

**Exploring First-time Nascent Entrepreneurs' On-going
Entrepreneurial Opportunity Recognition: A case
study of London Metropolitan University's pre-
incubator**

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Abstract

Extant literature lacks the integrative theory of first-time (pure) nascent entrepreneurs' ongoing opportunity recognition. There is an academic consensus that the investigation of *ongoing* opportunity recognition may provide new insights into entrepreneurs' behaviours and cognitive processes, i.e. what they do and how they do it.

This study has responded to this knowledge gap by addressing the following research question: how do pre-incubator supported nascent entrepreneurs recognise entrepreneurial opportunities? The objectives of this study were:

- (1) to explore the process by which they come up with opportunity ideas;
- (2) to explore behavioural actions that shape opportunity ideas into opportunities;
- (3) to understand the role of the pre-incubator on their cognitive and behavioural process; and
- (4) to provide recommendations for effective opportunity-recognition practice.

A single qualitative case study was adopted for the study of 13 lead graduates who were supported through the pre-incubator's business start-up programme. Data were collected through semi-structured interview, mind-mapping and participants observation, and analysed by adopting an inductive thematic analysis method.

Findings show that nascent entrepreneurs' opportunity recognition comprises two discreet, interrelated components: opportunity awareness and opportunity search. Opportunity awareness is an intentional process by which they translate their experiential problems and perceived gaps into demand- or supply-driven opportunity ideas. It drives their opportunity search behaviour. They rely on various social networks to test the veracity of their opportunity ideas and search for opportunity-related information. They prioritise their social network reliance according to their social relationships. This behaviour is guided by their emotional attachment to opportunities. It is found that pre-incubator managers moderate their emotional attachment and subsequent search behaviours. As they (nascent entrepreneurs) rely on various social networks, their confirmation bias mediates opportunity recognition belief reinforcement and the input factors provided by social network members.

The findings are significant to pre-incubator managers. They provide revelatory insights into their supported nascent entrepreneurs' emotions, behaviours, and cognition in relation to opportunity recognition. This study also makes noteworthy contributions to entrepreneurship literature by providing new theoretical insights into the opportunity recognition of first-time (pure) nascent entrepreneurs.

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Chapter 1 Introduction

1.1 The context of the study

Entrepreneurial opportunity lies at the heart of business creation in any economy. Business creation involves recognising, evaluating, and exploiting entrepreneurial opportunities. This process is called entrepreneurship (Shane, 2003). Opportunity recognition is a key step in entrepreneurship: without opportunity recognition, business creation is impossible (Ramos-Rodríguez et al., 2010). A significant body of evidence suggests that entrepreneurship results in positive outcomes: competitiveness of an economy, job creation, unemployment reduction, poverty alleviation, innovation, socio-economic mobility (Casson, 1982; Rotger, Gørtz, and Storey, 2012; Van Praag and Versloot, 2007). Due to these positive outcomes, many developed economies, especially the United Kingdom (UK), has placed entrepreneurship high on their economic agenda. However, the positive outcomes of entrepreneurship depends on entrepreneurs' ability to recognise opportunities in the first place (Westhead, Ucbasaran and Wright, 2009).

In the UK, the business population demography report (2017) shows that business birth rate has gradually risen over the last six years (Table 1.1). Business birth refers to the registration of new businesses. The growing trends of business birth rate indicates that the UK business environment is favourable for the creation of new businesses. To encourage new business creation, the UK government offers various support services: tax exemption for micro business, mentoring, and investment programmes. However, scholars have argued that business formation is shaped by individuals' ability to recognise opportunities (Baron, 2007). They have emphasised on understanding how opportunity recognition actually occurs in the minds of entrepreneurs (ibid). Since entrepreneurship is an emerging field of study, our understanding of entrepreneurs' opportunity recognition is fairly under-developed (Fletcher, 2006). This study aims to address this knowledge gap by examining nascent entrepreneurs' ongoing opportunity recognition.

Counts given to the nearest thousand

	Active	Births		Deaths	
	Count	Count	Rate (%)	Count	Rate (%)
2011	2,343	261	11.2	230	9.8
2012	2,373	270	11.4	252	10.6
2013	2,449	346	14.1	237	9.7
2014	2,551	351	13.7	246	9.7
2015	2,699	383	14.3	283	10.5
2016	2,834	414	14.6	328	11.6

Table 1.1 Business birth and death rates, UK, 2011 to 2016 (Source: ONS, 2017)

Returning to the business population report, the growing trend of business birth rate may not necessarily reflect the contribution of nascent entrepreneurs. The business population demography report does not provide data according to entrepreneurs' prior business ownership. Due to lack of this specific data, we do not know whether new business creations are contributed by new entrepreneurs or repeat entrepreneurs (who have previously started businesses). In other words, entrepreneurial mobility from non-entrepreneurs to entrepreneurs is unknown. However, extant literature suggests that starting a new business is far more difficult for inexperienced entrepreneurs than experienced ones. One of the main rationale is that experienced entrepreneurs have well-developed cognitive frameworks (i.e. mental models) that allow them better opportunity recognition than inexperienced entrepreneurs (Baron and Ensley, 2006). This suggests that statistics regarding business birth rate may have been accelerated by repeat entrepreneurs.

In recent years, the UK government has recognised potential contributions of new entrepreneurs – mainly graduates – in the economy. Policy makers have rationalised that graduates' skills in entrepreneurship could encourage the formation, growth, and development of new enterprises. To improve graduates' skills in entrepreneurship, the government has called for UK universities to incorporate entrepreneurial education in their core curriculums (GOV.UK, 2016). Recently, many UK universities created a new form of organisations called pre-incubators to support their graduates in starting new businesses. The function of a pre-incubator is to provide opportunity recognition and enactment support services to inexperienced entrepreneurs (Wirsing et al., 2002). The training of opportunity recognition through organisational arrangement indicates that it

has become a part of professional practice. The HE Business and Community Interaction (HE-BCI) survey shows that 3,890 graduate start-ups were formed in 2015/16 (HESA, 2017). The result shows the extent to which higher education providers support non-entrepreneurs in their transition to being entrepreneurs.

Despite various institutions (i.e. government, university pre-incubators) providing a range of support services, very little is known about how opportunities are recognised by their supported nascent entrepreneurs. This is mainly because the current institutional practice of entrepreneurship is highly prescriptive and orientated toward business creation. The foci of interest is on business creation activities rather than the creation of entrepreneurs. Developing business models, writing business plans, pitching business ideas, securing financial investments, and conducting market research are just a few of those many prescriptive institutional services. These prescribed activities demand specific entrepreneurial behaviour. Extant literature indicates that experienced and inexperienced entrepreneurs behave differently due to the differences in their cognitive mindsets (Westhead, Ucbasaran, and Wright, 2009). Therefore, I contend that current opportunity recognition practice can only be effective if we understand the cognitive and behavioural process of nascent entrepreneurs.

The process by which individuals recognise opportunities is also critical for organisational scholars (Carolis and Sapartio, 2006; Grégoire, Barr and Shepherd, 2012). Entrepreneurship is about the process of creating new organisations (Steyaert, 2007; Liao and Welsch, 2008). In other words, the process of recognising and exploiting opportunities represents the process of creating new organisations. Unlike economic policy makers and entrepreneurship practitioners, organisational scholars are interested in studying the noise and hustle of an organisations' pre-emergence rather than businesses (Dimov, 2010). Shane and Venkataraman (2003) provided three rationales for organisational scholars to study entrepreneurship. First, entrepreneurship is a mechanism through which society converts technical information into products and services. Second, economic efficiencies are identified and mitigated in the form of entrepreneurial opportunities. Finally, entrepreneurship mechanisms are crucial for the change in capitalist society in the form of innovation. Shane and Venkataraman (ibid) point out that the absence of entrepreneurship from collective theories of organisations, market, and economy means our understanding of business landscape is incomplete.

The above discussion demonstrates that opportunity recognition is critical for the creation of new businesses and organisations. The practice of opportunity recognition is influenced and shaped by various actors and institutions; i.e. government, policy makers, and university pre-incubators. The current institutional practice of entrepreneurship is very prescriptive. To make current practice effective in an institutional context, especially pre-incubators, it is important to understand their supported nascent entrepreneurs' opportunity recognition processes.

This study aims to respond to this gap by addressing the following research question: how do pre-incubator supported nascent entrepreneurs recognise entrepreneurial opportunities? The objectives of this study are:

- (1) to explore the process by which nascent entrepreneurs come up with opportunity ideas;
- (2) to explore nascent entrepreneurs' behavioural actions that shape opportunity ideas into opportunities;
- (3) to understand the role of the pre-incubator on nascent entrepreneurs' cognitive and behavioural process related to opportunity recognition; and
- (4) to provide recommendations for effective opportunity-recognition practice.

Having discussed the context of the study, the next section provides the rationales of the study.

1.2 Rationales of the study

The topic of this study is nascent entrepreneurs' ongoing entrepreneurial opportunity recognition. There are three main rationales for the focus of this topic: the knowledge gap in academic literature; the current importance of the topic for entrepreneurship practitioners; the level of failure in starting new businesses; and the personal importance of myself.

1.2.1 Knowledge gap in the literature

Entrepreneurship scholars have been invigorated by a shared goal of understanding how, and by whom, opportunities are recognised (Venkataraman 1997; Gaglio and Katz, 2001; Shane and Venkataraman, 2000; Dimov, 2011). Prior studies have investigated this phenomenon from various perspectives: cognitive (Baron, 2006; Baron

and Ensley, 2006), behavioural (Baron, 2007; Dyer, Gregersen, Christensen, 2008) economics (Kirzner, 1997), and social constructionist (Fletcher, 2006; Alvarez and Barney, 2007; Wood and McKinley, 2010). Among these perspectives, cognitive psychology and economics have produced more empirical studies. As a result, our understanding of opportunity recognition in these areas has progressed significantly. However, a social constructionist view of opportunity recognition has received scant attention in empirical studies. Despite several studies highlighting the importance of this perspective in explaining entrepreneurs' cognitive and behavioural process related to opportunity recognition, there is no empirically-driven theoretical model (Wood and McKinley, 2010). A social constructionist perspective of opportunity recognition is concerned with how entrepreneurs' cognitive and behavioural process mediate through social situatedness, enabling opportunity recognition (Fletcher, 2006). In this study, I adopt a social constructionist perspective to investigate nascent entrepreneurs' opportunity recognition. The empirical study on the perspective of social constructionists may provide revelatory insight into nascent entrepreneurs' cognitive and behavioural process in relation to opportunity recognition.

Current theoretical models of opportunity recognition were developed from the studies of experienced and successful entrepreneurs. These theoretical models do not adequately explain nascent entrepreneurs' opportunity recognition. Prior studies have focused on those entrepreneurs who recognised opportunities and successfully established business enterprises (Shane, 2000). The approach of these studies is retrospective and limited by success bias (Davidsson and Honig, 2003; Fletcher, 2006; Grégoire, Shepherd and Lambert, 2009; Grégoire, Barr and Shepherd, 2010). In a retrospective study, entrepreneurs recalled information from distant past memories. As empirical studies have suggested that entrepreneurs develop a rich cognitive framework (i.e. mental models) through the business-formation process, they may report biased and distorted information about their initial opportunity-recognition process (Baron and Ensley, 2006). Because of this, data may not capture entrepreneurs' cognitive and behavioural processes, which are essential to understand the opportunity-recognition process. Moreover, prior opportunity-recognition studies on experienced entrepreneurs represent success bias. These studies investigated entrepreneurs who had enacted recognised opportunities. Because of such focus, very little is known about entrepreneurs who are trying to establish businesses or abandon their opportunity idea

during the process of starting businesses. These entrepreneurs are called nascent entrepreneurs (Carter, Gartner, and Reynolds, 1996).

Nascent entrepreneurs' ongoing opportunity-recognition process has received scant attention in extant literature (Davidsson and Honig, 2003). Few studies have investigated nascent entrepreneurs' characteristics, adaptive tensions, human capital and early planning action in respect to the emergence of nascent venture (Parker and Belghitar, 2006; Lichtenstein et al. 2007; Liao and Welsch, 2008; Dimov, 2010). Venture emergence process begins with the recognition of an opportunity and culminates with first sales (ibid). Due to the paucity of studies, the opportunity-recognition process has remained largely understudied. This study aims to address this startling knowledge gap by investigating the following research question: how do pre-incubator supported nascent entrepreneurs recognise entrepreneurial opportunities? The 'how' question may improve our understanding on nascent entrepreneurs' cognitive and behavioural processes in relation to opportunity recognition (Baron, 2006; Westhead, Ucbasaran and Wright, 2009; Arentz, Sautet and Storr, 2013). Moreover, investigation into nascent entrepreneurs' ongoing opportunity recognition may lead us to different results (Dimov, 2011; Santos et al., 2015).

1.2.2 Study topic significance for practitioners

The body of entrepreneurship literature has placed entrepreneurship within the applied management field (Moroz and Hindle, 2012; Klein, 2008). The research of entrepreneurship is driven by a problem-solving agenda that is the nexus of practice and pedagogy. The implication of current academic theories is noticeable in practice. Prior studies have suggested that would-be entrepreneurs can be trained to recognise opportunities (Baron, 2006). Based on this academic recommendation, many UK universities set up business idea developmental centres, known as pre-incubators, to train their graduates on key entrepreneurial activities: opportunity recognition, evaluation, and enactment. A pre-incubator is an organisation in which managers assist graduates in making the transition to business ownership. In other words, non-entrepreneurs make the transition into nascent entrepreneurs and then into emergent entrepreneurs with the support of a pre-incubator's managers and infrastructure.

Current incubator managers' intervention on key phases of entrepreneurship – opportunity recognition and opportunity enactment – clearly shows the convergence of

managerial and entrepreneurial activities. However, mainstream entrepreneurship literature claims that managers and entrepreneurs are two distinct individuals (Moroz and Hindle, 2012; Shane, 2012). It is the performed action that dichotomises entrepreneurs from managers. Managers operate within existing means-ends framework whereas entrepreneurs create new means-ends frameworks. Entrepreneurial opportunity recognition requires the creation of new means-ends frameworks whereas opportunity enactment requires the application of existing new means-ends frameworks. The former is called entrepreneurial resource and the latter, managerial resource. Patton (2013) claimed that entrepreneurship process requires a combination of both entrepreneurial and managerial resources.

The current function of the pre-incubator informs that managers have advanced their managerial practice to the opportunity-recognition stage. At the recognition stage, managers act as a guide of the opportunity recogniser. They guide nascent entrepreneurs through opportunity recognition and enactment stages. Their guidance or assistance is based upon conventional theories of entrepreneurship. By conventional theories, I refer to those theories that are developed from the study of successful entrepreneurs, and applied, irrespective of entrepreneurs' type. Conventional theories may not be as effective in practice as they appear. Empirical studies suggest that opportunity recognition varies between experienced and inexperienced entrepreneurs, due to their cognitive and behavioural differences (Baron and Ensley, 2006). This suggests that nascent entrepreneurs require different support for opportunity recognition.

The prescriptive nature of entrepreneurial practice by managers becomes an important management issue rather than managerial. The main reason is that current entrepreneurial practice does not reflect the understanding of nascent entrepreneurs' cognitive and behavioural processes in relation to opportunity recognition. Pre-incubator supported nascent entrepreneurs are, in fact, their future customers. Therefore, it is important for them to understand how nascent entrepreneurs' cognitive and behavioural process contribute to the recognition of entrepreneurial opportunities. Theories derived from practitioner-supported nascent entrepreneurs would be more relevant than conventional theories because the study outcome would be context (i.e. pre-incubator)- and entrepreneur (i.e. nascent)-specific. This makes my study topic significant for practitioners.

1.2.3 The high level of failure in starting new businesses

Data regarding the level of failure in starting new businesses are difficult to obtain. European Union Business and Innovation Centre (EU|BIC) 2017 impact report showed that EU registered business incubator assessed over 160,000 opportunity ideas and managed to convert over 12,000 of them into start-ups in the period of 2014 – 2016 (EBN, 2017). This means the rate of conversion from opportunity ideas assessment to start-up creation was 7%. The remaining 93% of opportunity ideas did not make it to start-up. This shows a high level of failure in starting new business within pre-incubator context. However, the EU|BIC 2017 impact report favoured fast and early failure of opportunity ideas over start-ups. They claimed it as less expensive in terms of time and money. The highly level of idea failure currently represents a realist view of opportunity recognition. Most of the ideas are abandoned if nascent entrepreneurs cannot objectify their opportunity-ideas to the key actors; i.e. incubator and investors. The high level of opportunity ideas failure or abandonment requires an investigation of how nascent entrepreneurs recognise entrepreneurial opportunities. This study addresses this knowledge gap by adopting a social constructionist view of opportunity recognition.

1.2.4 Study significance for myself

The study of opportunity recognition is of my personal interest, which has grown from experience of running my own family business and my exposure to management education in the UK. I am the proprietor and managing director of our family business – Saiful Enterprise (Bangladesh) Limited. Since the age of 14, I have played an active role in running the business, along with my father. We source, manufacture, and supply jute cords (rope) – spare parts for the public and private jute-mill sector in Bangladesh. My father has been in the jute and fibre industry since the beginning of his career as a purchase officer within a government organisation. Whilst working for the government organisation, he set up our enterprise in 2003. I know that his work experience in the jute and fibre industry helped him to set up this business. He did not require any market research for the launch of enterprise. Market knowledge was already known to him. However, neither my father nor I knew the term ‘business opportunity’. We ran the business considering the market demand for jute and fibre products. During the last decade, our entrepreneurial journey became rugged. Due to changes in government policy, the industry has become unattractive for both existing and new businesses.

Demand for our products declined steeply. We realised the need for identifying new opportunities associated with jute and fibres to keep our enterprise going, but it became extremely difficult. This was because we did not actively seek new opportunities from the beginning. On the reflection of my experience, I learned that opportunity is not only important for the creation of new businesses, but also critical for the survival, growth, and development of established organisations.

At the age of 19, I left Bangladesh for a higher education in the United Kingdom (UK). I enrolled for a Bachelor of Arts with Honours in Applied Accounting. When I was a second-year undergraduate student, I participated in a six-week business start-up programme. Over the six weeks, I became familiar with the process of starting a business. I found this programme quite prescriptive. This programme turned my attention to our business-formation process. My father set up the family business without any start-up training. This made me wonder whether a person requires business start-up training to start a business. Since then, I have speculated some fundamental questions: what are business opportunities? Are entrepreneurs born or made? What is the difference between entrepreneurs and business owners? My doctoral degree has offered me the opportunity to realise my personal interest – the study of entrepreneurs' opportunity recognition.

1.3 Thesis structure

The thesis is structured as follows. Chapter 2 provides a thematic literature review on entrepreneurial opportunity recognition. At the end of this chapter, I provide a conceptual framework for this study. In the conceptual framework section, I explain who and what will, and will not, be investigated.

Chapter 3 elucidates research methodology. In this chapter, the justification of qualitative research methodology and other employed methods are provided. This chapter is comprised of the following sections: (3.1) establishing a framework for the study; (3.2) research approach: inductive; (3.3) research strategy: qualitative; (3.4) research design: case study; (3.5) data collection; (3.6) data management; (3.7) data analysis; (3.8) ethical consideration; and (3.9) research evaluation. Section 3.1 states my study topic's position within the interpretive paradigm. Section 3.2 discusses the rationale for the inductive research approach. Section 3.3 relates philosophical assumptions, paradigm position, and the inductive research approach to the choice of

qualitative research strategy. Section 3.4 justifies the rationale behind the case study research design. This section mainly includes the units of analysis, case boundary design, and sampling. Section 3.5 explains the choice of data collection methods and discusses how data were collected. Section 3.6 describes data management – how collected data were managed. Section 3.7 explains the choice of interpretive discourse analysis as a data-analysis technique. Section 3.8 explains my ethical considerations. Finally, section 3.9 discusses the research evaluation criteria.

Chapters 4 and 5 present the study findings on opportunity recognition. The findings show that the opportunity-recognition process comprises two components: (a) opportunity awareness; and (b) opportunity search. These two components are distinct, but follow a sequential order: i.e. opportunity search follows opportunity awareness. To emphasise the equal importance of these two components, I present them in two chapters. Chapter 4 presents the findings on opportunity awareness. On the other hand, Chapter 5 presents the findings on opportunity search. Both chapters depict the process of opportunity recognition.

Chapter 6 presents a discussion of the findings. In this chapter, the findings are compared and contrasted with extant literature to address the research question. Chapter 7 concludes this thesis by claiming the contributions to knowledge and practice. This chapter further includes the following sections: recommended course of action, limitations of the study, future research avenues, and a reflective account.

Chapter 2 Literature Review

The purpose of this chapter is to review the literature on nascent entrepreneurs' entrepreneurial opportunity recognition. The aim of the review is to demonstrate the current knowledge gap, identify key theoretical concepts, and develop them into a conceptual framework. This chapter begins by explaining the concept of opportunities and entrepreneurs. Then the following sections go on to review theories of opportunity formation process, models of opportunity recognition, and the factors that affect opportunity recognition. Through the literature review, I critically evaluate the findings of prior studies. I conclude by arguing that first-time nascent entrepreneurs' contemporaneous opportunity recognition has been overlooked by prior studies. The final section of this chapter describes the development of the conceptual framework.

2.1 Defining entrepreneurial opportunities and entrepreneurs

Entrepreneurs and opportunities are the genesis of opportunity recognition (Shane, 2012; Santos et al., 2015). To understand how opportunities are recognised by entrepreneurs, it is important to understand: what is an opportunity and what is an entrepreneur? In the next sub-sections, I review relevant literature on these two themes.

2.1.1 What is an opportunity?

The notion of an opportunity is theoretically exciting, but empirically elusive in the field of entrepreneurship (Dimov, 2011). Sometimes, the term is prefixed with 'business' or 'entrepreneurial'. Scholars have been intrigued by the term 'entrepreneurial opportunity' since its association with innovation (in product or services), innovators, i.e. entrepreneurs, and entrepreneurial profit (a very different kind of profit). Business opportunity appears to be a less interesting term since it is associated with the sole profit motive of a business owner. The means of achieving business profit can be solicited and/or unsolicited. To grasp a clear understanding of entrepreneurial opportunity, one must understand three things: (a) definition; (b) types; and (c) characteristics.

(a) Definition. The definition of entrepreneurial opportunities is mainly derived from economic theory. There is a growing consensus among scholars on the definition of entrepreneurial opportunities. 'Entrepreneurial opportunities refer to situations in which new goods, services, raw materials, and organising methods can be introduced and sold

at greater than their cost of production' (Casson, 1982; Shane and Venkatraman, 2000). In the first part of the definition, opportunities are presented as situations that give rise to profit potential goods or services. Regarding the second part of the definition, the introduction of new goods or services requires a new way of recombining existing resources (Eckhardt and Shane, 2003). Through the recombination of resources, entrepreneurs establish a new means-ends framework. The concrete example of new means-ends relationship is a new recipe (means) for producing juice (ends). The means-ends framework concept not only highlights how one might enact opportunities, but the novelty or uniqueness of products or services (Shane, 2012).

