a formal organisation

1.3.1. When to formalise

Frances thinks that choosing a legal structure for the nascent venture should happen only as you set out to work with an existing group of people and a very clear direction – the result of the design led process discussed above. As a result of the resource appraisal, the clear goal and the strategic approach this direction should provide enough clues as to what the legal structure should be.

1.3.2. Legal forms and flexibility:

His approach to being flexible and able to respond to problems and opportunities is to be the director of entities with different legal forms around each of the themes he is active in.

He sees this as a way to innovate even if each legal form is prescribed for very mundane functions, he calls this “beneficial assembly” and following the principle “forms must fit the purpose”.

Interview summary - Michael Baron

Michael is a self made entrepreneur who runs the Lancaster Small Business network (LSBN) in Lancaster. Before that he worked in community initiatives for 20 years, worked at a Steiner school as an administrator and developed a skillset as a consultant. He is also member of various other initiatives such as a community land trust and a timebank. From his experience with businesses and social initiatives he realised that they could be done more successfully together *“Community initiatives wouldn't really be very business focused or efficient and the business side wouldn't be regarded as having anything to do with community development, So one of the big miss matches that I saw to these two pathways was that they didn't really seem to be talking to each other”*

During the interview I asked him to provide me a timeline of his activity as a entrepreneur and how he would describe his process to me. In discussing how LSBN came about he focused on his “personal approach” as well on how his personal biography gave him the tools he needed to launch and run LSBN.

1. The Lancaster Small Business network (LSBN)

LSBN offers networking and business support services to over a hundred small ventures in Lancaster. Its goal is to create the environment for sustainability locally,

“dealing with the economy but referencing that activity to the environment” . A secondary role of LSBN is to allow small businesses to part of the sustainability forums, for example allowing them to work with organisations from the third sector.

The approach he takes in LSBN is facilitative rather than hierarchical allowing for anyone to contribute to the development of the other members of the network based on their own capability.

He sees the nature of different ventures as complementary stating that established firms are slower but can make more time if that is necessary, while sole traders are flexible but time poor. Through LSBN he intends to bridge these two as a way to generate collaborations.

2. A “Start your own” mentality

Michael believes in “starting your own” as a response to limitations one may face. In his early career to an extent he felt excluded by the professional world due to his lack of formal education, so he turned to entrepreneurship in response to that. As a result he has developed a mentality of “doing whatever needs to be done”, believing in self-teaching and informal learning. “If you start something, the first principles of something that you build yourself, it can be easier”.

Drawing from this mentality and his personal values, Michael sees new ventures as a way to deliver. In different instances in his journey as a community activist and a social entrepreneur Michael has seen ventures as a way to make social impact sustainable and maximise its impact.

As an administrator in the Steiner school he developed a scheme for fundraising activities to be developed as micro-businesses. This experience with a group of small

businesses was the core behind the development of LSBN, a hub where micro-businesses are nurtured.

2. Self-teaching and personal development

In terms of professional skills, Michael has been self taught, and this has shaped his approach to things. The concept of taking responsibility for one's self improvement is part of Michael's work with LSBN, being one of the key outcomes he wants to promote for its members. In more detail, he has developed the "quadruple bottom line" concept to suggest that businesses need to be profitable, offer social value and also be part of the development of those that run it.

Moreover he conducts his own research into sustainability and the factors that contribute to it. This research draws from the different areas he is active in, it is used in auditing members of LSBN as they join the organisation and was the starting point of the barter project.

As well as self teaching he has gained a certification in consulting, which he considers to be very important to how he works today. This was a result of his attempt to deal with organisational problems in the school he worked in as an administrator, *"I wanted tools to be able to name and articulate that this dysfunctionality that was happening"*.

3. Setting up a venture - "From the whole to the parts"

He describes his approach to new venture creation as "moving from the whole to the parts" describes as follows: defining an aim, considering what resources he has available and then work on different aspects of the project in order to increase the "resolution" of his initial plan for the venture.

He sees this process as being iterative, essentially depending on contacts and emerging opportunities, *“It is very iterative, as it evolves people pop up and you realise that you hit something and you need a solution and then you need to find somebody.”*

4. Developing ventures around people

He considers the organisations to be essentially sets of relationships that need to be maintained and developed. This is part of why he considers personal development as being part of venturing, it is about developing new relationships and grow in the process. Finally he thinks that organisations can develop to focus on infrastructure management rather than relationships. *“What constitutes the organisation is the software of what exists among people and not the actual infrastructure but you often get people often losing sight of that and they end up infrastructure management rather than creating relationship”*

His work into networking reflects that, he actively tries to bridge business networks that are currently not cooperating necessarily, such as the bay businesses, the Shout network and the chamber of commerce business network.

5. Knowing when to stop trying

Reflecting on the process of navigating opportunities Michael said it is important to know when to stop trying, *“every key moment that I have had, every short of aha moment which is a point at which I recognise that putting more effort and energy in a process is futile”*.

6. Legal structure

With LSBN Michael is combining two legal frameworks to maintain control of the venture, while offering a self directed platform for businesses. The first legal form is a CIC which he has to his name, and the second one is the LSBN business club which is a cooperative the businesses sign up to. They can act as a co-op if they want but the co-op is part of the CIC which is his. The co-op is “a business application of the CIC”

7.2 Appendix 2: Examples of pilot study interview summaries –Designers

Interview summary- Stephen Kirkwood

Red Industrial Design is a physical prototyping organisation active in Scotland. They see themselves as “catalyst for people who have ideas and people who want to invest or contribute or collaborate on these ideas.” They offer prototyping and business support to enterprises(through investors who work with them), offering “a studio environment where people can actually turn around and say what do you think of this and you get an honest response”. They have different types of offerings, such as a studio environment with desktop prototyping tools, 3d printers laser cutters and textile equipment, a micromanufacturing facility where one can produce 3d prototypes as well as architectural prototypes. Their vision is to create a network of physical spaces to promote the importance of prototyping in design. The business also has a social agenda which is a big part of their activities, most of the income generated through commercial work is used to work with charities and community groups.

In the interview we discussed contributions of both industrial and service design in entrepreneurship.

1. Design and enterprise:

Stephen believes that this is a growing field and the goal of Red Industrial Design since the beginning was to support enterprises. This is achieved in different ways discussed below:

1.1.Part of a network of support

Design support for businesses is seen as critical for Stephen who stated that there is a lot of business and financial support out there but this isn't enough. Stephen sees design resources as part of an ecosystem of support for new product based ventures. He describes it as a referral network of support in Scotland, which includes service designers such as Snook, as well as government support agencies such as Scottish enterprise.

They see themselves as a special kind of support that has the momentum needed by small firms. When dealing with big support providers they need to engage in beaurocracy, but when they work with Red Industrial Design entrepreneurs enter a space where they get immediate honest feedback.

1.2.Makers and manufacturers

It is he intention of Red Industrial Design to allow non-designers to get insights on manufacturing, essentially familiarising themselves with the process and uncovering new skills to inform their practice. They believe that anyone can be a maker, someone who produces new things and they intend to fill the gap between the maker and the manufacturer as new ventures are built and need new types of support.

1.3 Beyond the product

During their consultations with customers Red Industrial Design also help clients consider different aspects of their business that they haven't thought because they

didn't engage in design, this includes branding, communicating the vision of the company as well as design thinking principles.

Red Industrial Design are working with the NHS in designing hearing and mobility aids, and had the opportunity to consult the NHS in matters of co-design that relate with the product itself but are significant to the way the NHS operates, such as running the consultations with the public. Collaborating with service design consultancies Red Industrial Design has provided a more holistic design service to new product-based ventures.

Interview summary - Helene Remy

Designer Roundlab is a design agency which operates through an international network of colleagues in the Netherlands and the UK. They practice Service Design most often focusing on design research and offer the following: ethnographic research and insight generation, analysis and interpretation, ideation, validation, and new service development while “pushing the boundaries of what a design agency can offer by considering new offerings for different types of organisations”. The team that comprises Designer Roundlab comes from design, psychology and social science backgrounds.

Contributions of Design

- They see it as an enabler and as a problem solving activity,
- It makes problem solving more actionable, which is really valuable in problems with social elements that can be paralysing
- Scoping in early stages, brainstorming and clustering can already create insights

- Co-design is a practice that isn't common in many organisations, it can generate completely new interactions and generate a new kind of empathy with users
- Making ideas tangible through artefacts
- Making ideas tangible through visualisations
- Making ideas easy to interact with through visualisations
- Facilitate interaction- communication among different parts of the organisation, taking people onboard is easier through clearly presented ideas.