(b) Components and types of opportunities. Based on the above definition, some scholars have proposed three basic components of opportunities: (1) demand side (e.g. wants or needs in market); (2) supply side (e.g. new products, services, technology or business models); and (3) an economic means for transaction between the two (Grégoire and Shepherd, 2012). However, other scholars have shown that demand- and supply-side components discreetly act as opportunities. They propose two kinds of opportunities: (a) demand-side; and (b) supply-side (Dimov, 2007a; Santos et al., 2015). Demand-side opportunities pertain to situations that give rise to customer needs. On the other hand, supply-side opportunities pertain to situations that reflect the potential for new or existing products or services.

Several authors have claimed that customer needs are an objective phenomena (Miller, 2007; Dyer, Gregersen, and Christensen, 2008). Customer needs are viewed as social facts or phenomena that are known to some (not all) people and are addressable (Alvarez, Barney, and Anderson, 2013). They have argued that individuals discover customer needs through their natural alertness. Conversely, others have argued that individuals gain insight of situations through their qualitative experiences (Dimov, 2007a). However, no empirical evidence is found to support objective views of opportunities. This is because opportunities' objective existence can only be established in a retrospective manner. In other words, we can only prove the existence of opportunities when a customer accepts the proposed products or services.

(c) Characteristics of entrepreneurial opportunities. Extant literature has shown three main opportunity characteristics: (i) potential economic value, i.e. the capacity to generate profit; (ii) newness, i.e. a product or service that did not previously exist; and

(iii) perceived desirability, i.e. moral and legal acceptability of the product in society (Baron, 2006). These three characteristics differentiate entrepreneurial opportunities from other types of opportunities.

(i) Novelty is an important characteristic of entrepreneurial opportunities. It refers to radically new, incremental, or improved products, services, business models, or production processes (Shane, 2012). Because of novelty, the term ‘entrepreneurial opportunity’ is associated with innovation. Product or service novelty or newness comes into existence when entrepreneurs establish a new means-ends relationship (ibid). Other forms of opportunities lack this characteristic, because products or service are based on an existing means-ends framework. In other words, other forms of opportunities offer copy-cat or me-too types of products or services.

(ii) Entrepreneurial profit is the second characteristic of entrepreneurial opportunities. It refers to the difference between the ex-post value of a resource recombination and the ex-ante cost of obtaining resources and the cost of recombining them (Shane, 2003). Scholars have defined it as the monetary reward resulting from the establishment of a new or modified means-ends relationship. Both profit and non-profit organisations seek entrepreneurial profit. In a profit-seeking organisation, entrepreneurs may reward themselves with the surplus whereas non-profit organisations such as charities and social enterprises retain entrepreneurial profit for the future re-investments to the organisations. Future reinvestment is essential for the sustainability of charities or social enterprises. Since both forms of organisations (i.e. profit and non-profit) seek entrepreneurial profit, this thesis may also apply to individuals’ initiatives, which are driven by purely social interests. However, in this thesis, I investigated only those entrepreneurs that had a pure motive of creating new businesses rather than charities.

(iii) Legal and moral acceptability is the third characteristic of entrepreneurial opportunities. Products or services must meet legal and moral acceptability in a particular society (Baron, 2006). This characteristic excludes those products or services that are being traded in the shadow economy or the black market. The legal and moral acceptability of opportunities are context specific. Different jurisdictions have different legislative requirements that determine the legal acceptability of certain products. The responsible conduct of entrepreneurship research must exclude the study of those opportunities that do not reflect social, moral, or legal acceptability.

The above describes how the characteristics, novelty, profit, and perceived desirability (legal and moral) create an opportunity entrepreneurial opportunity. Not all of these characteristics are given, they are created by individuals called entrepreneurs. Extant literature defines entrepreneurs as agents and creators with respect to opportunity recognition (Eckhardt and Shane, 2003; Alvarez, Barney, and Anderson, 2013). Since opportunities and entrepreneurs are inseparable (Dimov, 2010), it is important to understand what makes an individual 'entrepreneur'. In the next sub-section, I review literature on the concept of the entrepreneur.

2.1.2 What is an entrepreneur?

In the extant literature, there is a consensus among scholars regarding the definition of entrepreneurs. Entrepreneurs refer to those individuals who act upon recognised opportunities (McMullen and Shepherd, 2006; Shane, 2012; Alvarez, Barney, and Anderson, 2013). The pursuer, not the recogniser, are considered to be entrepreneurs. In other words, recognising opportunity is not sufficient for an individual to gain entrepreneurial identity unless s/he takes action (McMullen and Shepherd, 2006). The action must be orientated towards opportunity enactment. Opportunity enactment refers to 'building fully efficient, full-scale operations for products or services created by, or derived from, a business opportunity' (Choi, Lévesque and Shepherd, 2008).

The above definitions of entrepreneurs have three major weakness. First, scholars have forgotten those individuals who do not seek to enact opportunities, but sell-off their opportunity ideas to others (business managers, investors or other entrepreneurs). By selling opportunity ideas, individuals pass off their opportunity enactment responsibility to others. These individuals are equally known as entrepreneurs irrespective of their action towards opportunity enactment (Moroz and Hindle, 2012). One may argue that selling off an opportunity idea is another mode of opportunity enactment. In this context, one must note that the opportunity buyer still needs to make a managerial decision on the possible mode of opportunity enactment, i.e. licensing, franchising, or establishing firms. Prior studies have provided a distinction between entrepreneurial knowledge and managerial knowledge in terms of opportunity recognition. Patton (2013) claimed that opportunity recognition involves the utilisation of entrepreneurial knowledge, whereas opportunity enactment requires the application of managerial knowledge. The distinction between entrepreneurial and managerial knowledge in

opportunity recognition and exploitation, in fact, illuminates the identity of the person. Thus, an opportunity seller becomes an entrepreneur for deploying entrepreneurial knowledge, bringing the opportunity into existence, and making others believe in their recognised opportunities.

Second, the current definitions of entrepreneurs are based on a critical realist view of opportunities, which implies an objective existence of opportunities. In other words, opportunities are out there, exist insentiently irrespective of people's consciousness, and are waiting to be discovered serendipitously. Many proponents of this view have claimed that recognising opportunities does not require any effort, but special cognitive abilities, such as a natural alertness (Kirzner, 1997; Shane, 2003). One can only establish himself or herself as an entrepreneur when s/he proves the existence of an opportunity. This is only possible by making an attempt to enact an opportunity. Hence, the enactment, not the recognition of opportunities, proves the existence of opportunities as well as entrepreneurs' identity.

Third and finally, current definitions do not recognise individuals as entrepreneurs if they abandoned their recognised opportunity. Individuals' actions orientated toward opportunity idea development brings them closer to an entrepreneurial identity (Dimov, 2007b). Actions includes searching for information and clarifying and shaping ideas by discussing them with others (ibid). Such action reduces uncertainties surrounding opportunities, and, therefore, becomes an entrepreneurial action (ibid). Dimov stated there are three possible action outcomes and relates them to the closest possible entrepreneurial identity: (1) stop believing in an idea, and the idea dies; (2) try to start business and then abandon it; and (3) continue believe in an idea and a business emerges. In the first scenario, an individual is a *potential entrepreneur*, in the second, a *nascent entrepreneur*, and in the third, an (emerged) *entrepreneur*.

I argue that the identity of an entrepreneur is associated with the ontological status of opportunities. I contend that opportunity recognition requires conscious action that may result from entrepreneurial thinking. An example would clarify my contention: in South Asia, products made from rhinoceros horn has great value in the medicine market. Despite the lack of scientific evidence of rhino horns' medicinal properties, market demand is high. Think tanks claim that the rhino horn market exists because of *mistaken belief* among market actors. To create a market based on mistaken belief requires well-

devised actions for opportunities to come into existence before its enactment. The example of devised action could be persuading social actors to believe in rhino horns' promising benefits. In this scenario, individuals who create mistaken belief in the market would be regarded as potential entrepreneurs, irrespective of his/her action towards opportunity enactment. This is because their created market paves the way for others to enact opportunities.

The above review highlights that an individual becomes closer to an entrepreneurial identity when s/he acts upon an opportunity idea with an intention of starting a business. As an opportunity idea develops into a business venture, individuals make the transition from potential entrepreneurs, to nascent entrepreneurs, to emerged entrepreneurs. The clarification of entrepreneurs' identity is essential for the positioning of this study.

Having discussed the definition of entrepreneurs, the following section identifies types of entrepreneurs.

2.1.3 Types of entrepreneurs

In the extant literature, there is a growing recognition of the heterogeneity of entrepreneurs (Westhead and Wright, 1998; Westhead, Ucbasaran, and Wright, 2003). Several scholars have claimed that the resource needs of the different types of entrepreneurs may not be same (Rotefoss and Kolvereid, 2005; Westhead, Ucbasaran, and Wright, 2009). However, the current typology of entrepreneurs is based on either individual status or prior business ownership experience. Based on individual status, the types of entrepreneurs are as follows: private entrepreneur, establishment (corporate) entrepreneur, political entrepreneur, revolutionary entrepreneur, criminal entrepreneur, academic entrepreneur, and student entrepreneur (Casson, 1982; Pirnay, Surlemont and Nlemvo, 2003). Entrepreneurs' types, based on individual status, highlight differences in their background, but it does not show the differences in other important factors, i.e. prior business ownership experience. Mainstream entrepreneurship scholars have identified prior business ownership experience as the most common differentiating factor in opportunity recognition, which includes a range of entrepreneur types (Westhead, Ucbasaran and Wright, 2003).

Based on previous business ownership experience, prior studies have provided four types of entrepreneurs: nascent, novice, serial, and portfolio entrepreneurs (Table 2.1). Among them, serial and portfolio entrepreneurs are often referred to as 'habitual' or

‘repeat entrepreneurs’. However, nascent entrepreneurs are different from other types of entrepreneurs because they are yet to establish their businesses. These entrepreneurs are individuals who are currently in the process of starting a new business, but have not yet succeeded in making the transition to new business ownership (Carter, Gartner, and Reynolds, 1996; Reynolds et al. 2004, Dimov, 2011, Hopp and Sonderegger, 2015), although they might have prior business ownership experience. Nascent entrepreneurs who seek to start business for the first-time are called ‘pure nascent’ (Westhead, Ucbasaran and Wright, 2003). These individuals are mainly seen as pursuers of opportunities (Dimov, 2011), who attempt to introduce new products or services, new organising methods, and serve a new market (Shane and Venkataraman, 2000). Opportunity recognition and enactment are conceptually distinct, but, in practice, the recognition of opportunity requires the knowledge of its enactment. Since opportunity recognition and enactment process are not linear in practice, the process of starting a new business indicates the iterative process of recognising and exploiting entrepreneurial opportunities. Hence, I argue that pure nascent entrepreneurs are not only pursuers, but also recognisers of opportunities. In the extant literature, there is no evidence that explains the opportunity recognition of pure (first-time) nascent entrepreneurs. This study is concerned with addressing this knowledge gap.

Unlike nascent entrepreneurs, other types of entrepreneurs (novice, serial, and portfolio) already have established ventures. This reflects in their definitional categorisation. Novice entrepreneurs are those individuals who lack prior business ownership, but currently have a majority or minority equity stake in business that is either new, purchased, or inherited (Westhead et al., 2005). Serial entrepreneurs are those who have had a prior business ownership, which was sold or closed, but currently have a minority or majority ownership stake in a single independent business that is either new, purchased, or inherited (ibid). Portfolio entrepreneurs are those individuals who currently have a minority or majority ownership stake in two or more independent businesses that are either new, purchased, or inherited (ibid).

These definitions suggest four different types of entrepreneurs according to their prior business ownership experiences. However, the commonality among novice and repeat (serial and portfolio) entrepreneurs is that they all have fully operational businesses. An operational business is the proof of a recognised opportunity. In this context, pure (first-time) nascent entrepreneurs are yet to prove their opportunities, since they are in the

process of starting businesses for the first time. This has an implication on the nature of opportunity recognition study. The opportunity recognition study of other types of entrepreneurs, except nascent entrepreneurs, would require remembering and recalling distant past information about how opportunities were recognised. This study approach is retrospective. In other words, the study has been conducted after the recognition of opportunity. This study approach is heavily dominant in the extant literature (Grégoire, Shepherd, and Lambert, 2009). Conversely, the study of pure nascent entrepreneurs' opportunity recognition requires a combination of immediate past, here-and-now, and future speculative information.

Types of entrepreneur	Prior business ownership	Current business ownership
Pure nascent (Westhead, Ucbasaran, and Wright, 2003)	Have no prior business ownership	In the process of starting business for the first-time.
Nascent (Hopp and Sonderegger, 2015)	May have prior business ownership	In the process of starting a business
Novice (Westhead, Ucbasaran, Wright, and Binks, 2005)	No prior business ownership either as a business founder, an inheritor, or a purchaser of an independent business	Has a majority or minority equity stake in business that is either new, purchased, or inherited.
Serial (Westhead, Ucbasaran, Wright, and Binks, 2005)	Had prior business ownerships that are sold or closed	Has a majority or minority ownership stake in a single independent business that is either new, purchased, or inherited.
Portfolio (Westhead, Ucbasaran, Wright, and Binks, 2005)	Had prior business ownerships that are sold or closed	Currently has a minority or majority ownership stake in two or more independent businesses that are either new, purchased, or inherited.

Table 2.1 Typology of entrepreneurs according to their prior business ownership experiences

The above literature review highlights that entrepreneurial opportunity is more distinct than other forms of opportunities. The central characteristics of opportunity are novelty, entrepreneurial profit potential, and perceived desirability (social, legal, and moral). It is the individual who imputes these characteristics on opportunity, and thus emerges as an entrepreneur. The above concept of entrepreneurs and their types of are also reviewed. Current literature recognises nascent entrepreneurs as a type of entrepreneur. This type of entrepreneur is further classified according to prior business ownership experiences. Nascent entrepreneurs who lack prior business ownership experience are further defined as ‘pure nascent’ or ‘first-time nascent entrepreneurs’. This study is concerned with the investigation of pure (first-time) nascent entrepreneurs’ opportunity recognition.

Having reviewed the concept of opportunities and entrepreneurs, the next section reviews the theories of the opportunity formation process.

2.2 Opportunity formation process: two alternative theories

In the extant literature, the entrepreneurial opportunity formation process is explained by two alternative theories: the discovery theory and the creation theory (Alvarez and Barney, 2007). These two theories hold polarised epistemological traditions. Discovery theorists have explained the opportunity formation process from a realist perspective (Kirzner, 1997; Shane and Venkataraman, 2000). On the other hand, creation theorists have explained the opportunity formation process from social constructionist and evolutionary realist perspectives (Fletcher, 2006; Alvarez and Barney, 2007; Wood and McKinley, 2011). Whether opportunities are objective or subjective phenomena are a persistent feature of academic discourse (Dimov, 2011). Below I review both the discovery and creation theories.

2.2.1 The discovery view

The opportunity discovery view is rooted in Austrian economics (Hayek, 1945; Kirzner, 1997). Theorists have speculated that opportunity exists prior to discovery in the market and independently of individuals’ perceptions and action (Kirzner, 1997; Shane, 2000; Baron, 2006; Shane, 2012). Opportunities are objective and created by market imperfections. Examples of market imperfections may include asymmetric and

information imperfection, transaction-specific investments, economies of scale and scope, externalities, heterogeneously distributed resources and capabilities, and mismatches between supply and demand (Alvarez et al., 2017). Market imperfections are objective realities caused by exogenous shock to a pre-existing market or industry (Shane, 2003; Eckhardt and Shane, 2003). Examples of exogenous shock are changes in technology, changes in government actions, trends in demographics, and so forth. When any of these exogenous shock occurs within a pre-existing market or industry, individuals associated with that market should be aware of objective opportunities a shock has created (Alvarez, Barney, and Anderson, 2013). Individuals become responsive to changes and recognise opportunities because of their knowledge of the information regarding the market or exogenous shocks. Kirzner (1997) defined such responsiveness to opportunities as 'entrepreneurial alertness'. Entrepreneurial alertness refers to an individual's ability to spot opportunities (ibid). If everyone associated with markets and industry knew about opportunities created by shocks, they could all try to enact them and their ability to profit would cease to exist (Alvarez, Barney, and Anderson, 2013).

The discovery view of opportunity formation has a number of limitations. First, it requires a pre-existing market or customers. This theory does not recognise opportunities as those that require the creation of a future market and customers. Second, this theory focuses on individuals' cognitive ability without considering social and cultural influences (Fletcher, 2006; Wood and McKinley, 2010). As a consequence, a significant number of prior studies have examined individual traits, access to opportunities, and a varying degree of alertness to opportunities (ibid). Ascribing individuals' superior cognitive abilities to opportunity recognition implies that entrepreneurs are different to non-entrepreneurs before discovering opportunities (Alvarez and Barney, 2007). Third and finally, this theory does not adequately explain the opportunity recognition of first-time nascent entrepreneurs who lack prior business ownership experiences as well as superior cognitive ability. Due to a lack of prior business ownership experience, these individuals are different from experienced entrepreneurs in terms of their cognitive ability and behaviour (Westhead, Ucbasaran, and Wright, 2009).

2.2.2 The creation view

In the opportunity creation view, opportunities do not exist independently of individuals. These are formed endogenously, by the action, reaction and enactment of individuals (Alvarez and Barney, 2007). Individuals' action is an important ingredient to the conception of opportunities (Dimov, 2007b). Unlike the discovery view, individuals do not wait for external shocks to generate market imperfections: they take action. In other words, opportunities flow from, rather than towards, individuals. However, random actions do not lead to the creation of opportunities. Actions must be orientated towards goals or purposes, i.e. creating market imperfections that lead to the formation of opportunities (Alvarez and Barney, 2007; Dimov, 2011). In other words, actions must be inherently linked to opportunities. In this theoretical view, opportunities and entrepreneurs are inseparable (Dimov, 2007b). Since actions are purposeful or goal orientated, scholars have recognised them as entrepreneurs' behaviour. In the literature, these actions are commonly referred to as entrepreneurial action or behavioural action (Alvarez and Barney, 2007). Individuals' actions related to the awareness of opportunities are searching for information, discussions with others, formal and informal planning, establishment of relationships, and intentions (Dimov, 2007b). These actions depict entrepreneurs' behaviour. Extant literature has studied entrepreneurs' behavioural actions based on the retrospective account that reported past behaviour. Entrepreneurs' self-reported past behaviour may be distorted by their gradual learning as well their tendencies to glorify successful endeavours and depreciate those that turn out to be wrong (ibid). This highlights the need for the investigation of contemporaneous behaviour in relation to the opportunity formation process.

Action does not gain purpose or immediate goals unless individuals realise and project those goals, i.e. opportunity formation. Ascribing goals to actions requires an understanding of the meaning of projected action, desired outcomes, and subsequent actions. The recursive nature of action and interpretation suggests that opportunity formation is the joint outcome of individuals' cognitive and behavioural process. The sole action of individuals is not enough for opportunities to come into existence (Alvarez and Barney, 2010). It requires interaction with social actors, such as customers, supplies, or other stakeholders. Interaction with social actors is important for individuals' cognitive evaluation in relation to the formation of opportunities (Wood and McKinley, 2010). Opportunities' formation may require the creation of a future

market and future customers. Since the future market is yet to exist, individuals engage with relevant stakeholders to co-create a market for their ideas (Alvarez and Barney, 2014).

The creation theory of the opportunity formation process has two distinct advantages over the discovery theory. First, it explains the existence of the future market and future customers. The market and customers are the result of social interaction facilitated by entrepreneurs' actions. Second, it shows that entrepreneurs are no different to non-entrepreneurs prior to the creation of an opportunity (Alvarez and Barney, 2007). Through the process of opportunity creation, individuals become closer to an entrepreneur identity and become different to others (ibid). In other words, individuals make the transition from non-entrepreneurs to entrepreneurs through the creation of opportunities. This theoretical view enables nascent entrepreneurs' opportunity formation process more accessible. Despite the plausible theoretical explanation of this view, there is no specific empirical evidence that explains the process by which inexperienced entrepreneurs form opportunities (Wood and McKinley, 2010). This study is concerned with addressing this knowledge gap in relation to first-time nascent entrepreneurs.

The review of the above two alternative theories highlights two distinct philosophical stances. The discovery theory applies a realist view of opportunity formation whereas the creation theory applies a social constructionist philosophical stance. The social constructionist stance makes nascent entrepreneurs' ongoing opportunity recognition process more accessible than the discovery view. I argue that opportunity formation is the outcome of recursive individuals' cognitive and behavioural processes, supported by social situatedness. The commonality between the discovery and creation theory is the origin of opportunity. Both theories have claimed that market imperfection is the source of opportunities. However, both theories equally disagreed over the ontological existence of market imperfection. I contend that the creation theoretical view is more appropriate for the study of first-time nascent entrepreneurs' ongoing opportunity recognition. This is because it offers access to their cognitive and behavioural processes in relation to opportunity formation within their social world context. Therefore, based on the creation view of the opportunity formation process, one of my research objectives is to explore the process by which nascent entrepreneurs come up with opportunity ideas.

Having discussed the alternative theories of the opportunity formation process, the following section reviews theories of the opportunity recognition process.

2.3 Opportunity recognition

Extant literature has provided varied definitions of opportunity recognition. The notion of opportunity recognition has led to the categorisation of ways that this occurs: (1) opportunity recognition refers to connecting known products with existing demand; (2) opportunity discovery refers to a known supply in search of unknown demand, or from a known demand that motivates the search for an unknown supply; and (3) with opportunity creation, neither the supply or demand exists prior to entrepreneurial action – entrepreneurs participate in creating both (Miller, 2007). The above three definitions are based on three views of opportunities: perception, discovery, and creation (Ardichvili, Cardozo and Ray, 2003). Regardless of different views, the commonality of definitions is that opportunity recognition requires an alignment between market needs and products or services (O'Connor and Rice, 2001; Shane, 2003; Grégoire, Shepherd, and Lambert, 2009; Kuckertz et al., 2017).

2.3.1 Two alternative theories of opportunity recognition

Several scholars have claimed that opportunity recognition (entrepreneurial alertness) is distinct from opportunity search (Kirzner, 1997; Ardichvili and Cardozo, 2000; Shane, 2000; Fiet, Piskounov, and Patel, 2004; Heinonen, Hytti, and Stenholm, 2011). Shane's (2000) case study of eight entrepreneurial opportunities showed that experienced entrepreneurs recognise opportunities through their prior knowledge rather than search. Similarly, Ardichvili and Cardozo's (2000) case study of eight experienced entrepreneurs indicates that they recognise opportunities through their natural alertness rather than search. Their findings showed that entrepreneurs become alerted to opportunities because of their prior knowledge. Baron (2006) explained that prior knowledge provides knowledge structure, a cognitive framework/mental model, that alerts entrepreneurs to opportunities. These prior studies suggest that experienced entrepreneurs do not require opportunity search as part of their opportunity recognition process.

The proponents of opportunity-search theories have challenged the alertness theory (Fiet, Piskounov, and Patel, 2004; Heinonen, Hytti, and Stenholm, 2011). They argued that alertness is the result of comprehensible phenomena. According to them,

opportunities lie in incomprehensible ignorant information that requires a proactive, systemic search (ibid). However, other scholars have viewed opportunity search as a reactive behavioural action, and they claimed that entrepreneurial alertness may sensitise entrepreneurs to investigate unknowable information (Hsieh, Nickerson, and Zenger, 2007).

The contradiction among these theoretical views suggests that our understanding of this area is underdeveloped. Both entrepreneurial alertness and search theories are based upon the discovery view of an opportunity formation process. These two rival theories highlight entrepreneurs' cognition and behaviour in relation to opportunity recognition. Since scholars have investigated the opportunity recognition of experienced entrepreneurs, we do not know whether nascent entrepreneurs' opportunity recognition involves both entrepreneurial alertness and opportunity search. This suggests the need for the investigation of nascent entrepreneurs' opportunity recognition.

Having discussed the alternative theories of opportunity recognition, the following section reviews the models of this concept.

2.4 Review of opportunity-recognition models

To date, a limited number of studies have conceptually and empirically developed opportunity-recognition process models. Table 2.2 provides an overview of these studies, including their authors, year of study, participants, methodology, and findings. I review each of these studies by discussing the opportunity-recognition model and its strengths and weaknesses.

Authors & years	Perspective	Participants	Methodology	Findings/key factors
Ardichvili and Cardozo (2000)	Not specified	Experienced entrepreneurs	Case studies	Entrepreneurial alertness, prior knowledge of market and customer and extended to social network
Ardichvili, Cardozo and Ray (2003)	Not specified	Serial entrepreneurs	Dubin's theory building framework	Entrepreneurial alertness, prior knowledge, social networks and

				personality traits
Baron (2006)	Cognitive	Serial and novice entrepreneurs	Conceptual model	Entrepreneurial alertness, prior knowledge and active search
Dyer, Gregersen and Christensen (2008)	Behavioural	Innovative/experienced entrepreneurs	Inductive grounded theory	Bias against status quo, questioning, observing, experimenting and networking, association thinking
Wood & McKinley (2010)	Social constructivist	Inexperienced entrepreneurs	Conceptual model	Conception of opportunity idea, objectification of opportunity idea, enactment of opportunity, level of peer consensus, social ties and entrepreneurs' reputation
Hajizadeh and Zali (2016)	Cognitive	Experienced entrepreneurs who run nanotechnology companies	Hypothesis testing	Entrepreneurial alertness, prior knowledge and entrepreneurial learning.
Jarvis (2016)	Cognitive and behavioural	Nascent entrepreneurs	Conceptual model	Entrepreneurial intention, identification, social norms, prior knowledge, entrepreneurial munificence

Table 2.2 Overview of prior opportunity-recognition model studies

2.4.1 A model of the entrepreneurial opportunity recognition process

Ardichvili and Cardozo's (2000) opportunity-recognition model is based on the case studies of eight experienced entrepreneurs, who started at least one successful venture (Figure 2.1). They tested their hypothesis on factors that contribute to the recognition of opportunity. These factors are entrepreneurial alertness, information asymmetry, prior

knowledge, discovery versus purposeful search, networking versus solo entrepreneurship, and creativity. Their study findings suggested that entrepreneurial opportunities are likely to involve an application of an existing technology in a new market. Experienced entrepreneurs recognise these opportunities through discovery rather than purposeful search. Their opportunity recognition is the constellation of three factors: entrepreneurial alertness, access to extended social networks, and prior knowledge of markets and customers' problems. Prior knowledge of markets and customers' problems is a result of relevant education and/or experience. Relevant experience is a result of work experience or idiosyncratic life experiences. Based on the findings, Ardichvili and Cardozo hypothesised that there could be a recursive relationship between alertness and prior knowledge. Prior knowledge of the market and customers' problems could heighten alertness to opportunities. This may lead individuals to seek new information that complements prior knowledge. This complementary knowledge may further heighten entrepreneurial alertness.

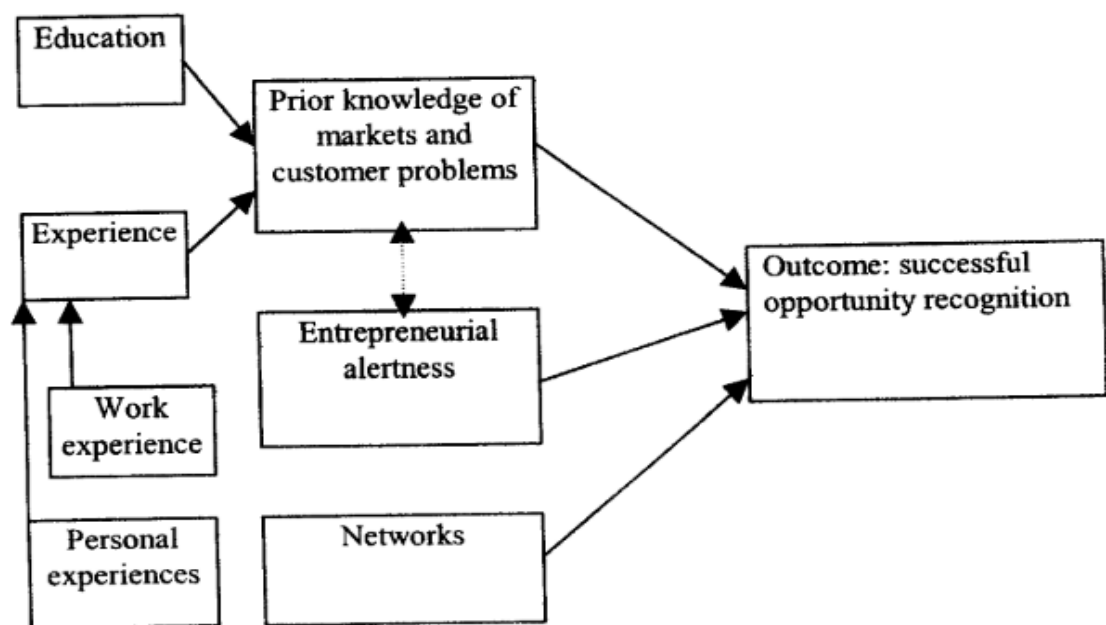


Figure 2.1 Opportunity recognition process model by Ardichvili and Cardozo

The main strength of this model is that it depicts the opportunity recognition of experienced entrepreneurs who have started at least one business. This model empirically confirms that experienced entrepreneurs do not proactively search for opportunities: rather, they recognise them through discovery. Entrepreneurial alertness, prior knowledge, and social networks are key factors that lead to recognition. However, the main weakness of this model is that it retrospectively explains the opportunity

recognition of experienced entrepreneurs. Therefore, it cannot be claimed that the recognition factors of experienced entrepreneurs are similar to nascent entrepreneurs, who are in the process of recognising opportunities. This necessitates the investigation of nascent entrepreneurs' ongoing opportunity recognition. In this study, I aim to uncover how nascent entrepreneurs' ongoing opportunity recognition process unfolds.

2.4.2 The model and units for the opportunity identification and development theory

Ardichvili, Cardozo and Ray (2003) developed an opportunity recognition process model by integrating prior conceptual and empirical studies on serial entrepreneurs (a type of entrepreneurs who have started multiple businesses) (Figure 2.2). They presented opportunity recognition as a multistage process influenced by four major factors: (1) entrepreneurial alertness; (2) prior knowledge; (3) social networks; and (4) personality traits. The model shows that entrepreneurial alertness is heightened by: prior knowledge, social networks, and personality traits. These three factors are presented as antecedents of entrepreneurial alertness.

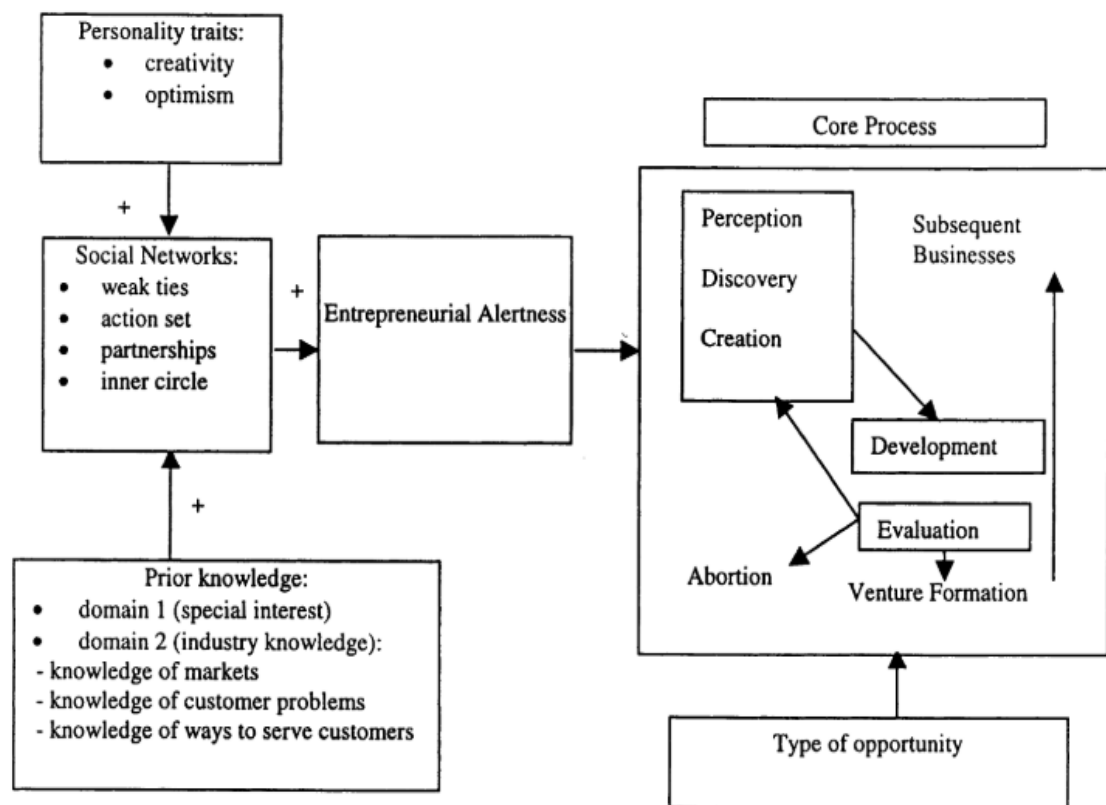


Figure 2.2 Opportunity recognition process model by Ardichvili, Cardozo and Ray

The main strength of this model is that it depicts the opportunity recognition model of serial entrepreneurs who have started multiple businesses. It shows that social networks, domain-specific prior knowledge, and personality traits, i.e. creativity and optimism, heightens entrepreneurial alertness. Overall, it shows the advancement of Ardichvili and Cardozo's earlier opportunity-recognition model. However, the main weakness of this model is that the findings are derived from retrospective studies and limited to only serial entrepreneurs. The retrospective study of opportunity recognition only captures distant past behaviours. Reporting past behaviours and cognitive processes may be subject to bias since entrepreneurs' development take place during the process of opportunity recognition and enactment. Therefore, the study of past opportunity recognition does not capture actual cognitive and behavioural processes that are essential for understanding entrepreneurs. Moreover, nascent entrepreneurs are distinct from serial entrepreneurs because they lack prior business ownership experience. Therefore, it cannot be claimed that serial entrepreneurs' opportunity recognition model is similar to that of nascent entrepreneurs. This re-emphasises the necessity of unravelling first-time nascent entrepreneurs' ongoing opportunity recognition process. This is the aim of my study.

2.4.3 Opportunity recognition as pattern recognition

By adopting a cognitive perspective with mainly pattern recognition, Baron (2006) synthesised prior studies' findings and conceptually developed them into an opportunity-recognition process model (Figure 2.3). This model suggests that opportunities emerge from the external world, interpreted through individuals' cognitive framework (mental framework), and realised into new products or services. Individuals with a higher level of knowledge and/or experience may be alerted to opportunities. This is because knowledge and experiences provide richer cognitive prototypes for the interpretation of seemingly unrelated information. On the other hand, individuals with less-developed cognitive prototypes may search information to perceive patterns that suggest new entrepreneurial opportunities. According to their model, habitual/repeat entrepreneurs are more likely to recognise opportunities through alertness, whereas novice entrepreneurs use a search approach in this regard.

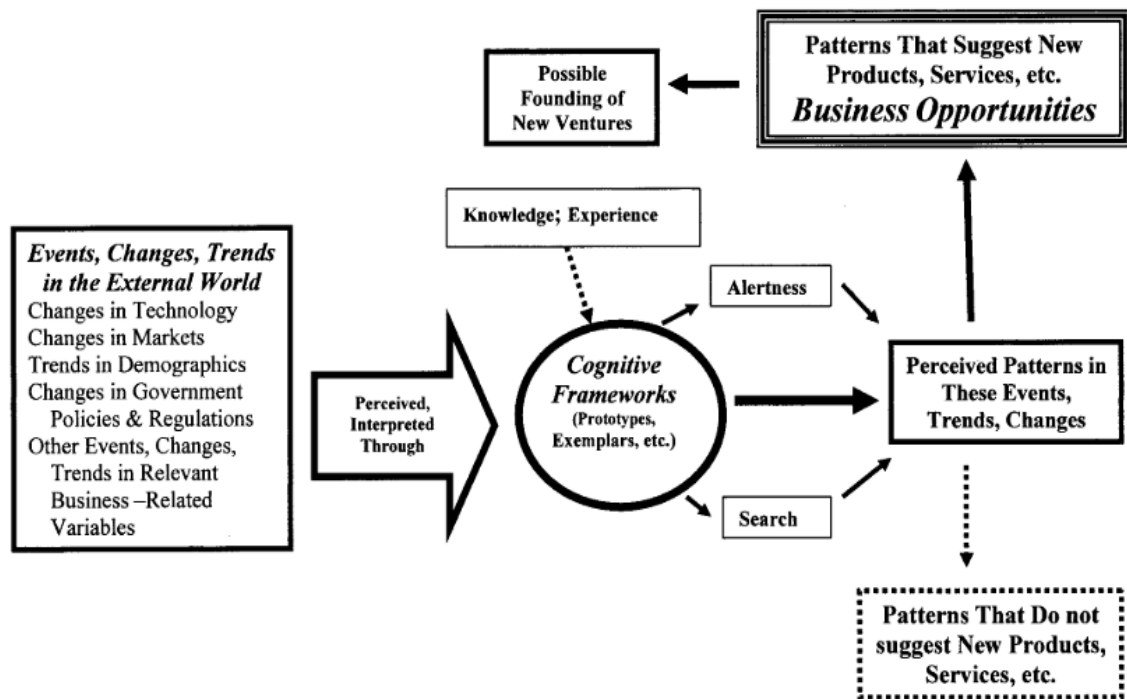


Figure 2.3 Opportunity recognition process model by Baron

The main strength of this model is that it provides a better explanation from the perspective of human cognition, specifically pattern recognition. This model conceptually highlights the cognitive difference between serial and novice entrepreneurs. Entrepreneurs are different in terms of their prior knowledge and idiosyncratic life experiences. The main weakness of this model is that it is developed from the synthesis of prior studies that retrospectively investigated past recognised opportunities. As mentioned above, retrospective studies do not depict the actual cognitive and behavioural process that contributes to ongoing opportunity recognition. Besides, this conceptual model is limited to the explanation of serial and novice entrepreneurs. Therefore, the conceptual claim cannot be transferrable to nascent entrepreneurs who are currently in the process of recognising opportunities. In addition, it does not consider the influence of social actors that may shape the cognitive evaluation of entrepreneurs during the opportunity-recognition process. This is a knowledge gap. This study aims to address this gap.

2.4.4 A theory of entrepreneurial behaviours and opportunity recognition

By adopting a behavioural perspective, Dyer, Gregersen, and Christensen (2008) conducted an inductive grounded theory on 25 innovative entrepreneurs and 25 senior executives of large companies. They empirically developed an opportunity-recognition

model, shown here in Figure 2.4. This empirical model depicts innovative entrepreneurs' opportunity search behaviour that leads to opportunity recognition. According to this model, entrepreneurs who are less susceptible to status quo bias (a type of cognitive bias) demonstrate questioning, observing, experimenting, and networking behaviours during their opportunity search. These behaviours facilitate associational or pattern-recognition thinking (a cognitive process) that generates opportunity ideas. Dyer, Gregersen, and Christensen referred to the process of generating opportunity idea as 'opportunity recognition'.

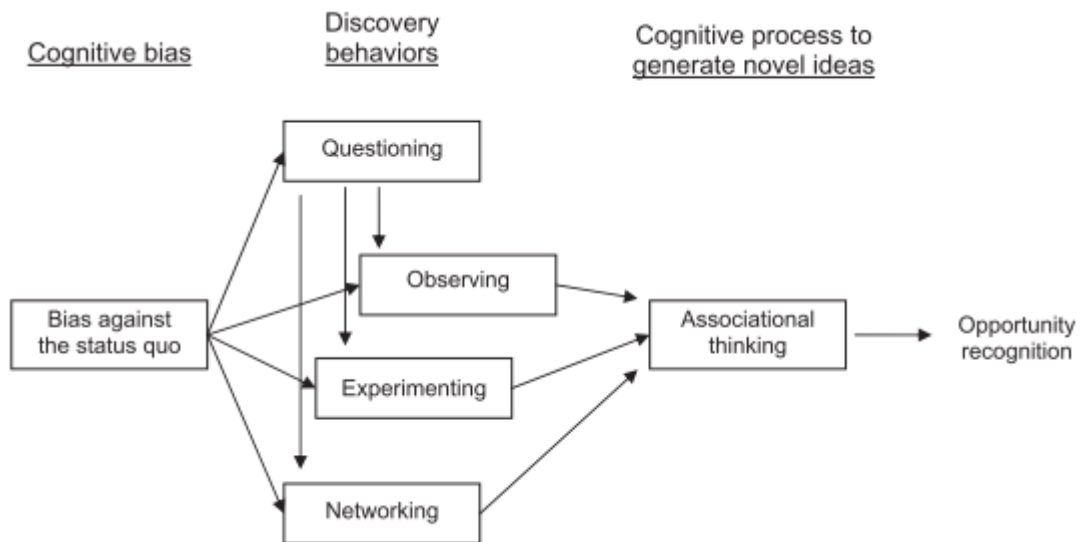


Figure 2.4 Opportunity recognition model by Dyer, Gregersen, and Christensen

The main strength of this model is that it shows the relationship between cognitive bias, behaviour, and the cognitive process. Lower susceptibility to status quo bias triggers specific entrepreneurs' behavioural actions that enable the cognitive process leading to opportunity recognition. These behavioural actions are only identifiable when entrepreneurs engage in opportunity-related information search. The main weakness of this model is that it retrospectively explains the opportunity recognition of innovative entrepreneurs who already had established innovative businesses. As mentioned earlier, retrospective studies can only report on past behaviours. It cannot depict current behaviours related to opportunity recognition. Therefore, the current findings of this model cannot be transferrable to nascent entrepreneurs who are in the process of recognising opportunities. Moreover, this model does not consider the role of social context that may enable or preclude certain behaviours and the cognitive process. Unlike innovative and experienced entrepreneurs, nascent entrepreneurs may behave

and cognise differently and utilise their social sources for opportunity-related information search. Their behavioural and cognitive processes related to opportunity search may be shaped by their social circles, or vice versa. This study is concerned with understanding how nascent entrepreneurs' cognitive process mediated through social situatedness enable specific behaviours that contribute to opportunity recognition.

2.4.5 A conceptual model of entrepreneurial opportunity production: a constructivist perspective

By adopting a social constructivist perspective, Wood and McKinley (2010) conceptually developed an opportunity-recognition model of inexperienced entrepreneurs (Figure 2.5). This model assumes that entrepreneurial opportunity recognition proceeds through three stages: (1) the conception of an opportunity idea; (2) the objectification of that idea; and (3) the enactment of opportunity into a new venture. In this opportunity-recognition model, opportunity begins as an idea that an individual conceived from his/her social world. It is then objectified through the level of consensus among peers. The lack of consensus could result in the abandonment of ideas. Conversely, the opportunity-enactment process is influenced by entrepreneurs' social ties and reputation. A lack of social ties and reputation may result in opportunity abandonment.

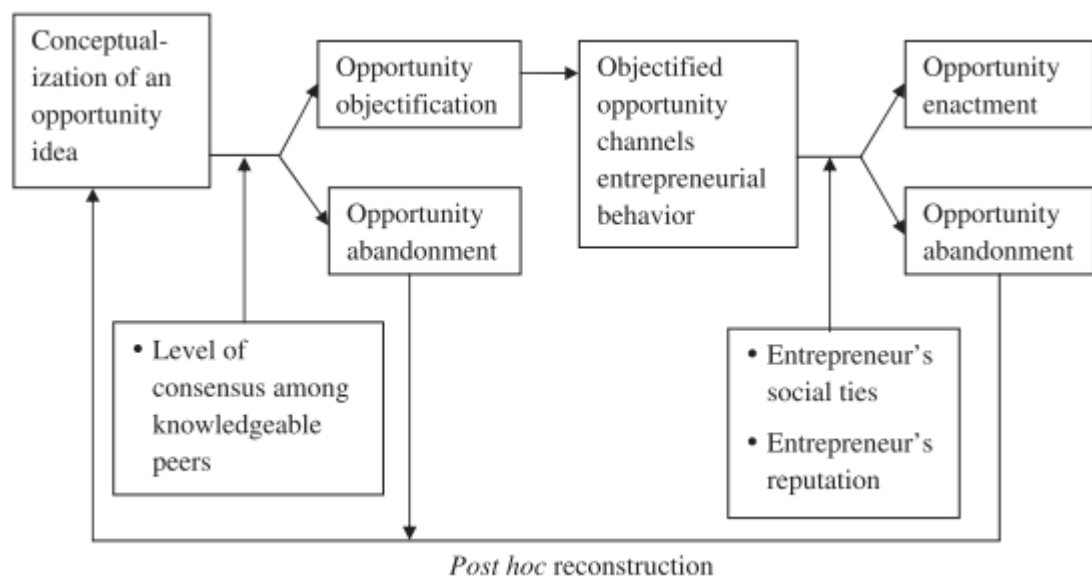


Figure 2.5 Opportunity recognition process model by Wood and McKinley

The main strength of this model is that it conceptually explains inexperienced entrepreneurs' opportunity-recognition process. This model identifies social context as a

key factor that facilitates cognitive processes related to opportunity recognition. Besides, it considers opportunity abandonment as part of the opportunity-recognition process. The main weakness of this model is that it is not empirically driven. Even though the model highlights the conception of opportunity idea, it is not known how the idea conception initially takes place. Also, this model emphasises describing inexperienced entrepreneurs without specifying their level of experience: novice or nascent. Therefore, it cannot be claimed that the current model is similar to nascent entrepreneurs who are in the process of recognising opportunities. However, the social constructionist perspective may empirically shed new light on this specific type of entrepreneur. This study is concerned with understanding nascent entrepreneurs' opportunity recognition from a social constructionist perspective.