Applying Service design

In delivering SD engagements Helene believes that they remain specialists on what they do even if it is in fact interdisciplinary. “We are experts in a process rather than a sector or a discipline, which can be applied in various contexts”.

Adjusting tools wherever necessary

They suggest that future design graduates are more likely to be entrepreneurial since there is a great focus in design strategy in design courses

Organisational change as a result of Service Design

In projects they have worked on, the generation of new services through Service Design has led to an appreciation of the practice, to the extent that it led to embedding parts of the practice to the function of the organisation. For example once they helped establish an in-house innovation lab within an organisation, since design was seen “as a different way of working”.

According to Helene such organisational change can occur in the following ways:

1. Through long term projects, where the designer has the opportunity to go beyond the deliverable and actually engage in a meaningful knowledge transfer with members of the host organisation. This creates an appreciation of design from the organisation through proven practice.
2. Embedding designers in an organisation, moving from doing consultations but being one of the employees and managing to find ways to work with them more effectively
3. Empowering employees involves making the employees like they can do design and innovation, which involves capacity building. Helene has achieved that in projects by building toolkits that transfer some of the design skills and tools in the specific context of the organisation. This included teaching people not just development of ideas and concepts and service refinement, but also co-design skills.

Challenges:

- Applying design as a process in diverse contexts is challenging, with some common challenges being:
- Not everyone adopts the design language
- Design changes as a discipline so they need to be able to keep up to date with it in order to offer the most to their clients
- You need to be both flexible and specialised. Companies who focused on for example a sector are more convincing as experts, “They need to know you’re an expert in something”, while at the same time there is not enough capital in studios and practitioners need to be agile in terms of what they are providing while being careful they only promise stuff they can actually deliver.

7.3 Appendix 3: Pilot study - Global and organising themes with quotes

The two global themes from the pilot study were that it is described as “a dynamic social process” and that it “requires learning a new skill-set”. The organising themes for each one are presented in separate tables below to allow some space for example quotes for each one.

Global Theme 1. A dynamic social process	
Organising theme1. A social process	Example quotes
<p>Basic theme: Community organising</p> <p>Issues discussed:</p> <p>The participation of the wider community of people is key</p> <p>Previous experience with community work and contacts in the field can facilitate community organising</p> <p>Shaping a clear invitation for community participation should be part of the strategy</p>	<p>(Social ventures)”...have been gradually acknowledged as been good at delivering outcomes, much better than central government, this is because they are embedded in the community and the community has a sense of ownership of the process (Participant 1)</p> <p>“I think it is a good idea I have a plan for it and I can imagine it but in order to make it happen I have to convince other people so I guess that means that. what was the first one again, yes negotiating with the other people is the hard bit” (Participant 4)</p>
<p>Basic theme: From a work group to a venture</p> <p>Issues discussed:</p> <p>In early stages the entrepreneurial team can be well defined or not</p>	<p>“After a while different agents such as community activists and entrepreneurs begin to establish their own support system and infrastructure [...] in the emergence stage it comes really naturally people to do these things voluntarily and unpaid, to get together and talk about the operational and strategic problems” (Participant 2)</p> <p>“ There was also a prompt, there were people who I work for who could see potential for that to happen so I have had a push from my line manager who said</p>

<p>Informal work groups can benefit from defining clear rules for engaging with the project</p> <p>Informal working groups develop to organisations to access funding and be ready to deliver services</p> <p>Informal working groups can be shaped as part of other organisations or across organisations in early stages</p>	<p>why don't we set up a social enterprise, why don't we do this or that so we talked about that for over a year” (Participant 4)</p> <p>“We actually have an organisational method for managing the development process and also creating some kind of commons around all the work, not just software” (Participant 2)“ I have this rule that if there is no one is prepared to work with me, then I do not do them so at the moment my activity represents something where other people are at least as mad as I am about and I am not completely alone raving to myself” (Participant 2)</p> <p>“The cultural glue that will hold your organisation together, its particularly important in community work and modern organisations” (Participant 2)</p> <p>“The challenge comes first, the aim, the idea, and then my approach is always been to again to define an invitation around it [...] you can publish something on the internet, that sort of thing you have to build your project team so, and them and only after that only when you are actually setting to work” (Participant 2)</p>
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<p>Global Theme 1. A dynamic social process</p>	
<p>Organising theme 2. An emergent process</p>	<p>Example quotes</p>