2.4.6 An integrative model of opportunity recognition: prior knowledge and cognitive characteristics

Hajizadeh and Zali (2016) tested their hypothesis on sample of 64 experienced entrepreneurs: founders of Nano-technology companies. Their hypothesis confirmed that opportunity recognition is influenced by three factors: (1) entrepreneurial alertness; (2) entrepreneurial learning; and (3) prior knowledge (Figure 2.6). Their study highlighted the role of prior knowledge on cognitive characteristics, and vice versa. They determined that prior knowledge enhances both cognitive characteristics, entrepreneurial alertness and entrepreneurial learning, which leads to successful opportunity recognition. Their study also confirmed that higher entrepreneurial alertness and learning mediate the relationship between prior knowledge and opportunity recognition. It was found that higher entrepreneurial alertness and learning helps entrepreneurs to apply prior knowledge to acquire new information, and the combination of new and prior knowledge leads to opportunity recognition.

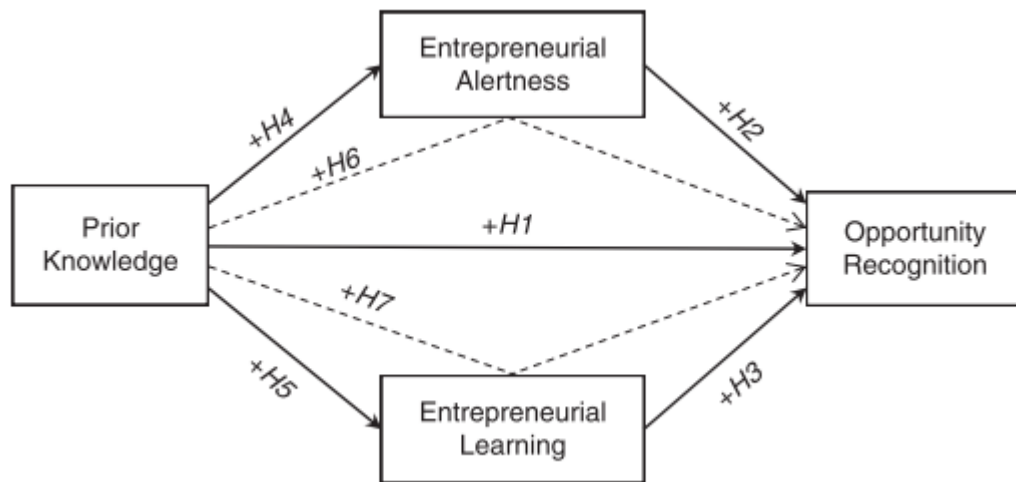


Figure 2.6 Opportunity recognition model by Hajizadeh and Ali

The main strength of this model is that it shows the recursive relationship between prior knowledge, alertness, and learning. The relationship among factors provides better understanding of their role in opportunity recognition. The weakness of this model is that it retrospectively explains the opportunity recognition of experienced entrepreneurs who already have established businesses. As mentioned previously, retrospective studies do not depict real-time cognitive and behavioural processes that disproportionately contribute to ongoing opportunity recognition. Besides, the conceptual models are limited to the explanation of experienced entrepreneurs. Therefore, the findings cannot be transferrable to nascent entrepreneurs who are currently in the process of recognising opportunities. In addition, it did not consider the social networks or situatedness that may contribute to the identified factors.

2.4.7 Identification, intentions and entrepreneurial opportunities: an integrative process model

Jarvis's (2016) conceptually developed opportunity-recognition model of nascent entrepreneurs explores the relationship between entrepreneurs' identification, intention, and opportunities (Figure 2.7). Their model suggests that entrepreneurial intention mediates the relationship between an individual's identification as entrepreneur and entrepreneurial behaviour: opportunity recognition and exploitation. In this model, Jarvis proposed that opportunity recognition and exploitation are definitive behaviours of entrepreneurs. According to the model, individuals who identify themselves as entrepreneurs will be aware of the need to recognise and exploit opportunities. In other words, the identification as an entrepreneur drives individuals' intent to search for and

enact entrepreneurial opportunities. Behavioural controls such as domain-relevant knowledge and availability of resources (entrepreneurial munificence) increase the likelihood of perceiving oneself as an entrepreneur and subsequent search for opportunities. In this model, opportunity search rather than entrepreneurial alertness is a key part of opportunity recognition.

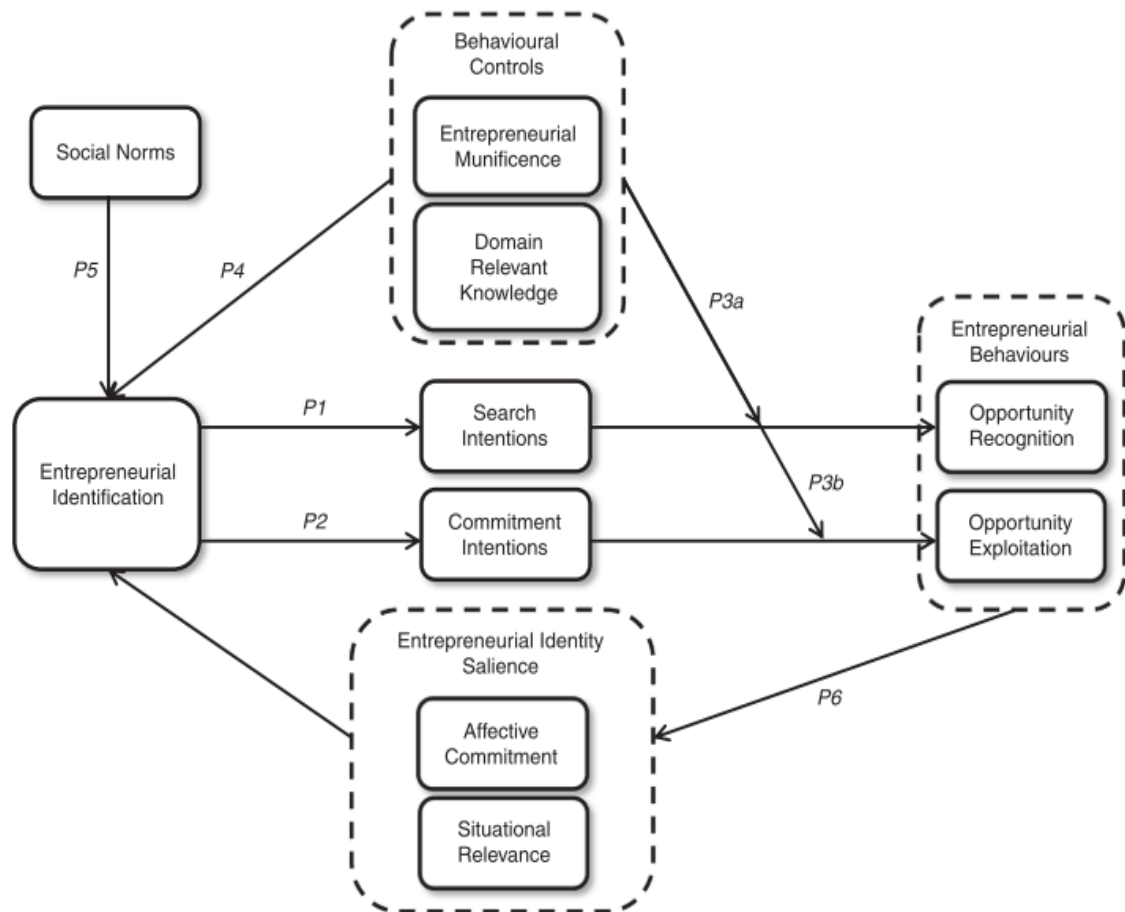


Figure 2.7 Opportunity recognition model by Jarvis

The main strengths of this model is that it explicitly highlights nascent entrepreneurs' opportunity recognition and enactment as definitive behaviours. It also sheds light on entrepreneurial intention that is mediated by entrepreneurs' identification and social norms. The weakness of this model is that it is not empirically developed, and shows a nascent entrepreneurs' behaviour without considering the influence of cognition. This model is an arrangement of variables identified in the extant literature about nascent entrepreneurs' opportunity recognition.

In the above, I evaluated both conceptual and empirical models of opportunity recognition. These models highlight the importance of behavioural and cognitive factors in relation to opportunity recognition. The key factors are entrepreneurial alertness, prior knowledge, active search, entrepreneurial learning, intention, personality traits, and social networks. However, the empirical models are based on experienced entrepreneurs who already had established businesses. These are developed from the retrospective study of opportunity recognition. Extant literature has already claimed that the retrospective studies do not capture entrepreneurs' cognitive and behavioural processes, essential to understanding opportunity recognition (Gaglio and Katz, 2001; Grégoire, Shepherd and Lambert, 2009). Conversely, the conceptual models evaluated above lack empirical evidence. Wood and McKinley (2010) and Jarvis's (2016) conceptual model highlights the importance of the cognitive and behavioural processes of nascent entrepreneurs in relation to opportunity recognition. Wood and McKinley's model shows how they cognise opportunities with the support of a social circle, whereas Jarvis's model shows how their opportunity search behaviour leads to opportunity recognition. The main knowledge gap is that there is no empirical model that represents nascent entrepreneurs' opportunity recognition. This study aims to address this gap by investigating cognitive and behavioural process of nascent entrepreneurs. However, these models have suggested that prior knowledge, entrepreneurial alertness, active search, intention, and social networks are major factors of opportunity recognition. These factors highlight both the cognitive (i.e. entrepreneurial alertness) and behavioural action (search, social network reliance, intention) of entrepreneurs. Having identified these factors, the following sections review these in detail.

2.5 Prior knowledge and opportunity recognition

Prior knowledge is a key factor of opportunity recognition (Shane, 2000; Shepherd and DeTienne, 2005; Arentz, Sautet, and Storr, 2013). It refers to an individual's distinctive information about a subject matter that may be the result of work experience, education, and/or idiosyncratic life experiences (Shepherd and DeTienne, 2005). Research on prior knowledge has taken cues from the work of Hayek on dispersed knowledge in society. Hayek claimed that knowledge is not evenly distributed in society (Hayek, 1945). Knowledge about under-utilised resources, demand of new raw materials, or sudden political changes is distributed according to the life circumstances of each person in society (Shane and Venkataraman, 2000). Opportunities exist because of the uneven

distribution of knowledge in society (Kirzner, 1997). As a result, only some individuals, but not all, can recognise opportunities. However, with the progress of study, several scholars have claimed that prior knowledge provides a foundation of the cognitive framework (i.e. mental models) that help entrepreneurs to recognise opportunities (Arentz, Sautet, and Storr, 2013; Li, Wang, and Liang, 2015; Hajizadeh and Zali, 2016). In other words, the cognitive process derives from the knowledge structure provided by prior knowledge. Kolb (1984) refers to prior knowledge as one of the three distinct elements in the experiential learning process. Through the process of experiential learning, individuals accumulate and integrate new with prior knowledge. Thus, the knowledge structure evolves and develops.

2.5.1 Dimensions of prior knowledge

There are four dimensions of prior knowledge that influence the recognition of opportunities. These dimensions are knowledge of the market, knowledge about ways of serving the market, knowledge of customers’ problems, and knowledge of technology (Shane, 2000; Marvel and Lumpkin, 2007). Knowledge of the market makes it easier to recognise demand conditions, which facilitates the recognition of opportunities (Shane, 2003). Knowledge of how to serve the market refers to the knowledge of production and distribution of goods or services in the market. A new production method or a new source of supply can trigger opportunity recognition, as this new knowledge allows individuals to better serve the existing market. Similarly, prior knowledge of customers’ problems leads to opportunity recognition because knowledge facilitates ways to solve problems in situations when customers cannot articulate their needs or solutions (ibid).

2.5.2 Prior empirical studies

To date, scholars have studied experienced entrepreneurs and non-entrepreneurs’ (students and managers) dimension of prior knowledge that contributes to the recognition of opportunities. Table 2.3 provides an overview of these studies, including their authors, year of study, participants’ methods, and findings. In the following paragraphs, I critically examines these studies.

Authors & Year	Studies	Participants	Types of Entrepreneur	Method	Study findings
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Shane (2000)	Exploring the relationship between prior knowledge and opportunity discovery	Eight cases of entrepreneurial opportunities (22 technology entrepreneurs)	Experienced entrepreneurs	Semi-structured interviews	Knowledge of the market, knowledge of ways of serving the market and knowledge of customers' problems facilitate opportunity recognition.
Shepherd & DeTienne (2005)	Exploring the constructs of financial rewards and prior knowledge in the recognition of opportunities	78 MBA & executive MBA students	Non-entrepreneurs	Laboratory Experiment	Prior knowledge leads to opportunity recognition. It also moderates financial rewards and opportunity recognition.
Marvel & Lumpkin (2007)	How does the experience, education, and prior knowledge of technology entrepreneurs relate to innovation radicalness at opportunity recognition?	145 technology entrepreneurs	Experienced entrepreneurs	Survey	Innovation radicalness was positively associated with formal education and prior knowledge and prior knowledge of technology, but negatively associated with prior knowledge of ways to serve

					market.
Gruber, McMillan, and Thompson (2013)	Escaping the Prior Knowledge Corridor: What Shapes the Number and Variety of Market Opportunities Identified Before Market Entry of Technology Start-ups?	Founders of 496 technology ventures	Experienced entrepreneurs	Interview	Entrepreneurs recognise large numbers and varied market opportunities when they possess diverse industry experience and diverse external knowledge sourcing relationship.
Arentz, Sautet and Storr (2013)	Prior knowledge and opportunity identification	64 students	Non-entrepreneurs	Laboratory experiment	Prior knowledge indirectly influences opportunity recognition through its impact on entrepreneurial alertness.

Li, Wang and Liang (2015)	The influence of entrepreneurial experience, alertness, and prior knowledge on opportunity recognition	94 student entrepreneurs who founded their companies and 114 non-entrepreneurs	Experienced and non-experienced entrepreneurs	Survey	Prior knowledge indirectly influence opportunity recognition through its impact on entrepreneurial alertness.
Hajizadeh and Zali (2016)	Prior knowledge, cognitive characteristics, and opportunity recognition	64 entrepreneurs	Experienced entrepreneurs	Survey	Prior knowledge indirectly influences opportunity recognition through its impact on entrepreneurial alertness.
Kuckertz et al. (2017)	Associated relationships between prior knowledge, opportunity recognition, and exploitation	101 executive managers	Non-entrepreneurs	Survey	Prior knowledge is positively associated with opportunity recognition and exploitation.

Table 2.3 Overview of prior knowledge study findings

Shane (2000) examined eight cases of entrepreneurial opportunities in the area of 3-D printing technology. He interviewed 22 technology entrepreneurs. He found that entrepreneurs' prior knowledge of the market, ways of serving the market, and customers' problems led them to recognise entrepreneurial opportunities. His study findings are limited to experienced entrepreneurs who already had established businesses. Entrepreneurs who recall past information may be subject to self-reporting

and retrospective bias. Their experience with successful business creation may have modified their past information in a favourable way. Therefore, study findings based on retrospective information do not confirm whether the prior knowledge of nascent entrepreneurs, who are in the process of starting a business, play any role in their opportunity recognition.

Shepherd and DeTienne (2005) conducted an experimental study on 78 MBA and executive MBA students (non-entrepreneurs) to explore the relationship between prior knowledge of customers' problems and financial rewards in the recognition of opportunity recognition. Their study results show that while prior knowledge of customers' problems leads to the recognition of opportunities, it also moderates the relationship between financial reward and opportunity recognition. They found that the less knowledge that individuals had about customers' problem, the more positive the effect that the financial reward had on the number of opportunities recognised, and the innovativeness of those opportunities. The main strength of their study is that they adopted an experimental study to eliminate retrospective and self-reporting bias. However, the experimental study is weak in its nature when opportunity recognition is itself a living phenomenon within a real-world context. Moreover, since the study investigated non-entrepreneurs, the findings could not be transferred to entrepreneurs.

Marvel and Lumpkin (2007) surveyed 145 technology entrepreneurs to investigate how the four dimensions of prior knowledge (the market, ways of serving the market, customers' problems, and technology) relate to innovation radicalness at opportunity recognition. Their study results showed that innovation radicalness is positively associated with prior knowledge of technology, but negatively associated with prior knowledge of ways to serve markets. Similar to prior studies, they adopted a quantitative methodology focusing on experienced technology-based entrepreneurs. Due to the nature of the study, the claims of the findings cannot be transferred to nascent entrepreneurs.

Gruber, McMillan, and Thompson (2013) investigated the factors that shape the number and variety of market opportunities identified before the market entry of technology start-ups. They interviewed the founders of 496 technology ventures. Their findings showed that entrepreneurs recognise large numbers and varied market opportunities when they possess diverse industry experience and diverse external knowledge-sourcing

relationships. However, their claims are limited to experienced entrepreneurs who already possess diverse knowledge. The retrospective investigation of past-recognised opportunities may be biased by entrepreneurs' self-reporting of distant past information (Davidsson and Honig, 2003). The study findings cannot be transferred to nascent entrepreneurs, who are in the process of recognising opportunities.

Arentz, Sautet, and Storr's (2013) laboratory experiment on 64 students showed that prior knowledge indirectly influenced opportunity recognition through its impact on entrepreneurial alertness. Similar study findings emerged from Li, Wang, and Liang's (2015) quantitative study on eight student entrepreneurs, and Hajizadeh and Zali's (2016) survey research on 64 experienced entrepreneurs. These study findings – prior knowledge's indirect influence on opportunity recognition through its impact on entrepreneurial alertness – suggest that prior knowledge provides a knowledge structure called a cognitive framework, which is responsible for heightening alertness to specific opportunities. However, the main weakness of these studies is that these studies are quantitative. Due to the quantitative nature of these studies, they do not explain how entrepreneurs find the relevance of prior knowledge to specific opportunities. Moreover, these studies were conducted on non-entrepreneurs and experienced entrepreneurs. Therefore, the findings cannot be transferred to nascent entrepreneurs who are in the process of recognising opportunities.

Kuckertz et al. (2017) surveyed 101 executive managers to measure opportunity recognition and exploitation constructs. Their study hypothesis confirmed that prior knowledge is positively associated with opportunity recognition. The limitation of their study is that they surveyed managers, not entrepreneurs. Managers and entrepreneurs are distinct individuals (Moroz and Hindle, 2012). Managers operate in existing means-ends framework whereas entrepreneurs create new means-ends framework. Because of the fundamental difference between managers and entrepreneurs, the study findings cannot be inferred to entrepreneurs. Moreover, the study findings do not explain how prior knowledge unfolds opportunity-recognition process.

The above literature review demonstrates that prior knowledge is an important construct for the study of entrepreneurial opportunity recognition. It provides a knowledge structure that activates specific cognitive characteristics, i.e. entrepreneurial alertness. To date, scholars have focused on experienced entrepreneurs' and non-entrepreneurs'

prior knowledge on the recognition of opportunities. Most of these studies were mainly based on either surveys or experimental studies. This limits or avoids the context of the phenomenon. Opportunity recognition is an ongoing and context-specific phenomenon. While experimental studies aim to avoid retrospective and self-reporting bias, surveyed studies are subject to these biases. The evidence from the above literature review suggests that the role of prior knowledge on nascent entrepreneurs' opportunity recognition is unexplored. The results of these studies could have been different if studies had been conducted on nascent entrepreneurs.

2.6 Entrepreneurial alertness and opportunity recognition

Entrepreneurial alertness is one of the most important factors of opportunity recognition (Kirzner, 1997; Gaglio and Katz, 2001; Tang, Kacmar, and Busenitz, 2012; Valliere, 2013). The term 'entrepreneurial alertness' was first introduced by Kirzner (1973). According to Kirzner, entrepreneurial alertness refers to 'the ability to spot opportunities' (1979); and 'an attitude of receptiveness to available opportunities that have hitherto been overlooked' (1997). Spotting, or being receptive to, opportunities requires individuals' ability to interpret information as an opportunity. At the early stage of the entrepreneurial alertness theory, there was no plausible explanation of how individuals become alerted to opportunity. Scholars have associated alertness with sheer luck, sudden surprise, superior intuition, and a lucky hunch (Kirzner, 1997; Shane and Venkataraman 2000). Over the years, entrepreneurial alertness has been translated into individuals' cognitive properties/characteristics (i.e. mental models) and conscious search behaviours (Gaglio and Katz, 2001; Baron and Ensley, 2006; Valliere, 2013; Hajizadeh and Zali, 2016). By drawing on the pattern-recognition theory of cognitive science, scholars have claimed that alert individuals have more accurate mental models or cognitive frameworks (i.e. prototype model, exemplar model and schema model) that enable the interpretation of given opportunity information (ibid).

The mental models prototypes, exemplars, and schema all represent the knowledge structure of an individual's physical and social world (Gaglio and Katz, 2000; Baron, 2006; Baron and Ensley, 2006; Aviram, 2009; Valliere, 2013). Knowledge structure evolves with life experiences that shape mental models. Several empirical studies have shown that prior knowledge is an important antecedent of entrepreneurial alertness (Tang, Kacmar, and Busenitz, 2012; Arentz, Sautet, and Storr, 2013; Li, Wang, and

Liang, 2015; Hajizadeh and Zali, 2016). Ucbasaran, Westhead, and Wright's (2008) study demonstrated that knowledge acquired through prior business ownership experience (referred to as specific human capital) alerts individuals to opportunities. From their findings, they claimed that due to prior business-ownership experience, repeat entrepreneurs (often referred to as habitual entrepreneurs) are more likely to recognise opportunities than novice entrepreneurs. With reference to this claim, first-time nascent entrepreneurs may not be alerted to opportunities because they do not have prior business-ownership experience. To date, no empirical evidence has been found to confirm that nascent entrepreneurs recognise opportunities through alertness. Understanding how these entrepreneurs come up with opportunities may reveal insight into their cognitive processes. Therefore, one of the objectives of this study is to explore how nascent entrepreneurs come up with opportunity ideas.

Turning back to alternative theories of the opportunity-formation process – discovery theory and creation theory (see section 2.2). Discovery theorists have claimed that opportunities are formed exogenously whereas creation theorists have argued that opportunities are formed endogenously through the actions of entrepreneurs (Kirzner, 1997; Shane, 2003; Fletcher, 2006; Alvarez and Barney, 2007; Wood and McKinley, 2010). Regardless of alternative theoretical stances on opportunity formation, scholars have recognised entrepreneurial alertness as the most important factor of opportunity recognition (Tang, Kacmar, and Busenitz, 2012; Valliere, 2013). They claimed that, in the discovery theory, entrepreneurial alertness provides necessary information about objective conditions, i.e. market imperfections caused by an exogenous shock. Conversely, in the creation view, alertness provides essential information of a more constructivist slant. Herein, information may allow individuals to reconceptualise some aspects of the world, or impute new meaning to existing objective features. Reconceptualising, or imputing new meaning, requires cognitive evaluation from others. I argue that, in the creation view, the term awareness is more appropriate than alertness because individuals find opportunities through the process of social interaction. Their consciousness heightens as they impute the meaning of opportunities to the experienced phenomenon.

However, by integrating prior studies, Tang, Kacmar, and Busenitz (2012) proposed three dimensions of entrepreneurial alertness. These three dimensions are reviewed below.

2.6.1 Dimensions of alertness

Tang, Kacmar, and Busenitz (2012) proposed three distinct elements of alertness: (1) systematically or non-systematically scan the environment and search for information; (2) associate or piece together previously unconnected information; and (3) make evaluations and judgement about the existence of opportunities. They claimed that these three elements complement each other and provide individuals with a foundation on which to identify opportunities. However, these three elements integrate the process of searching, interpreting, and making sense of information as an entrepreneurial opportunity. Searching, scanning, and evaluating are conscious behavioural actions. Conversely, associating unrelated information is a cognitive process. Therefore, these dimensions represent entrepreneurial alertness as cognitive and behavioural characteristics. Below, each of these dimensions are explained.

(a) Alert scanning and searching for information. This alertness dimension is associated with information-seeking behaviour. By scanning and searching, individuals build a knowledge structure, which is the foundation of specific cognitive frameworks, i.e. prototypes or schemas. Tang, Kacmar, and Busenitz (ibid) claimed that scanning and search behaviour captures individuals' ability to seek information to further explore newly associated concepts.

(b) Alert association and connection. This dimension focuses on receiving new information and making connections with an existing knowledge base. In other words, it creates meaning by 'connecting the dots' between disparate information, and the meaning of information emerges as an opportunity. However, an individual may need to re-engage in scanning and searching for information to clarify revised thoughts. This scanning and searching involves a recursive relationship with association and connection. The recursive relationship indicates a recursive, cognitive, and behavioural process.

(c) Making evaluations and judgements. This dimension is an important part of entrepreneurial alertness. On the condition that an opportunity arises as the outcome of the above two, an individual may exercise entrepreneurial judgement on the suitability of opportunities. During this evaluation stage, an individual decides whether the opportunity is for him or for someone with the right capabilities. During the evaluation,

s/he may search for additional information that may result in the refinement of ideas or the consideration of related alternatives.

The above alertness dimensions illuminate the recursive relationship between cognitive and behavioural processes in relation to opportunities. The main drawback of this model is that it is conceptually developed by integrating prior studies. It does not provide empirical evidence on entrepreneurs' alertness dimensions in relation to opportunity recognition. Valliere (2013) further extended the work of Tang, Kacmar and Busenitz (2012). He provided a conceptual explanation of the second element of alertness: an association or piecing together of previously unconnected information. He proposed three antecedents: schematic richness, schematic association, and schematic priming. Schemas are dynamic, evolving mental models that represent individual's knowledge and beliefs about how social and physical worlds work. Bartlett (1932) first laid the foundation of schema theory. However, Valliere's conceptual model suggests that entrepreneurial alertness is based on schematic differences due to the richness of schemata, the association between stimuli and schemata, and the priming of particular schemata. Schematic richness is built upon prior knowledge, experiences, and education. Schematic association is strengthened by entrepreneurial practice. Schematic priming is motivated by entrepreneurial intention.

Overall, the current alertness theory is based on human cognition. Scholars have devoted too much effort in understanding the cognitive process of entrepreneurs from a cognitive science perspective. The literature review revealed that alertness is not only a cognitive characteristic but also a behavioural action. It is a cognitive characteristic that manifests into a behavioural action by which entrepreneurs coalesce an opportunity idea. Nevertheless, the theory of entrepreneurial alertness is based on the study of experienced entrepreneurs. It is not known whether nascent entrepreneurs' alertness to opportunities are akin to experienced entrepreneurs. Nascent entrepreneurs who lack prior business-ownership experience may not have a relevant knowledge structure. This suggests that the current alertness theory is less applicable to nascent entrepreneurs. Therefore, one of the objectives of this study is to explore the process by which nascent entrepreneurs generate opportunity ideas.

2.7 Opportunity search

Several studies have claimed that opportunity search is a critical component of opportunity recognition (Baron, 2006; Hsieh, Nickerson, and Zenger, 2007; Heinonen, Hytti, and Stenholm, 2009; Gielnik et al., 2014). Scholars have recognised opportunity search as a behaviour of entrepreneurs (Kaish and Gilad, 1991; Cooper, Folta and Woo, 1995; Dyer, Gregersen and Christensen, 2008; Dimov 2011). It encompasses various behavioural actions: honing and refining existing opportunity ideas, or searching for new opportunities. In the extant literature, behavioural action is often referred to as ‘entrepreneurial action’ and ‘entrepreneurial behaviour’. Scholars consensually agreed that information is the source of opportunities. (Busenitz, 1996; Fiet, Piskounov and Patel, 2005). In many cases, ‘opportunity search’ is interchangeably used with ‘information search’. Access to existing information and/or new information enables some, but not all, people to recognise opportunities (Shane, 2003).

Whether opportunity-search behaviour is proactive or reactive in nature is an ongoing academic debate. Several scholars have claimed that opportunities are ‘out there’, and individuals proactively search for them (Kaish and Gilad, 1991; Heinonen, Hytti, and Stenholm, 2011; Gielnik et al., 2014). Others have argued that individuals become sensitive to opportunity-related information when they are alerted to opportunities (Kirzner, 1997; Hsieh, Nickerson, and Zenger, 2007). According to them, proactive opportunity search is problematic as one cannot search for opportunities without known priori. Opportunity, by definition, is unknown until created or discovered. While the proponents of proactive search behaviour claimed opportunity search as a distinct component of opportunity recognition, the proponents of reactive search behaviours conceptually integrated search behaviour with entrepreneurial alertness. There has been no evidence that a particular search approach dominates the opportunity recognition spectrum (Dimov, 2007b). It is also not known whether proactive or reactive nature varies according to the type of entrepreneur. Identifying whether nascent entrepreneurs proactively or reactively search opportunities would trim the existing academic debate.

To date, studies have mainly investigated novice and habitual (or repeat) entrepreneurs (Ozgen and Baron, 2007; Ucbasaran, Westhead, and Wright, 2008; Westhead, Ucbasaran and Wright, 2009; Ramos-Rodríguez et al., 2010; Gielnik, 2014). There has been no evidence on how nascent entrepreneurs search for opportunities. Prior empirical

studies has shown that the intensity of information search, as well as the volume of information sought, are related to entrepreneurs' prior experience. Kaish and Gilad (1991) surveyed 51 founders and 36 executives. Their study results demonstrated that the physical volume of a search is a distinguishing characteristic of entrepreneurial behaviour. Inexperienced entrepreneurs are more likely to search for more information than experienced ones. Similarly, Cooper, Folta, and Woo's (1995) examination of 117 entrepreneurs showed that inexperienced entrepreneurs search for more information than experienced ones. Their findings also showed that inexperienced entrepreneurs search vary depending upon whether they are in a familiar or unfamiliar domain. Westhead, Ucbasaran, and Wright's (2009) survey research on 625 entrepreneurs confirmed that habitual entrepreneurs identified more opportunities as a result of a higher intensity of information search.

There is a paucity of research on entrepreneurs' opportunity-search behaviours that might contribute disproportionately to opportunity recognition (Dyer, Gregersen, and Christensen, 2008). Prior studies have suggested that, due to the differences in cognitive mindsets, experienced and inexperienced entrepreneurs differ in their behaviour (Westhead, Ucbasaran and Wright, 2009). The difference in cognitive mindsets implies that experienced entrepreneurs' opportunity search may be guided by richer models and a greater awareness of what is needed than their inexperienced counterparts (Cooper, Folta, and Woo, 1995; Baron and Ensley, 2006). In other words, they may have better appreciation of the value of information than inexperienced entrepreneurs. Therefore, it is reasonable to apprehend that search behaviours vary significantly among different types of entrepreneurs.

Although scholars have shown interest in understanding inexperienced entrepreneurs' opportunity-search behaviour (Baron, 2006), there are no empirical studies that explain nascent entrepreneurs' contemporaneous opportunity-search behaviour. Prior studies have investigated entrepreneurs who already have an established business. These findings were based on retrospective studies that reported past behaviour. Entrepreneurs' self-reported past behaviour may be distorted by their gradual learning as well as their tendencies to glorify successful endeavours and depreciate those that turn out to be wrong (Dimov, 2007b). This highlights the need for the investigation of the nascent entrepreneurs' opportunity-search process. The study of nascent entrepreneurs' opportunity-search process would provide insight into behaviours that

contribute to the recognition of opportunities. To address this knowledge gap, I propose the following research objective: how do nascent entrepreneurs' behavioural actions shape opportunity ideas into bona fide opportunities?

2.7.1 Entrepreneurial intention

In the extant literature, several scholars have contended that entrepreneurial opportunity recognition is an intentional process (Krueger, Reilly and Carsrud, 2000). Intentionality predicts planned behaviour (i.e. self-employment career choices) which reflects some degree of cognitive processes. Prior studies have broadly investigated individuals' general intention of founding their own firms (Segal, Borgia, and Schoenfield, 2005; Turker and Selcuk, 2009; Mohamad et al. 2015). Many of these studies mainly examined the antecedents of entrepreneurial intention. These antecedents are entrepreneurial passion, creativity, perceived feasibility, perceived desirability, propensity to act, personal attitude, tolerance for risk, structural support (Krueger, Reilly and Carsrud, 2000; Segal, Borgia and Schoenfield, 2005; Turker and Selcuk, 2009; Fitzsimmons and Douglas, 2011; Ferreira et al. 2012; Solesvik, 2013; Mohamad et al. 2015; Biraglia and Kadile, 2017). Understanding antecedents is essential for unravelling planned behaviour of entrepreneurs. However, studies on antecedents fail to explain whether entrepreneurial intention is related to opportunity recognition process. Few studies have acknowledged that such broad entrepreneurial intention studies may not precisely predict whether individual would act on given opportunities (Dimov, 2007a).

Gilad and Levine (1986) proposed push and pull theory to explain individual's intention to start new business. According to push theory, individuals pushed into entrepreneurial opportunities by unfavourable circumstances (such as unemployment, job dissatisfaction) whereas pull theory argues that individuals are attracted to opportunities seeking independence, self-fulfilment, wealth creation and other desirable outcomes. Understanding entrepreneurial intention helps scholars understand the process through which individuals come up with opportunity-ideas, the source of those ideas and the recognition of opportunities.

2.7.2 Social networks as source for opportunity search

In the extant literature, social networks appear as the most critical opportunity source (Davidsson and Honig, 2003; Baron, 2006; Ozgen and Baron, 2007; Ramos-Rodríguez

et al., 2010; Ma et al., 2011). Reliance on social network is an opportunity-search behaviour. However, it is unknown what social network nascent entrepreneurs rely on and what and how they search (Baron, *ibid*). Also, we know little of the social processes that may enhance the ability to recognise opportunities (Davidsson and Honig, 2003). Prior studies have shown that experienced entrepreneurs use a wide range of social networks. Ucbasaran, Westhead, and Wright's (2008) empirical studies of 588 business owners demonstrated that entrepreneurs use the following social networks: professional networks (i.e. consultants, banks, patents, national, and local government sources), publications (i.e. magazines, newspaper, trade publications, and technical literature), business networks (i.e. suppliers, employees, and customers), and personal networks (i.e. other business owners, friends, and families). Their study findings further showed that habitual entrepreneurs identified opportunities are significantly associated with their reliance on publication.

Social networks are an important source of information that may develop rich cognitive frameworks by contributing a knowledge base (Baron, 2006). For example, discussing opportunity ideas with friends and family may result in the formation of more accurate cognitive frameworks. Social networks are essential for the cognitive evaluation of opportunity ideas (Wood and McKinley, 2010). This suggests that social network members are useful to nascent entrepreneurs for refining and developing opportunity ideas. Recently, business support organisations especially university pre-incubators, emerge as a key social-network member. University pre-incubators, also known as idea-hatchers, assist mainly first-time nascent entrepreneurs graduates to refine and develop their ideas into bona fide opportunities (Bergek and Norman, 2008; Jansen et al., 2015). The main aim of this specific social network is to bridge entrepreneurial knowledge, skills, and learning gaps between experienced and non-entrepreneurs (Wirsing et al., 2002; Hannon; 2004). Several scholars contended that expert advice and business support provided by business incubator could substitute for direct experience and help entrepreneurs acquire the tacit knowledge shared by other experienced entrepreneurs in the industry (Robinson and Stubberud, 2009). However, there has been no evidence on the effect of the pre-incubator on nascent entrepreneurs' opportunity refining and development process. Also, extant literature lacks knowledge about the effect of other social-network reliance on nascent entrepreneurs' opportunity recognition.

Effects of social network reliance. Several prior studies have investigated the effect of social-network reliance on opportunity recognition. Table 2.4 provides an overview of these studies, including authors, year of study, participants, methods, and findings. These studies are reviewed in the following paragraphs.

Authors & Year	Participants	Methods	Findings
Ozgen and Baron (2007)	70 founders of IT companies	Survey	The reliance on mentors, professional networks, and informal industry network have a positive effect on opportunity recognition. The effect of the two sources (mentors and professional network) mediated by schema strength; the effect of third source (informal industry network) mediated by self-efficacy.
Cooper and Park (2008)	31 companies within business incubator	Interviews	Incubators shape entrepreneurs' technical and commercial experience, influence their attitude to risk and personal experience, help develop social capital, and provide critical knowledge of the existence, availability, and applicability of technology solutions in new and emerging markets.
Ramos-Rodríguez et al. (2010)	27,880 Individuals (non-entrepreneurs)	Survey	Both social capital and intellectual capital have networks to provide access to external knowledge related to opportunity recognition.
Ma et al. (2011)	304 managers	Survey	In a Taiwanese context, strong social ties are positively associated with opportunity recognition whereas in the USA context, the finding is the opposite.
Song et al. (2017)	278 managers	Survey	Knowledge acquisition positively mediates the relationship between network reliance and opportunity recognition.

Table 2.4 Overview of prior studies on the effect of social network

Ozgen and Baron (2007) surveyed 70 founders of IT companies. Their findings showed that mentors, professional forums, and informal industry networks have a positive effect on opportunity recognition. The effect of two sources (mentors and professional forums) are mediated by schema strength; the effect of third source (informal industry networks) are mediated by self-efficacy. The term 'self-efficacy refers to individual's belief that they can successfully accomplish the specific tasks that they undertake (Bandura, 1997). Schema strength and self-efficacy heightens entrepreneurial alertness to opportunities. The main drawbacks of this study is that survey research calls for retrospection. Moreover, the study aimed to identify the most effective social network, depending on the quality of information. Because of the foci of interest, it overlooked other networks that may have contributed to it differently.

Cooper and Park (2008) interviewed entrepreneurs of 31 technology firms in the context of an incubator. Their findings showed that incubators shape entrepreneurs' technical and commercial experience, influence attitudes to risk and personal experience, help develop social capital, and provide critical knowledge of the existence, availability, and applicability of technology solutions in new and emerging markets. Based on their study they claimed that the professional environment in which entrepreneurs live and work has a fundamental influence on their ability to engage effectively in opportunity recognition. In the UK, first-time nascent entrepreneurs, mainly university graduates, are supported by a pre-incubator. No empirical evidence has been found to suggest whether this new form of organisation (i.e. pre-incubator) has any effect on nascent entrepreneurs' opportunity-recognition process.

Ramos-Rodríguez et al. (2010) surveyed 27,880 individuals to investigate the effect of social-network reliance on opportunity recognition. Their findings showed that both social capital and intellectual capital have positive effects on individuals' ability to recognise opportunities. Individuals' access to external knowledge through other entrepreneurs is critical for developing capacity to recognise opportunities. The main limitation of their study is that research participants were not entrepreneurs. The effect of social-network reliance was investigated based on the 'what if' question.

Ma et al. (2011) surveyed 304 managers of Taiwanese and US firms to investigate the moderating effect of national cultural contexts on the relationship between social networks and opportunity recognition. Their findings showed that in the US, social-tie

strength is negatively associated with opportunity recognition, whereas in Taiwan, the finding is the opposite. The main limitations of their study is that research participants are not entrepreneurs: they are managers. Therefore, the findings are not transferrable to entrepreneurs.

Song et al. (2017) surveyed 278 managers to investigate the effect of social-network reliance on opportunity recognition. Their study findings suggested that knowledge acquisition positively mediates the relationship between network reliance and opportunity recognition. Moreover, entrepreneurial orientation negatively moderates not only the relationship between knowledge acquisition and opportunity recognition, but also the overall mediation model. The main limitations of their study is that research participants are not entrepreneurs: they are managers. Therefore, the findings cannot be transferred to entrepreneurs.

These above empirical studies are retrospective in nature, and the findings were the results of hypothesis confirmation. These studies do not provide evidence of which social networks nascent entrepreneurs rely on and how they impact on the opportunity recognition process.

The review of literature shows that opportunity search is an important factor of opportunity recognition. Inexperienced entrepreneurs are more likely to engage in opportunity search than experienced ones. However, current theories of opportunity-search behaviour are based on the retrospective nature of the studies. Prior studies are mainly quantitative and do not offer theory of contemporaneous opportunity-search behaviour. Opportunity search is, itself, a behavioural action, since it is orientated towards an immediate goal, i.e. opportunity idea verification, development, or recognition. From empirical studies, we know that novice entrepreneurs search for opportunities prior to the establishment of businesses. Since we do not know whether nascent entrepreneurs engage in opportunity-search activities, it is reasonable to assume that nascent entrepreneurs may demonstrate a similar behavioural pattern in relation to opportunity recognition. To understand this specific behaviour, it is important to investigate nascent entrepreneurs' ongoing opportunity-search behaviour. For this study, one of my research objectives is to explore nascent entrepreneurs' behaviour (i.e. opportunity search) that shapes opportunity idea into bona fide opportunities. Extant literature has shown that inexperienced entrepreneurs rely on social networks for

cognitive evaluation of their opportunity ideas. However, findings suggest that social networks contribute to individuals cognition by providing knowledge. Extant literature lacks knowledge about the effect of social-network reliance on nascent entrepreneurs' opportunity recognition. Therefore, another research objective of this study is to understand the role of social networks on nascent entrepreneurs' cognitive and behavioural processes related to opportunity recognition.

2.8 Conceptual framework

The above sections reviewed literature on opportunity recognition. Based on the identified gaps in the literature and my understanding of the topic, I have developed a conceptual framework (Figure 2.8). My conceptual framework specifies who and what will, and will not, be investigated in this study. Below, I elucidate this.

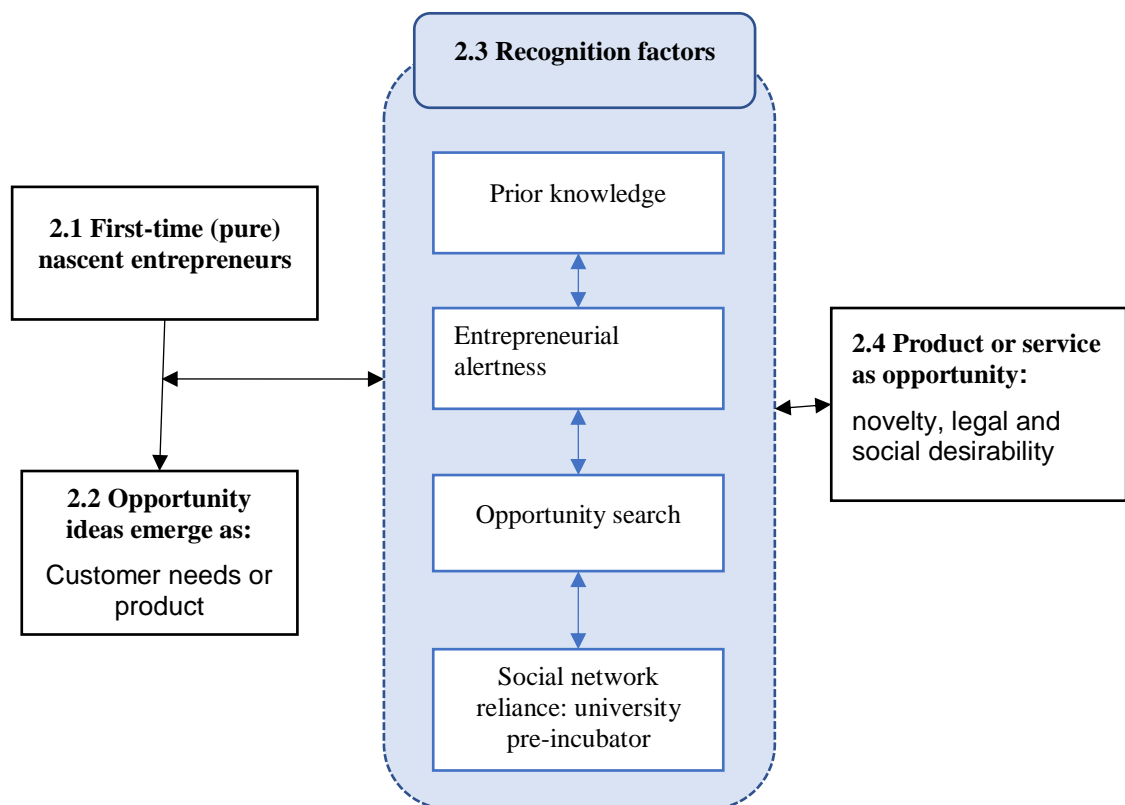


Figure 2.8 Conceptual framework of the opportunity recognition of nascent entrepreneurs

2.8.1 Who and what will be studied?

The aim of the study is to investigate nascent entrepreneurs' ongoing opportunity recognition. Nascent entrepreneurs are those individuals who are currently in the

process of starting a new business, but have not yet succeeded in making the transition to a new business ownership (Carter, Gartner and Reynolds, 1996; Davidsson and Honig, 2003; Reynolds et al., 2004; Dimov, 2011; Hopp and Sonderegger, 2015). The above literature review suggests that the differences in prior business-ownership experience determines individuals' ability to recognise opportunities. Due to prior business ownership, experienced entrepreneurs are likely to recognise more opportunities (Rotefoss and Kolvereid, 2005; Ucbasaran, Westhead, and Wright, 2008). The opportunity recognition of nascent entrepreneurs, who lack prior business ownership experience, is unknown. This is a knowledge gap. Therefore, the conceptual framework includes those nascent entrepreneurs who are in the process of recognising opportunities for the first time (see block 2.1).

Extant literature highlights two kinds of opportunities: (a) demand-side; and (b) supply-side (Dimov, 2007; Santos et al., 2015). Demand-side opportunities pertain to situations that give rise to customers' needs. On the other hand, supply-side opportunities pertain to situations that reflect the potential for new or existing products or services. Both customer needs and products are key components of opportunities (Grégoire and Shepherd, 2012). Since we do not know whether nascent entrepreneurs recognise demand- or supply-side opportunities, I added both customers' needs and products as key components of opportunities in the conceptual framework (see block 2.2).