<p>Basic theme: Opportunity development (or creation /Identification)</p> <p>Issues discussed:</p> <p>Identifying opportunities is a non-linear process that can't be planned</p> <p>Opportunities may be seen retrospectively as such</p> <p>Previous experience contributes to the development of opportunities</p> <p>Combinations of legal structures allow to the exploitation of different types of opportunities</p> <p>Opportunities arise from identifying:</p> <ul style="list-style-type: none"> • new needs of customers/beneficiaries, • a new group of people to work with (customers/beneficiaries) • potential applications of a new technology, • a physical space that can be used to further the goals of the venture 	<p>“We had to do something with the Mill to make it an employment centre whatever that could possibly be, so we ended up, a group of people who wanted to do a cohousing project for themselves having to run the Mill as well.(Participant 5)</p> <p>“You don't know what is going to happen but you have to make a start and put something out there.” (Participant 2)</p> <p>“So these two elements (community organising and micro-business support) also fed into the creation of LSBN so we said lets create an environment in which people are encouraged in doing their stuff “(Participant 1)</p> <p>“All three we are very open and seeing new opportunities and coasting it, like surfing its very much like that because you dodge the waves and another wave comes and then you find another opportunity and then you jump off to that wave and then you see that that will lead to three other things and you start your structure” (Participant 5)</p> <p>“I would say a key moment was my realisation on my permaculture course that people could use additional forms of money [...] it always seems to be in the interface of different disciplines where interesting things happen” (Participant 2)</p> <p>“ Within those areas I have some umbrellas or legal forms that I am working with in specific projects, so I have resisted saying I am working with this company or that company” (Participant 2)</p> <p>I think I am going like this (...) all over the place, I wish it was more linear I wish I had a main timeline to hook things on to (Participant 4)</p>
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<ul style="list-style-type: none"> • new funding opportunities • a new way to use existing resources 	
<p>Basic theme: Trial and error</p> <p>Issues discussed:</p> <p>Trial and error is a common approach in early stages of the venture development</p>	<p>“When I recognise that putting more effort and energy in a process is futile because the resistance is just too big to change or challenge I just drop it, I kind of take from it the essential bits the good bits, identify the bits that don't work and then drop that line of...I don' t want to put my energy in it anymore I just drop it and go and I start a new process”</p> <p>(Participant 1)</p> <p>“I think it is...what Chris always says is that he just happens to be in the right place at the right time and an amazing strike of luck and so it is definitely not planning, we never planned to do this in the first place and we just finding out what will work”</p> <p>(Participant 5)</p>

Global theme 2: Skill-set		
Organising theme 4. Requires a set of skills	Issues discussed	Example quotes
<p>Issues discussed:</p> <ul style="list-style-type: none"> • Getting funding • Legal structures • Evaluating social impact 	<p>Knowledge of the particularities of legal structures</p>	<p>“Although legal forms are tightly prescribed you can be innovative about using partnerships of those legal forms and then you have beneficial assembly” (Participant 2)</p>
<p>Methodologies used for social impact measurement can be tokenistic</p>	<p>Need for a balance of skills, it is shaky without it</p>	<p>“I think (the venture) has two legs, like in a stool that needs three legs, it has me and people like Guy that offer support but it needs more I think, somebody strong on admin or strong on business models and those things, it is all a bit shaky because of that lack in skills” (Participant 4)</p>
<p>Adopting a legal structure defines the ability of the organisation to access funding</p>	<p>Example skills</p>	<p>“Things like choosing a legal structure, staff training, appropriate insurance.” (Participant 3)</p>
<p>Access to resources is perceived as a</p>	<p>From informal to formal group</p>	<p>“Only after that (building your project team) you start to think about legal forms, so we move from an informal work group through a formal organisation but we can</p>

driver for impact		have all sorts of gradations in how that works” (Participant 2)
The process of entrepreneurship involves a set of basic skills (business planning, basic finance, legal considerations, attracting funding, marketing)	Prior knowledge necessary	“The steps to get involved or do something are too obscure or assume a level of prior knowledge before you can actually start to engage with it and understand it” (Participant 1)
	Crowd funding	“I went to a crowd funding seminar cause I didn't know anything about it gathering money that way but I thought I'd go there and people told me that you make a video and go to this site and ask for support and it sounded like a lot of work for a little bit of money but I did find it useful to help us articulate our vision and start things off” (Participant 4)