The literature review suggests that prior knowledge, entrepreneurial alertness, opportunity search, and social-network reliance are key factors of opportunity recognition. These factors depict cognitive (prior knowledge, entrepreneurial alertness) and behavioural (opportunity search, social-network reliance) elements of entrepreneurs. Prior knowledge provides specific knowledge structure (i.e. cognitive framework/ mental models) that heightens individuals' alertness to opportunities (Arentz, Sautet, and Storr, 2013; Li, Wang, and Liang, 2015; Hajizadeh and Zali, 2016). Prior empirical studies showed that knowledge developed from prior business ownership enables entrepreneurs' opportunity alertness (Ucbasaran, Westhead, and Wright, 2008). Repeated (or habitual) entrepreneurs have a well-developed cognitive model that enables them better opportunity recognition (Baron and Ensley, 2006). Since first-time nascent entrepreneurs lack prior business ownership experience, their alertness to opportunities may be different to that of experienced entrepreneurs. Therefore, the conceptual framework includes prior knowledge and entrepreneurial

alertness as opportunity-recognition factors for further investigation (see block 2.3). Entrepreneurial alertness is a cognitive characteristic that leads to the conception of an opportunity idea (Wood and McKinley, 2010). Since we lack understanding of this specific, cognitive process, the investigation of the idea-conception process may provide insight into this. Based on this gap, I set the first research objective.

Research objective 1: To explore the process by which nascent entrepreneurs come up with opportunity ideas.

Extant literature has shown that inexperienced entrepreneurs engage in information scanning and search processes to objectify opportunities (Kaish and Gilad, 1991; Cooper, Folta, and Woo, 1995; Wood and McKinley, 2010). During the search process, they may rely on various social networks to test the veracity of their idea developed through alertness. Since nascent entrepreneurs do not have prior business-ownership experiences, they may not have specific knowledge structure for opportunity recognition. This indicates that they are more likely to rely on social networks for opportunity recognition. Therefore, the conceptual framework includes opportunity-search and social networks for further investigation (see concept block 2.3). Since we do not know how first-time nascent entrepreneurs search opportunities and what sources they rely on, the investigation of their actions in relation to opportunity confirmation and refinement may provide new insights into their behaviour. Based on this gap, I set the second research objective.

Research objective 2: To explore nascent entrepreneurs' behavioural actions that shape opportunity ideas into entrepreneurial opportunities.

Extant literature suggests that inexperienced entrepreneurs rely on various social networks for their opportunity search. The role of social network members on nascent entrepreneurs' opportunity-search process is not known. University pre-incubator's interventions in nascent entrepreneurs' opportunity verification process made it an important social network. Since extant literature lacks nascent entrepreneurs' opportunity search, the role of incubator and other social networks require empirical exploration. Based on this gap, I set the third research objective.

Research objective 3: To understand the role of pre-incubators on entrepreneurs' cognitive and behavioural process, in relation to opportunities.

The literature review demonstrates that opportunity recognition is the perceived alignment between a product and customers' needs (Grégoire, Shepherd, and Lambert, 2009). The characteristics of entrepreneurial opportunities is that product or service must demonstrate novelty, social, and legal desirability. Therefore, I include a product or service as the outcome of opportunity recognition as a concept in my framework (see concept block 2.4). Extant literature lacks empirically driven recommendations for effective opportunity-recognition practice. Based on this gap, I set the fourth research objective.

Research objective 4: To provide recommendations for effective opportunity recognition practice.

Having discussed the focus of the study, the following section explains who and what will, and will not, be studied.

2.8.2 Who and what will, and will not, be studied

This study excludes the investigation of other types of entrepreneurs (novice and repeat entrepreneurs) who already have established businesses. The opportunity recognition of these entrepreneurs would require a retrospective study. Our current knowledge on opportunity recognition is based on the retrospective study of past recognised opportunities. In addition, nascent entrepreneurs may not be regarded as nascent, but novice or habitual entrepreneurs as they already have fully operable businesses. In other words, it would not be possible to study nascent entrepreneurs since their identity shifted to novice entrepreneurs.

This study also excluded those nascent entrepreneurs who acted in teams on single opportunities. Studying teams of nascent entrepreneurs would only increase the complexity and difficulty in capturing cognitive and behavioural processes. In addition, this study excludes those nascent entrepreneurs who have prior business ownership experiences. Further, this study excludes the examination of personality traits. The study of personality traits in opportunity recognition is an interesting avenue, but it would add complexity.

Finally, this study ignores the difference between technology and non-technology-based opportunities. Prior study showed that the emergence of nascent ventures varies due to technology-based and non-technology-based opportunities (Liao and Welsch, 2008).

The theoretical standpoint of this study is that opportunities are endogenously created by entrepreneurs; opportunities do not have objective existence. Because of this theoretical stance, I assume that technology and non-technology opportunity recognition do not vary among nascent entrepreneurs.

2.9 Summary

The above literature review has shown that extant literature lacks the integrative theory of first-time nascent entrepreneurs' on-going opportunity recognition process. Prior studies retrospectively investigated experienced entrepreneurs' past recognised opportunities. Although few studies have investigated nascent entrepreneurs' venture emergence process, their opportunity recognition process has largely remained overlooked. It is found that prior business ownership experience is associated with opportunity recognition. However, we lack understanding of opportunity recognition of nascent entrepreneurs who lack prior business ownership experiences. Also, due to the retrospective nature of studies, nascent entrepreneurs' contemporaneous cognitive and behavioural process have largely remained unexplored. The literature review of this chapter has revealed key factors of opportunity recognition: prior knowledge, entrepreneurial alertness, opportunity search and social network reliance. I have integrated these factors into a conceptual framework for the investigation of first-time nascent entrepreneurs' contemporaneous opportunity recognition. This framework will be reviewed and further developed into conceptual model based on the findings of their study.

Chapter 3 Research Methodology

In the preceding chapter, I reviewed entrepreneurship literature related to opportunity recognition. At the end of that chapter, I developed a conceptual framework to investigate nascent entrepreneurs' opportunity recognition. In this chapter, I explain and justify my choice of research methodology. This study adopts a qualitative research methodology to investigate nascent entrepreneurs' on-going opportunity recognition. I aim to address the following research question: how do nascent entrepreneurs recognise entrepreneurial opportunities? Central to this research question, there are four research objectives: (1) to explore the process by which nascent entrepreneurs come up with opportunity ideas; (2) to understand how nascent entrepreneurs' behavioural action shapes opportunity ideas into entrepreneurial opportunities; (3) to understand the role of the pre-incubator on entrepreneurs' cognitive and behavioural process, related to opportunity recognition; and (4) to improve opportunity recognition practice by providing recommendations. In the extant literature, nascent entrepreneurs' opportunity recognition is an under-studied phenomenon. Due to paucity of research, we know little about how opportunities come to be known by this particular type of entrepreneur. Qualitative research is essential for providing new insights into under-studied phenomenon (Bluhm et al., 2011). It allows the uncovering of a deeper process in individuals and offers an in-depth understanding about how that deeper process unfolds over time (ibid). I make qualitative methodological choices by carefully considering my research-paradigm position, research competency, and access to research organisation and types of data.

This methodology chapter is organised into the following sections. Section 3.1 establishes a philosophical frame for the study. In this section, first, I outline my key philosophical assumptions: ontology and epistemology. Then, I describe my assumptions about the nature of society with regards to study phenomenon – opportunity recognition. Finally, I justify positionality within an interpretive paradigm. Section 3.2 justifies the rationale for an inductive research approach. Section 3.3 relates philosophical assumptions, paradigm position, and an inductive research approach to the chosen qualitative research strategy. Section 3.4 provides rationale for the choice of case study research design and describes its key components. Section 3.5 justifies the choice of semi-structured interviews, participant observation, and mind-mapping as data

collection methods and describes how data were collected. Section 3.6 describes data management – how collected data were managed. Section 3.7 justifies the decision to use an inductive thematic data analysis method and explains how data were analysed. Section 3.8 describes ethical issues that I considered during the different phases of research. Finally, section 3.9 explains the evaluation criteria of this study.

3.1 Establishing a philosophical framework for the study

All theories of organisation are based upon the philosophy of science and theory of society (Burrell and Morgan, 1979). Philosophical assumptions and the theory of society offer a frame of reference for the study of organisational theories. The frame of reference is known as a paradigm, which offers a view of social reality. Different paradigms are underpinned by different meta-theoretical assumptions regarding the theories of science and society. Because of different meta-theoretical assumptions, they offer quite separate views of social reality. In this section, first, I explain my philosophical assumptions on the phenomenon of opportunity recognition. I then describe my assumptions about the nature of society with regards to the study phenomenon: opportunity recognition. Next, I explain how the relationship between these two dimensions (philosophical and social world) determine my positionality within the interpretive paradigm.

3.1.1 Philosophical assumptions

Philosophical assumptions are the centre of this study. Awareness of philosophical assumptions can both increase the quality of research and contribute to the creativity of the researcher (Easterby-Smith, Thorpe, and Jackson, 2012). Ontology and epistemology are two main branches of philosophy. Ontology is about the nature of reality of the social world, and epistemology relates to the method of enquiry in the social world (Goia, Corley, and Hamilton, 2012). All social scientists approach their subject via explicit or implicit philosophical assumptions (Burrell and Morgan, 1979). In this study, I made my philosophical assumptions explicit regarding the study of opportunity recognition.

Ontological assumption. The philosophical term ‘ontology’ derives from two Greek words: ‘ontos’, which means ‘being’; and ‘logos’, which means ‘knowledge’ (Gill and Johnson, 2010). It is concerned with the essence of the phenomena and the nature of their existence (ibid). The reality of phenomena is categorised into subjective or

objective dimensions. A subjective ontological view assumes that social world phenomena are the product of individual consciousness, cognition, experience, intention, mind, perception, and so on. In contrast, an objective ontological view assumes that social world phenomena are external to the individual, given ‘out there’, or exist independently.

The phenomenon of this study is opportunity recognition. My ontological stance of this phenomenon is social constructionist. From this perspective, I view opportunity as the result of entrepreneurs’ behavioural action, shaped and influenced by social interaction. In other words, opportunity emerges from the cognition and behaviours of entrepreneurs as they engage in interaction with the current social structure. Unlike many other objective social factors (dowry, marriage, recession, suicide, and so on), opportunities are neither objective social facts nor embedded in the social system; however, entrepreneurs are. If an opportunity was provided as an objective social fact status, it would have been recognised by everyone. As a consequence, it would have carried little, or no, value for the pursuers.

With the help of social actors, entrepreneurs create opportunities that reflect social needs. The needs of social actors are temporal and situational. Based upon temporal requirements, entrepreneurs develop products or services as solutions. For example, the demand for vegan food would not exist if there were no vegan community in the first place. The need for vegan foods comes into existence when entrepreneurs understand the world of veganism (cognitive process), and that understanding is developed through active interaction (behavioural action) with the community, i.e. the value and meaning behind the consumption of living things. However, since the meaning and practices of veganism may have cultural variances, the need may vary accordingly. The opportunity’s, i.e. specific vegan product, lifecycle may diminish due to evolutionary vegan practice. Herein, opportunities are understood through cognitive and behavioural processes, which are influenced and shaped by social situatedness.

In summary, my ontological stance for this study is social constructionist. The key interest here is entrepreneurs’ cognitive and behavioural process in relation to opportunity recognition, but equal attention is given to socio-cultural practices or the norms that shape these processes.

Epistemological assumption. The philosophical term epistemology is followed by ontological assumptions. It derives from two Greek words: ‘episteme’, which means ‘knowledge’ or ‘science’; and ‘logos’, meaning ‘knowledge’ (Gill and Johnson, 2010). Epistemological assumptions are about the grounds of knowledge – about how one might begin to understand the world and communicate this as knowledge to others (Burrell and Morgan, 1979, p.1). The ground of knowledge is determined by the reality of the phenomenon. A hard, tangible phenomenon offers the production of a concrete form of knowledge. On the other hand, subjective phenomenon offers a softer, subjective, and transcendental type of knowledge.

From my social constructionist (ontological) view, opportunities are endogenously created by entrepreneurs’ behavioural action as they engage in interactions with current social actors. Social interaction enables them to make sense of opportunities. Making sense of an opportunity is a cognitive process that enables opportunity recognition. Therefore, the knowledge of the opportunity recognition phenomenon lies within entrepreneurs’ action. Entrepreneurs’ actions are context specific, and portrayed through the medium of interaction. Unlike material objects, a human’s actions are difficult to decipher through direct observation. It can only be understood through engagement and interaction. Therefore, the knowledge of opportunity recognition can be warranted by engaging and interacting with entrepreneurs. This specific epistemological stance is called interpretivist. Considering the knowledge gap in the literature and my philosophical stance, I propose the following research question: how do nascent entrepreneurs recognise entrepreneurial opportunities?

3.1.2 Assumptions about the nature of society

In the previous subsection, I explained my philosophical assumptions. In this section, I describe my view of society in relation to the study of the opportunity recognition of nascent entrepreneurs. From a sociological perspective, I view nascent entrepreneurs as an integral part of society. They are embedded in the social environment/systems (Stephen and Uhlaner, 2010; Solesvik, 2013). They produce goods and services to serve the general needs of society. Society uses entrepreneurship/entrepreneurs as a mechanism to convert social technical information into products or services (Shane and Venkataraman, 2000). The absence of entrepreneurial activities may hinder socio-economic development. According to Burrell and Morgan (1979), such a view of the

social world represents a *society of regulation*. The sociology of regulation refers to the ‘writing of theorists who are primarily concerned to provide explanation of society in terms, which emphasise its underlying unity and cohesiveness’ (ibid). There are seven elements in the sociology of regulation: status quo, social order, consensus, social integration and cohesion, solidarity, need satisfaction, and actuality (ibid). I focus upon the need satisfaction element to investigate my study phenomenon. This element presumes that it is possible to recognise and satisfy human needs within the context of the social system, and that society reflects these needs (ibid). As mentioned earlier, entrepreneurs operate within the social environment and they actively convert society’s needs into goods or services.

3.1.3 An interpretive paradigm view

I adopted an interpretive paradigm view to understand nascent entrepreneurs’ cognitive and behavioural process related to opportunity recognition. My choice of an interpretive paradigm was based upon my aforementioned meta-theoretical assumptions regarding the nature of science and society. An interpretive paradigm offers a way of viewing the social world that is consonant with the sociology of regulation. The social world is viewed as cohesive, ordered, and integrated. Often such a view remains implicit, rather than explicit. An interpretive paradigm is informed by a desire to understand the world as it is (Burrell and Morgan, 1979, p.28). Theorists/researchers seek an explanation within the frame of participants as opposed to an observer of action (ibid). Understanding the social world within the frame of participants becomes a social reality.

From an interpretivist perspective, I view opportunity recognition as an emergent, context-specific, and ongoing social process. Opportunity is a probabilistic social situation that reflects the need of goods or services for social actors. It is created by entrepreneurs when they engage in interactions with social structure. Social context and time are critical for the creation of meaning and interpretation. Social practice or norms help entrepreneurs to interpret opportunity-meaning. As a consequence, they recognise opportunity. Therefore, the reality of opportunity recognition lies within entrepreneurs’ cognition and behaviour. My emphasis was to interpret and understand the meaning of their cognitive and behavioural process related to opportunity recognition. Investigating cognitive and behavioural process within a social context may provide us with insights

into how the ongoing process of opportunity recognition unfolds in the mind of entrepreneurs.

To understand the meaning of entrepreneurs' behavioural action, I adopted an inductive approach to investigate this phenomenon. Below I justify my choice of the inductive approach.

3.2 Research approach: Inductive

I adopted an inductive research approach to empower participants by bringing forward their voices. The choice of an inductive or deductive research approach was determined by the nature of the research question, which was either phenomenon-driven or theory-driven (Eisenhardt and Graebner, 2007). In this study, I aim to address the phenomenon-driven research question: how do nascent entrepreneurs recognise entrepreneurial opportunities? Herein, my study phenomenon is nascent to entrepreneurs' opportunity recognition. A phenomenon-driven research question follows an inductive research approach when there is a lack of plausible theory to explain the phenomenon (ibid). An inductive approach offers explanations about the study phenomenon rather than generalisations (Douglas, 2003). To date, there is no existing theory that explains the nascent entrepreneurs' ongoing opportunity recognition process. As individuals' prior business experience is a critical factor for opportunity recognition (Baron and Ensley, 2006), studies relating to successful and experienced entrepreneurs are not sufficient to explain opportunity recognition process for nascent entrepreneurs. This paucity of research led me to choose an inductive research approach.

The inductive approach involves 'moving from the "plane" of observation of the empirical world to the construction of explanations and theories about what has been observed' (Gill and Johnson, 2010). In this approach, explanations and theories are grounded from raw data. Figure 3.1 illustrates the inductive model of theory development. Researchers start with data collection without any prior constructs. This allows them to know participants well and record what they do and say. The emerging theory fits well with the data. Thus, this approach has the potential to provide a *bona fide* understanding of pre-incubator supported first-time nascent entrepreneurs' opportunity recognition.

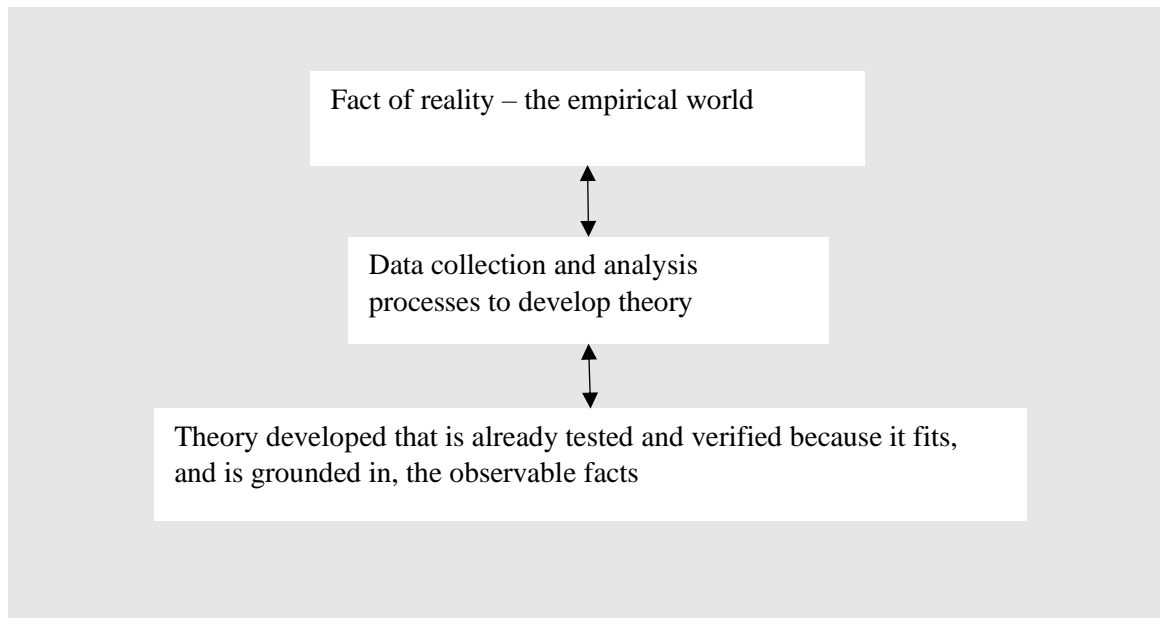


Figure 3.1 Inductive development of theory (adapted from Gill and Johnson, 2010)

3.3 Research strategy: Qualitative

In the previous sections, I justified the choice of philosophical assumptions, paradigm position and inductive research approach. In this section, I outline my research strategy. The connection between philosophical assumptions and the research approach determines the choice of a qualitative or quantitative research strategy (Bryman and Bell, 2011). A research strategy is a plan that supports certain methodological choices to answer a research question. Qualitative and quantitative research strategies are distinct because their foundation is based upon three areas: ontological considerations, epistemological considerations, and orientation to the role of theory in relation to the research (ibid). I adopted a qualitative research strategy based upon my subjective philosophical assumptions and inductive research approach, shown in Table 3.1. I construed qualitative research as a strategy that views the reality of opportunity recognition as a constantly shifting emergent property of individuals' creation. This reality can only be understood from the vantage point of individuals who are in the process of opportunity recognition. Theory laden research carries little or no value as the main emphasis is to generate theory from individuals' account.

	Qualitative research strategy
Ontological orientation	Social constructionist
Epistemological orientation	Interpretivist
Role of theory in relation to research	Inductive

Table 3.1 Qualitative Research Strategy

The qualitative research strategy is mainly founded upon interpretivist perspective (Lin, 1998). This strategy is critical for gaining an understanding of what individuals experience and how they interpret the meaning of their experiences (Bluhm, 2010). It helps generate or elaborate theory, which results in a testable theoretical proposition (Lee, 1998). It allows the study of research participants (nascent entrepreneurs) in the natural setting of an organisation, i.e. business incubator. Qualitative data, i.e. language, captures the perception of participants' experiences. It gives voice to the research participants who claim to recognise entrepreneurial opportunities. It allows greater reflexivity in the design of data collection and analysis. During the process of research, data collection and analysis evolve until the research question is answered.

3.4 Research design: Case study

A research strategy is a plan for the conduct of research. However, a research design is the tactic for the execution of a plan. A piece of research will not proceed solely based on a research strategy unless it has an appropriate research design (Bryman and Bell, 2011). A research design is a tactical framework for the collection and analysis of data (ibid). Once, the great Chinese General Sun Tzu (500 B.C.) said 'strategy without tactics is the slowest route to victory, tactics without strategy is the noise before defeat'. This statement emphasises the relationship between strategy (plan) and tactics (design). Hence, I contend that good qualitative research requires the employment of good research design. I adopted a case study research design to examine pre-incubator supported nascent entrepreneurs' opportunity recognition.

My choice of case study design is based upon a study phenomenon – opportunity recognition. I aim to address the following research question: how do nascent entrepreneurs recognise entrepreneurial opportunities? The 'how' question indicates

opportunity as an emergent on-going social process, which evolves and unfolds by the action of entrepreneurs. The study phenomenon, opportunity, is ongoing, contemporary, and is bounded by contexts (i.e. entrepreneurs and their respective social world). It cannot be separated from entrepreneurs (Dimov, 2007a). The process of creating and recognising opportunities manifests within an entrepreneur's action. It is well known that the pre-incubator business start-up programme, known as Launchpad, assists participatory entrepreneurs in recognising entrepreneurial opportunities. Since my aim is to investigate pre-incubator supported nascent entrepreneurs, the pre-incubator and entrepreneurs become the most critical context for the emergence of opportunities. Therefore, a case study research design is appropriate for the study of on-going opportunity recognition within real-world contexts (i.e. nascent entrepreneurs and pre-incubator). Unlike other research designs (i.e. survey, experiment, and historical), this case study offers an in-depth examination of a case within its natural setting (Yin, 2014). This research design supports a qualitative research strategy, which aims to generate an inductive theory of opportunity recognition (Bryman and Bell, 2011).

In addition to the above rationale, I chose case study design based upon my research skills. I conducted a case study research project during my undergraduate, post-graduate, and doctoral study. Over the course of my education, I have developed organisation-focused case-study skills. Therefore, my choice of case study research design is derived from the nature of my study phenomenon and research competence.

3.4.1 Unit of analysis

As I have provided rationale for the case study research design, it is necessary to define its key components. The main design components are a case research question, research proposition (if any), unit of analysis, data collection, and data analysis (Yin, 2014). Here, I only focus on the unit of analysis because it is directly related to other components: research question, research proposition, data collection, and data analysis. The unit of analysis is often referred as a 'case' (Yin, 2014). In my view, a subtle difference exists between these two terms. A case is a real-life phenomenon in a bounded context (Miles and Huberman, 1994). It cannot simply be an abstraction. To be recognised as a case, the phenomenon needs to have some sort of concrete manifestation. When a phenomenon manifests in concrete things, it becomes a unit of analysis. From my ontological point of view, entrepreneurial opportunities are not an

objective phenomenon. These emerge from the cognition and behaviours of entrepreneurs as they engage in interaction with a social structure. For this reason, I selected individual entrepreneurs as my unit of analysis. In my research design, the case was the opportunity recognition, and the unit of analysis was the individual entrepreneurs.

My unit of analysis (i.e. nascent entrepreneurs) was related to my research question: how do first-time nascent entrepreneurs recognise entrepreneurial opportunities? This case research question led to individual nascent entrepreneurs as the unit of analysis. It also determines the scope of my study, i.e. entrepreneurs' cognitive and behavioural processes related to opportunity recognition.

3.4.2 Bounding the case

Unlike other research designs, case study emphasises an intensive examination of cases in their natural settings (Bryman and Bell, 2011). As I previously defined the case, it is important to clarify its boundary or setting. To determine the boundary of cases, Miles and Huberman (1994) suggested four parameters: place, actors, event, and process. However, these parameters may vary according to the natural setting of the case phenomenon. I aim to examine on-going opportunity recognition at university sponsored pre-incubator (an organisational form that supports the development of business ideas). Therefore, I selected the pre-incubator as the natural setting for my case. However, the specific pre-incubator function related to opportunity recognition activities was my focus. Considering the natural setting of my case, I devised four parameters, which were akin to Miles and Huberman's (ibid) suggestion. These parameters were place, actors, event, and time. These four parameters comprised the boundary of my case study and individual nascent entrepreneurs were the heart of these parameters. I examined the cognitive and behavioural processes related to opportunity recognition within these parameters. Figure 3.2 illustrates these parameters; I describe each of these parameters.

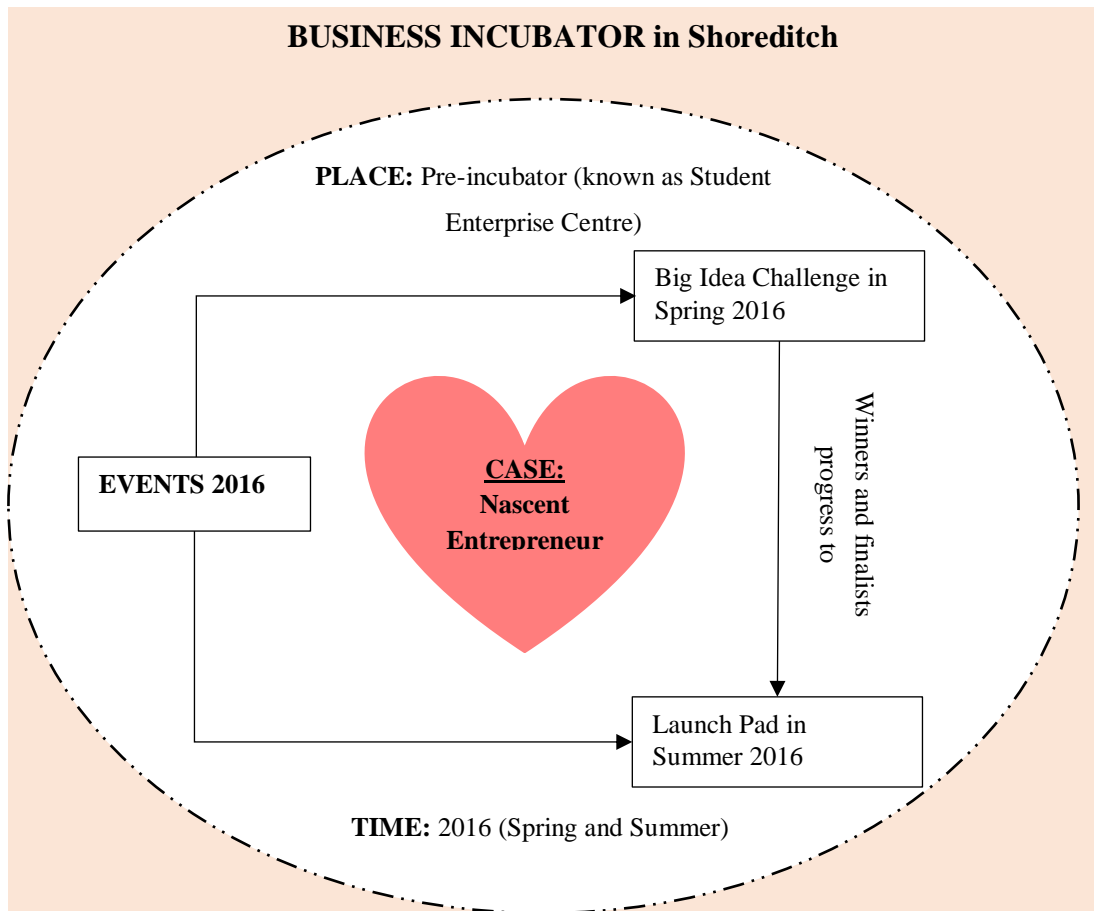


Figure 3.2 Case boundary (author’s own design)

Place. The place of the case study is an important parameter because it provides access to cases in their natural setting. My study took place at a pre-incubator, known as the Student Enterprise Centre (SEC), which is located within the university business incubator. Figure 3.2 illustrates the blurred boundary between the pre-incubator and incubator. The blurred boundary represents overlapping activities between these two divisions. The pre-incubator is a temporal habitat for nascent entrepreneurs who intend to develop their opportunity-ideas into business start-ups. For that reason, I selected pre-incubator as my primary study site. The choice of the pre-incubator addresses methodological issues – access to participants and data – suggested by prior studies (Grégoire, Shepherd, and Lambert, 2009).

Actors. The business incubator and its pre-incubator support different types of entrepreneurs at different stages of their business. The business incubator supports the growth and development of novice and habitual entrepreneurs’ business start-ups, whereas the pre-incubator supports nascent entrepreneurs’ business idea development. Habitual entrepreneurs include serial and portfolio entrepreneurs. The actors or unit of

analysis in my case study were pre-incubator supported nascent entrepreneurs. Therefore, I excluded incubator supported novices and habitual entrepreneurs from my research design.

Event. The pre-incubator offers support to nascent entrepreneurs through its range of events and programmes. These events and programmes are the Big Idea Challenge, Launchpad, Quick Start-up, Start-up Sprint, and the Christmas Market. Among these events and programmes, the Big Idea Challenge and Launchpad focus on opportunity recognition. The Big Idea Challenge is an event in which participatory nascent entrepreneurs compete for prizes by presenting their opportunity ideas (i.e. idea for product or service) to a global audience. On the other hand, Launchpad is a business start-up programme that supports participatory nascent entrepreneurs in their embarkment on evidence-based entrepreneurial opportunity recognition process. The business idea competition event (known as the Big Idea Challenge) and business start-up programme (known as Launchpad) are inter-connected. Through business idea competition event, the pre-incubator ensures the supply of nascent entrepreneurs for the business start-up programme (known as Launchpad). The pre-incubator offers a place at business start-up programme to the winning and finalist participants of the competition. For my case study, these events and programmes offered unique access to nascent entrepreneurs' on-going opportunity recognition process. Because of that, I set a business idea competition event and business start-up programme as important parameters (Figure 3.2).

Time. I set time as an important parameter. It defines the beginning and end of a case study (Yin, 2014). My case study began with a business idea competition event (known as the Big Idea Challenge) and ended in the completion of the business start-up programme (known as Launchpad). The Big Idea competition event and Launchpad programme take place annually at the pre-incubator. The idea competition begins with the start of the spring season, and it runs for a month. Followed by this event, the Launchpad programme begins with the start of the summer season, and runs for ten weeks over a 2-month period. During these periods, nascent entrepreneurs engage in opportunity recognition-related activities. I chose to study participatory nascent entrepreneurs who joined these events and programme in 2016.

The above parameters – time, place, event, and actors – comprises my case study boundary. The boundary of the case is important as entrepreneurs’ thinking and actions in relation to opportunity recognition occur within it. Therefore, it offers a natural setting for the study of entrepreneurs’ opportunity recognition.

During the case study design stage, I considered some of its weakness. First, a single case study lacks statistical generalisations, but it offers theoretical generalisations (Yin, 2014). This study is concerned with theoretical generalisation over statistical generalisations. Second, the case study is considered to be a less rigorous research design because of its flexibility. I addressed this issue by following systematic procedures and maintaining the chain of evidences. Third and finally, the case study can take too long and result in massive, unreadable documents. Due to the large volume of data, theorists may be unable to identify and assess the most important relationship among the constructs (Eisenhardt, 1989). I responded to these issues by setting a time boundary of the study (i.e. the start and the end date of the study). I also triangulated multiple data sources to identify and assess the important relationships among constructs.

3.4.3 Selection of participants

Case participants selection is critical as data will be collected from them and results will be inferred to relevant cases. The aim of my study was to provide in-depth understanding of first-time nascent entrepreneurs’ opportunity recognition. Nascent entrepreneurs refer to individuals who have no prior business start-up experience, but who are in the process of starting their own businesses (Westhead, Ucbasaran, and Wright, 2003). To select nascent entrepreneurs, I adopted a purposive sampling approach. I selected nascent entrepreneurs who qualified for, and participated in, the pre-incubator’s business start-up programme (known as Launchpad) in 2016. These participants are graduates of the pre-incubator’s sponsored university. For a business start-up programme, the pre-incubator generally supports 10 to 15 business ideas (opportunity idea using my term) each year. This level of support is observable across UK university pre-incubators. In 2016, the pre-incubator selected 14 opportunity ideas from which one idea was withdrawn. The remaining 13 opportunity ideas were supported throughout the programme.

However, the number of opportunity-ideas were not equally represented by the number of nascent entrepreneurs. There were a total of 21 nascent entrepreneurs with 13 opportunity ideas. Some nascent entrepreneurs acted in teams on a single opportunity idea, while others acted alone. From the team of nascent entrepreneurs, I purposefully selected participants who originally came up with the opportunity ideas. I called them 'lead participants'. Except for one, each team had one lead participant. I further selected individual lead participants as research participants. Because of this choice, the number of research participants was 13. This sampling equated to 13 individual lead participants with 13 opportunity ideas. There were three main rationales for the selection of individual lead participants. First, only the lead participants could recount the emergence of their initial opportunity idea. Second, my unit of analysis was an individual rather than a group. Finally, the extant literature has claimed that opportunity recognition is the result of a single person's action, though such action may be supported by various actors (Shane, 2003). However, the rest of the participants were not excluded from my study. I utilised them as a context to understand my unit of analysis – the lead participants.

Despite the selection of nascent entrepreneurs of business start-up programmes, I maintained the selection criteria to ensure the suitability of participants for my study. The criteria for selecting the participants was as follows: prior business experience, age, education, and products or services (Table 3.2). The prior business experience criterion was critical for identifying the types of entrepreneurs. I found that all of the participants were in the process of starting a business for the first time. Therefore, they all qualified as first-time nascent entrepreneurs. However, very few of these participants had studied subjects related to entrepreneurship in their undergraduate or post-graduate degrees. A product or service idea criterion helped to determine whether participants had a product or service idea as a 'business solution'. A product or service idea is the foundation of opportunity. It allows us to inspect the degree of alignment between a product or service idea and market demand (Grégoire, Shepherd, and Lambert, 2009). In my study, all participants had either a product or service idea, which indicated that they were in the process of recognising opportunities. Age and education were important criteria as they helped to determine whether life experiences of participants were homogenous or heterogenous. The age range of all participants 23–33, and they had the minimum of an undergraduate qualification. Their age group and level of education indicated that their

life experiences were not markedly different. These four criteria ensured the suitability of participants for the study of their opportunity recognition process.

Criteria	Values
Number of prior business start-up	0
Ages	23–33
Education	Minimum first degree
Product or service idea	Yes

Table 3.2 Criteria for participant selection

The emergence of the research participants’ selection. The selection of graduates as research participants (unit of analysis) emerged through my pilot study and further participant observation. Figure 3.3 illustrates this process. In 2015, I conducted a pilot study project on business incubator supported entrepreneurs. I aimed to understand how they perceived the benefit of incubator support. From my study, I learned that a business incubator provides different levels of support to entrepreneurs, according to the phase of their business (pre-start, launch and start-up). It provides support service under two sub-systems: pre-incubation and incubation. The pre-incubation model supports nascent entrepreneurs’ (students, graduate, and staff) business idea-development process. The idea-development process involves opportunity recognition and exploitation. Provided with viable opportunities as the outcome of the business start-up programme, nascent entrepreneurs are further supported through the pre-incubator’s workspace (known as the ‘hatchery’) for 6 months. Conversely, the incubation model supports entrepreneurs’ business start-up growth and development. However, my pilot study further reveals that the pre-incubator’s specific function, i.e. opportunity recognition support, is the most active part of the activity of the whole incubator. The opportunity recognition support activity is critical because it ensures a sustainable supply of entrepreneurs to the incubator. In other words, the incubator creates its future customers by offering a free opportunity recognition support service through business idea competitions and business start-up programmes. This appears an interesting case because pre-incubator managers are not entrepreneurs; however, they help non-entrepreneurs to become entrepreneurs through the recognition of opportunities. Based

on the outcome of my pilot study, I focused on the pre-incubator supported nascent entrepreneurs' opportunity recognition process.

To understand further the pre-incubator's opportunity recognition support activity, I conducted an observation of its business idea competition participants during an event in 2016: the Big Idea Challenge. My main aim was to gain an understanding of the event's participants, activities, and purpose. I learned that the competition was open for sponsored university students, graduates, and staff. This event was organised to publicise participants' opportunity ideas. I also learned that pre-incubators attract participants for the pre-incubator's main business start-up programme: Launchpad. Unlike business idea competition, the business start-up programme provides hands-on opportunity recognition support service to graduates. Based on my progressive learning about the pre-incubator's support for nascent entrepreneurs, I selected graduates as my research participants for this case study.

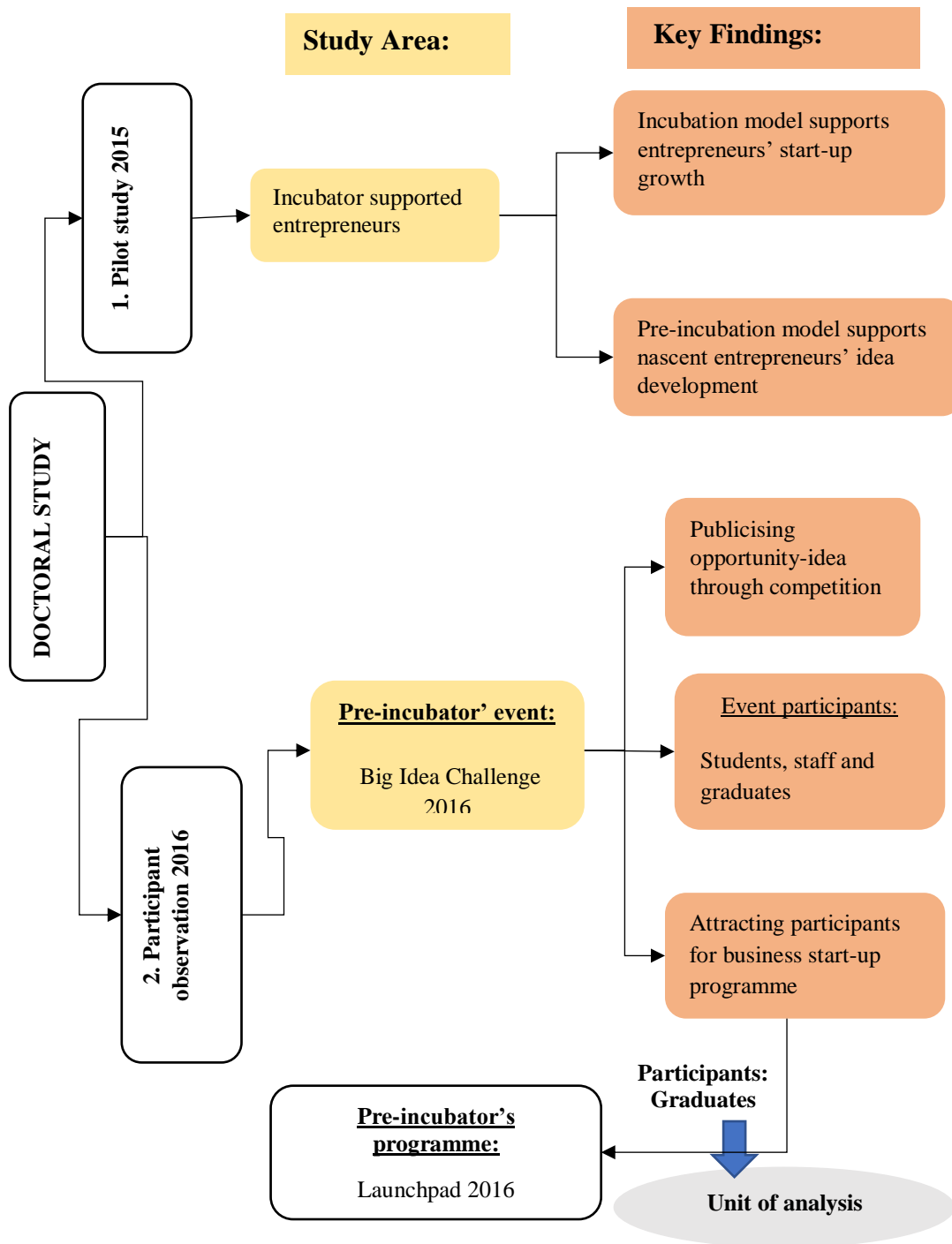


Figure 3.3 Evolution and emergence of case selection

3.4.4 Gaining access to the case-study site and data

I selected London Metropolitan University sponsored business incubator as my case-study site. I sought access to this university sponsored business incubator for both my pilot-study and doctoral projects. Access was facilitated by personal connection with the incubator director. As part of gaining access, I attended a short meeting with both the

incubator director and manager. During the meeting, I provided them with the following information: research topic, study purpose, reason for selecting the incubator as the study site, the data collection method, and time frame for data collection. I also provided them with a consent form and requested their signed approval. The consent form is attached in Appendix C.

Since the incubator was my primary study site, I required further access to the research participants. Gaining access to research participants was a challenge as they were not employees of the incubator, but they joined the incubator to develop their ideas. Therefore, participating in my study was not an obligation. I realised that some participants may not wish to participate. I discussed this issue with the incubator manager. He introduced me to participatory entrepreneurs and requested that they cooperate with my research project. His intervention helped me overcome the access challenge. Both participants and incubator managers allowed me to observe and collect data. During the business start-up programme, the incubator manager created a platform for entrepreneurs' collaboration on the Slack website. In this platform, they share resources, idea, feedback through different channels. Considering this platform as a naturally occurring data platform, I further requested access to the incubator manager. Without any difficulty, I became part of this online community.

3.5 Data collection

In the preceding section, I justify the choice of the case study research design and described its design components. In this section, I provide rationale for the choice of data collection methods and describe how data were collected. The study of socially constructed phenomenon, opportunity recognition, is very complex. It requires a face-to-face 'we-relations' approach, which depends on direct exchange and interaction with participants (Burrell and Morgan, 1979). Considering this epistemic requirement (a way of producing knowledge), I adopted three data collection methods: semi-structured interview, participant observation, and mind mapping. These methods offered direct interaction with participants from different slants. I also collected secondary data. These data include blogs, tweets, images, activity sheets, videos, and reports. The main rationale for prioritising multiple sources of evidence was to gain a deeper understanding of the case study phenomenon (Yin, 2014).

My data collection was undertaken between April 2016 and August 2016. I gathered data through the pre-incubator's business idea competition event and business start-up programme. These event and programme were critical for data collection because they supported nascent entrepreneurs' opportunity recognition process. However, data collection methods varied between the event and the programme. For the idea competition event, I conducted only participant observation. The reason for conducting participant observation was to develop my understanding of events, activities, and nascent entrepreneurs. For the business start-up programme, I collected data by employing three methods: semi-structured interview, participant observation, and mind mapping. Besides my planned data collection, my insider-outsider position facilitated unanticipated data during the field study. Details about the influence of the insider-outsider position on data collection are discussed in the reflective account section in the concluding chapter (See section 7.5, reflective account). However, each data collection method was guided by research objectives. Below, I discuss these three methods of data collection.

3.5.1 Semi-structured interview

In this sub-section, first, I provide rationale for semi-structured interviews. Second, I provide justifications for developing and designing specific interview questions. Third, I explain the selection of interview participants. Finally, I discuss how I conducted the interviews and emergent issues.

Rationale for interview. The choice of interview method was guided by philosophical assumptions and research objectives. From an ontological perspective, I believe that opportunities emerge from the cognition and behaviour of nascent entrepreneurs when they engage in interaction with a social structure. According to Schutz (1972), it is possible to understand cognitive and behavioural action through direct interaction. Because of my social constructionist ontological stance, I selected an interview method to access the reality of the phenomenon. From an epistemological perspective, I aimed to interpret the meaning of nascent entrepreneurs' cognitive and behavioural process. The production of interpretive knowledge requires a legitimate data generation method that allows to reconstruct the reality of participants (Mason, 2002). Interview is one of the popular method for interpretive knowledge production (ibid). Besides my philosophical assumptions, my choice of interview method was also guided by the

following research objectives: (1) how did nascent entrepreneurs come up with opportunity ideas? (2) what behavioural actions shape opportunity ideas into entrepreneurial opportunities, and how? and (3) the role of pre-incubator and other social actors on entrepreneurs' cognitive and behavioural process related to opportunity recognition. Among these research objectives, my main focus was to answer the first. This research objective was critical for revealing how opportunity ideas manifest in the mind of nascent entrepreneurs prior joining to the pre-incubator.

However, interview methods are varied: structured, semi-structured, and unstructured. For this study, I adopted the semi-structured interview because it allows keeping conversations in line with research objectives.

Justification of interview questions. The purpose of devising interview questions was to generate relevant data for addressing the proposed research question: how do nascent entrepreneurs recognise entrepreneurial opportunities? Bearing this purpose in mind, I developed and designed interview questions in consultation with mainstream entrepreneurship literature, my conceptual framework, and personal experience. The literature consultation was essential for ensuring the appropriateness of interview questions. In literature, I searched for the most common interview questions that prior opportunity recognition studies utilised. These interview questions are: (a) Can you describe your business idea? (b) How did you come up with the idea? (c) Why do you think it is worth pursuing? (Baron and Ensley, 2006; Dyer, Gregersen and Christensen, 2008; Vandor and Franke, 2016; Kuckertz et al., 2017). In addition to these, I added further questions based on my personal experiences. To capture the process of opportunity recognition, I structured interview questions in a sequential order. For example, asking participants to recount how they came up with idea is problematic as they may integrate all unfolding events in one moment. I addressed this issue by ordering follow-up questions, i.e. when did you recognise this and where? What happened after you thought of it? How has it changed between then and now? During interview sessions, I asked some unstructured questions for further clarification of participants' statements. As part of research ethics, I consciously avoided asking confusing, leading, personal, and tricky questions of participants. The interview questions are attached in Appendix A.

Interview participants. The main interview participants were my unit of analysis. These were individual lead participants of business start-up programmes. The reason for this choice was that individual lead participant can only provide insights into their cognitive process related to opportunity recognition, i.e. the process of opportunity-idea emergence. Moreover, studying a team of entrepreneurs that are involved in a single opportunity-idea would only increase the complexity and difficulty in capturing cognitive and behavioural process. For interviews, the total number of individual lead participants was 13. These 13 individuals represented 13 opportunity ideas.

Prior to the interviews, I struggled to identify all of the lead participants. I speculated that lead participants could be identified through the interviews. For this reason, I included more than one participant in each interview. This resulted a total of 13 interviews with 17 participants (see Table 3.3). During the interview session, lead participants emerged when they recounted the emergence of their opportunity idea and claimed ownership of it. Despite the mismatch between the interviews and number of interviewees, I maintained all interview sessions one-to-one. In my interview sessions, lead participants remained active interviewees. Since these participants led their teams, I did not intend to isolate them in the middle of interview. By including fellow team members in the interview session, I attempted to maintain a positive and supportive relationship so that they all co-operated for the remainder of my field study.

In addition to lead participants, I also conducted face-to-face interview with the business incubator manager and the director. However, they were not included in my unit of analysis. I interviewed them to gain a broad understanding of the business start-up programme and their perspective on nascent entrepreneurs and the opportunity recognition process. The interview questions for the business incubator managers are attached in Appendix B.

Interview time, place, and emerging issues. I conducted all interviews during the first two weeks of the business start-up programme. The main rationale for conducting interviews at the beginning of the programmes was so that the programme might shape participants' descriptions and production of the initial opportunity-idea emergence account. The interview mode, except for one, was face-to-face. One participants requested a Skype (online communication media) interview. For this reason, I conducted a Skype interview for that participant. The setting for the interviews was not

private; it was determined by the availability of meeting spaces. I used the incubator’s balcony and reception area for all face-to-face interviews. For most of the interviews, we shared this space with others.

During interviews, trust became an issue. Participants seemed uncomfortable taking part in the interview. It was mainly due to fear regarding how much to reveal about opportunity ideas through an interview. On average, interviews lasted for around 35 minutes. Responding to my interview questions was stressful for participants because they required them to reveal their opportunity recognition process. Their verbal and bodily expressions revealed their stresses. One participant deliberately and repeatedly tied and untied his wristwatch while describing his opportunity-idea. His hand was shaking, and his eyes were fixed on me. Another participant aggressively said, “*it’s a poo out there, and people need it*”. In an attempt to make each interviewee as comfortable as possible, I remained calm and confident. Some of my research questions represented the interest of pre-incubator managers. Because of that, participants perceived me as an undercover representative of pre-incubator managers (an outsider). When I queried their intention to change their opportunity-ideas at the end of business start-up programme, they felt that I was representing the interest of pre-incubator managers. This resulted insightful data about participants’ emotional attachment to their opportunity ideas. Details of this are discussed in the conclusion chapter of the reflective account (see section 7.5 (b), Chapter 7).

Business Name	Industry	No. of Participants	No. of Participants Interviewed	No. of Interview	Interview mode	Interview place
Gigride	Live music	3	2	1	Face-to-Face	Incubator
Onyx Wellbeing	Alternative therapy	2	2	1	Face-to-Face	Incubator
Bui Smoothies	Food & Drink	2	2	1	Face-to-Face	Incubator
Oh gee pie!	Food & Drink	2	2	1	Face-to-Face	Incubator

Betting matrices	Gambling & Betting	2	1	1	Online via Skype (video)	Online
Dental Tutor	Education	2	1	1	Face-to-Face	Incubator
WU	ICT	2	1	1	Face-to-Face	Incubator
Co-opportunity	ICT	1	1	1	Face-to-Face	Incubator
Future Start Tech	Financial activities	1	1	1	Face-to-Face	Incubator
Spokes Trade	Cycling accessories	1	1	1	Face-to-Face	Incubator
Scrub your life	Cosmetics	1	1	1	Face-to-Face	Incubator
Sophie Jewellery	Jewellery	1	1	1	Face-to-Face	Incubator
Virtual Reality	Computer game	1	1	1	Face-to-Face	Incubator
Total business ideas:13		Total participants: 21	Total interviewed participants: 17	Total interviews: 13		

Table 3.3 Profile of interviewees and interviews

3.5.2 Participant observation

The choice of participant observation was guided by the following research objectives: (1) to understand nascent entrepreneur's behavioural actions that shape opportunity ideas into entrepreneurial opportunities; and (2) to understand the role of the pre-incubator on their cognitive and behavioural processes. To understand the meaning of someone else's behavioural actions, one must be guided by their knowledge of that person (Schutz, 1972). Knowledge of others is derived from direct contact. One way to

gain knowledge of others is to participate in and observe action in their natural setting. For this reason, I adopted a participant observation method. By participating in the world of research participants, I transformed social observation into social relationships (ibid). Participant observation was a useful method as it allowed me to capture participants' and incubator managers' behavioural actions in a pre-incubator setting.

I conducted participant observation through the business idea competition event and business start-up programmes in 2016. Through this event and programme, the pre-incubator supported the nascent entrepreneurs' opportunity recognition process. The aim of my observation was to experience and observe participants' behaviour, i.e. what they do and how they do it. Gaining access to nascent entrepreneurs' behaviour has been a challenge for prior studies (Gaglio and Katz, 2001; Grégoire, Shepherd, and Lambert, 2009). In this study, I overcame this methodological challenge because I could access the pre-incubator's entrepreneurship event and programme. Table 3.4 below demonstrates summarised information of my participant observations. I conducted 79 hours of participant observation relating to 53 opportunity ideas over 14 weeks. During this time period, I interacted with more than 100 people, including entrepreneurs, mentors, and incubator managers.

Event participated	Event Duration	No. of opportunity idea observed	Observation duration
Big Idea Competition	4 weeks	40	17.5 hours
Launchpad programme	10 weeks	13	61.5 hours
Total events: 2	Total weeks:14	Total ideas: 53	Total hours: 79 hours

Table 3.4 Participant observations summarised information

How I collected data. My initial observation strategy was to create a rapport with participants. I carried field notebooks to document activities. Initially, I focused on understanding activities performed by both incubator managers and participants. Then, I focused on specific interaction and activities related to opportunity recognition; i.e. presentation and discussion of market research reports. I maintained a data collection logbook to track a record of data (see Appendix E). I also maintained an attendance

sheet to record participants' attendance (see Appendix F). Participants' attendance was essential for data analysis. During participant observation, I had access to other sources of data: a market research presentation report, conversation log from social media platform, idea testing and evaluation activity sheets, presentation slides, recorded video clips, and photographic images.

Research positionality. My research positionality shifted during the participant observations. At the beginning of the participants selection, I acted as a selection panel member. Because of this position, some participants considered me as an employee of incubator. Later, I participated in the events as a research student. Because of my student identity, I could get closer to participants. My reflexive positionality had an influence on my data collection. As a selection panel member, I had the opportunity to observe participants from a managerial perspective. As a research student and participant of the events, I had the opportunity to understand the perspective of participants. Both an insider and outsider position provided revelatory data related to the opportunity recognition phenomenon. However, the details of my research positionality can be found in Chapter 7 under the reflective account.

3.5.3 Mind mapping

The choice of mind mapping was guided by the following research objective: how do nascent entrepreneurs' come up with an opportunity ideas? Data for this research objective were also collected through semi-structured interviews. Unlike the interview method, this technique engaged participants in a task designed to demand specific cognitive process of opportunity recognition. The main purpose of this task was to activate participants' *thinking* rather than simply reporting past thoughts. Prior studies have shown that this technique reveals subjective data more meaningfully by showing associated concepts to the phenomenon (Eden, 1992; Davies, 2011). I speculated that such a function of mind-mapping may illuminate new concepts associated with the emergence of opportunity ideas.

When and how mind mapping was captured? I conducted mind-mapping immediately after the end of each interview. Prior to the interview, I noted participants' protective attitude over their opportunity ideas. I presumed that such protectiveness may affect data collection through the interviews. In other words, participants may either consciously or unconsciously withhold key information during the interview session.

Considering this data collection challenge, I decided to conduct mind-mapping immediately after each interview. It was my assumption that immediate mind-mapping may generate further data that could provide new insights into interview data sets with regards to the emergence of opportunity ideas.

I helped each lead participant draw their own mind map. It was a collaborative drawing with a purpose to re-construct the meaning of opportunity recognition. Each mind map was drawn on a single blank sheet of A4 paper with a pen. According to Gaglio and Katz (2001), the pen and paper technique is useful for reliably and validly capturing cognitive processes of opportunity recognition. However, the drawing began from a central image. I placed ‘opportunity-idea’ as the central image. Then I instructed participants to branch out ideas from the central image to show how they came up with opportunity idea. As they were branching out associated ideas, I sought further explanation. Seeking further explanation was effective. It helped participants to think meaningfully. They built explanations by connecting associated ideas with arrows.

Revelation of insightful data. Some participants revealed useful data that I could not capture in the interview and observation. For example, during the interview, participant C described her personal experience of the problem without specifying the actual problem. However, through the process of mind mapping, she revealed the constituting factors of her encountered problem. These factors were complaints about books, traditional teaching methods, and inconvenient timing. Below Figure 3.4 shows her mind map.

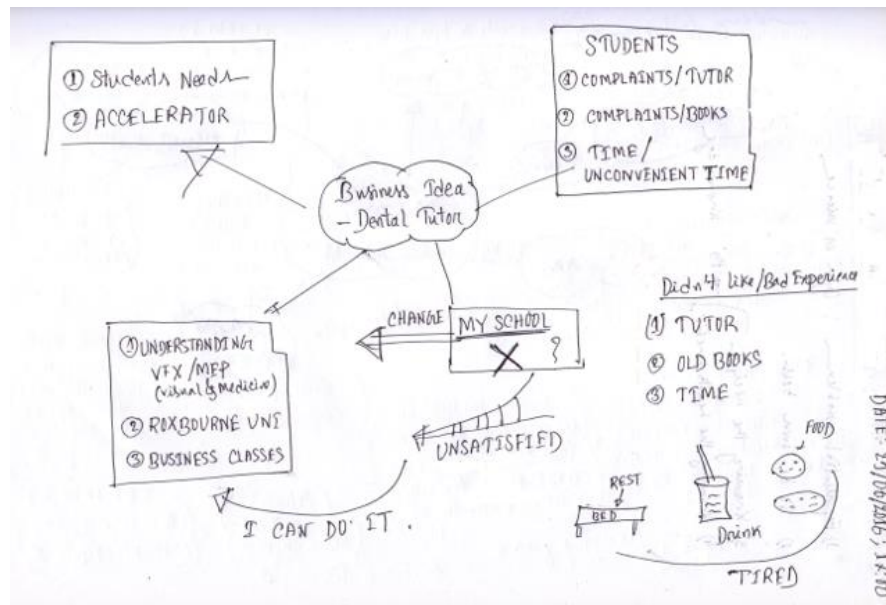


Figure 3.4 Participant C's Mind Mapping

Overall, the choice of the above three data collection methods were guided by research objectives. The application of these methods allowed me to approach the investigated phenomenon from different slants.

3.6 Data management

In the preceding section, I justified my choice of data collection methods and described how I collected data. In this section, I describe how I managed that data. Data management is essential for better data analysis. Miles and Huberman (1994) pointed out that the quality of data analysis is determined by the way data are managed. For this study, I collected a sizeable volume of qualitative data from multiple sources. The main rationale for managing the data was to ensure its accuracy, completeness, authenticity, and reliability. I created my own data management system by adopting the Digital Curation Centre's (DCC) data management plan checklist. Below, I outline and describe my data management components.

Data collection log. Data collection for this study was episodic. In other words, I collected data during different time periods. To organise and keep track of data collection, according to the sequence of studied events, I maintained a data collection log. In my log, I recorded the following information: who and what was being studied, the method of data collection, the unit of analysis, the context of the study, and the time period during which data collection took place (see Appendix E). During the course of

data collection, I reviewed and updated the data collection log as soon as a new data collection took place.

Data documentation. I used field notebooks and an audio recorder for data documentation. I documented data from the business idea competition and business start-up programme in two different notebooks. Such systematic documentation helped me to identify and locate relevant data during data collection. For the purpose of analysis, I transcribed all recorded data in Word format. For each interview transcript, a single cover page containing interview information was attached. In the cover page, I documented three categories of information: interview description, audio recorded file, and my comments about the interviews (Table 3.5). In the interview description category, I added the following information: the type, time duration, setting, and mode of the interview. The attached audio recorded file was essential for ensuring the validity of transcribed data. In the comments section, I recorded my immediate reflection about interview participants.


INTERVIEW DESCRIPTION
1. Interviewer: Mohammad
2. Interviewee:
3. Business Idea Name: Future Tech
4. Mode of Interview: Face-to-Face
5. Interview Duration: 34 minutes
6. Interview Date: 28 June 2016
7. Place: ACCELERATOR in Shoreditch
8. Data Transcribed by Mohammad Saiful Islam (3,619 words)
AUDIO INTERVIEW FILE:
 28Jun16_Bryon.MP3
COMMENT:

Table 3.5 Data documentation format

Data file format. It is essential to make data accessible on electronic devices, such as computers. A programme or application must be able to recognise the file format to access data (EDINA and Data Library, University of Edinburgh, 2014). To improve the electronic accessibility of my data, I followed the conventional file format. Table 3.6 shows my data file formatting for different data sources. I learned some of the specific file formatting whilst using qualitative data analysis software.

Data Source	Data File format
Interview and observation data	Word Document (.doc)
Images	Joint Photographic Extension Group (.jpg)
Videos	Window Media Audio (.wmv)
PowerPoint slides	Portable Document Format (.pdf)

Table 3.6 NVivo compatible data-file formatting

Data file storage. I stored data files in three separate locations: personal computer, university networked drive, and external storage. These storages provided robust assurance of data loss prevention. My personal computer was a convenient data storage device because I carried out my study from this device. However, its main risk was an unexpected system crash. To prevent such risk, I also stored data files on the university network drive. It is a secured storage for maintaining online data backups. However, online data backup is inaccessible without the internet. So, as another alternative, I further stored data on a USB drive.

Automatic data files backup. During the process of data analysis with NVivo (Qualitative Data Analysis Software), I realised the need for regular backup of my NVivo project file. As a result, I relied on automatic backup rather than manual. For automatic backup, I employed Google drive’s real-time file synchronisation cloud service. Real-time file synchronisation automatically synced the NVivo project file from my personal computer to my Google drive account. I set up the same file synchronisation to my computer-stored data-file folders. Thus, I ensured the best possible backups of my data files.

In summary, data management is an important part of this study. It enhances the standard of doctoral study. Systematic and methodical data management offers better analysis of data. Therefore, it directly influences the quality of the findings.

3.7 Data analysis: Thematic analysis

In the preceding section, I described data management. In this section, I justify the decision to use the inductive thematic data analysis method and explain the process of

analysis. Data analysis is about searching for an explanation and understanding the studied phenomenon. My choice of data analysis was driven by the research question and data analysis skills. In this study, I aim to address the following research question: how do nascent entrepreneurs recognise entrepreneurial opportunities? Opportunity recognition is derived from the cognitive process and behavioural actions of entrepreneurs. My interpretive epistemological stance was to understand nascent entrepreneurs' cognitive and behavioural process by interpreting meaning from their actions. Before conducting data analysis, I considered various analysis methods: discourse, narrative, conversation, biographic, grounded theory, ethnographic, and thematic analysis. I noted that discourse, narrative, conversation, and structuralist analysis focus on how meaning is created. Conversely, thematic, ethnographic, and grounded theory analysis focus on understanding the meaning. Among these interpretive analysis methods, I employed thematic data analysis to address my research question.

Thematic analysis is a method for identifying, analysing and reporting themes within qualitative data (Braun and Clarke, 2006). A theme is a pattern that interprets the aspects of study phenomenon within data (Boyatzis, 1998). For this analysis, I adopted an inductive approach. This approach is critical for developing themes and codes of least-understood phenomenon (Boyatzis, 1998). Since it is a data-driven analysis, meaning interpretation can come from the vantage point of participants. Unlike the deductive and theory-driven approach, the developed theme is grounded in context within the data set. This means that the analysis is more open-minded, context-sensitive, and data driven (Miles and Huberman, 1994). Therefore, the adoption of a data-driven or inductive approach helps to avoid making a pre-existing conceptual leap about the unit of analysis, i.e. the participants (Boyatzis, 1998). To support my analysis, I utilised the qualitative data analysis software, NVivo. The main purpose of using this software was to manage my coding references. I constructed the original analysis with printed transcripts, a pen, and a notebook. The advantage of conducting analysis with pen and paper was that it allowed me to capture the context of data during the coding process.

3.7.1 Four phases of analysis

My thematic analysis comprises four phases of analysis: (a) data transcription; (b) data coding; (c) category development; and (d) theme development (Table 3.7). The analysis

is not a linear process of simply moving from one phase to the next. It is a more recursive process, during which it is necessary to move back and forth throughout the phases. Below I describe these four phases.

Phase	Activity name	Comment
1	Data transcription	It is essential to be familiarised with the data.
2	Data coding	This reduced the chaos and complexity of data by creating conceptual codes around the texts.
3	Category development	This further ordered data by clustering similar conceptual codes.
4	Theme development	Categories are ranked according to their analytical depth. The relationship between the categories are then developed.

Table 3.7 Stages of data analysis

(a) Data transcription

Data transcripts are the primary working document for data analysis. Transcribing data is the key phase of analysis within interpretive methodology (Birds, 2005). It is seen as an interpretive act of creating meaning (Kvale, 1996; Bazeley and Jackson, 2013; Lapadat and Lindsay, 1999; Braun and Clarke, 2006). It is the process of converting verbal and non-verbal language into written language. For this study, I produced a verbatim transcription of both interview and participant observation data. Verbatim transcripts are critical for developing and making claims on abstract concepts (Charmaz, 2006). It reflects the nuances of different participants' accounts, which is essential for making a comparison.

In my transcription, I transcribed both verbal and non-verbal (i.e. pause, silence, laughter, utterance) expressions. In my view, we can hardly comprehend others' actions if we only rely on their verbal expressions; i.e. what is being said. Non-verbal expressions, such as bodily expression, silence, and emotion (stress, anger, frustration, laughter) are essential to make sense of action. Incorporation of verbal and non-verbal expressions in data analysis made my data transcription process iterative. My iterative transcription progressed based on emergent theoretical understanding of opportunity recognition. However, data transcripts reflected 'the undigested complexity of reality'

(Patton, 2002). Data coding was needed to bring data out of chaos. It was a next stage of my analysis. In the following section, I discuss my data coding technique.

(b) Data coding

Coding is a way of segmenting meaningful data that represent an abstract concept (Bartlett and Payne, 1997). Segmented data is conceptually linked to the study phenomenon. It is often the unit of coding that determines researcher's comprehensive insight into the unit of analysis (Boyatzis, 1998). However, units of coding can never be an entity larger than the unit of analysis (ibid). For example, my study aims to address individual entrepreneur's opportunity recognition. Here, my unit of analysis is the individual, not the team of entrepreneurs. During data-coding process, I applied the unit of coding to an individual rather than a team. Participants who acted as a team with one opportunity idea were excluded from the unit of coding/data segmentation, because coded texts do not provide insights about individuals. However, there is no appropriate method for how one should code data. Bartlett and Payne (1997) contend that data coding is an art. I developed qualitative data coding skills by practising and attending qualitative data analysis training sessions.

Open coding. This coding is useful for inductive theory generations. It involves reading through data line-by-line and conceptualising them into a meaningful unit (Bartlett and Payne, 1997). Data conceptualisation through open coding brings forward new ideas or concepts from raw data. I began open coding with the research question and unit of analysis in mind. The aim of my analysis was to interpret participants' behavioural actions related to opportunity recognition. To begin open coding, I read and re-read all participants' transcripts a number of times. I then selected one lead participant's transcripts that appeared richer in data than the others. To assess a conceptual meaning of data, I emphasised individual participant's verbal and non-verbal expressions linked to the phenomenon – opportunity recognition. Both verbal and non-verbal expressions are critical as they signify the subjective meaning of their actions. Non-verbal expressions include pauses, silent interactions, emotions, avoidance, engagement, and withdrawals. To decipher these expressions, I considered the context provided by participants during my data collection. Contexts include events, locations, places, and time (past, present, and future). Once I comprehended the subjective meaning of data segment, I gave it a code/conceptual name according to its representative meaning.

During the coding process, I realised the importance of maintaining a consistent code name for the theme's development. Once I completed the coding with one participant, I moved on to the next. One-by-one, participants' data coding was effective. It facilitated a systematic approach. Each lead participant's data set was examined individually for code development. Later, I identified themes by comparing the participants to each other.

Reliability of coding. The reliability of coding refers to the consistency of coding judgement (Boyatzis, 1998). Consistent judgement is an indicator of the trustworthiness of the coding process (Bazeley and Jackson, 2013). It is essential for well-developed themes (Charmaz, 2006). I ensured the reliability of my coding by applying the following techniques: recording my decision on coding, assigning a person to assess my codes, and periodically reviewing the code book. I recorded my decision on how I coded and un-coded data. This technique helped me keep track of decisions made regarding coding and build a strong case supported by data. In addition, I assigned a research expert to check the consistency of the coding. Expert suggestions were considered for further coding. During the coding process, I developed a code book that contained code names and descriptions. I periodically reviewed my code book to ensure the appropriateness of the coding, thus ensuring coding reliability. Category development comes from the development of code. The next section discusses the development of categories.

(c) Category development

A category comprises a similar group of concepts that are related to the same phenomenon (Bartlett and Payne, 1997). In the field of psychology, pattern is recognisable when it can be grouped into a category (Reed, 2013). This means that concepts can be regarded as patterns when they can be grouped into familiar categories. The development of categories is mainly based on how we use them rather than following rules (Malt, 1990). In this study, I developed categories by clustering codes. The developed categories were refined and defined through the process of memo-writing. I describe the process of category development in the next section.

Clustering. Categories are developed by clustering codes that represent similar concepts related to a phenomenon. First, I clustered similar conceptual codes in circles. Together, these codes represented one broad analytical concept. I named concepts

according to their representative meaning. I then drew spokes from each circle and connected them to one defining category. Each concept represented the feature or property of the concept. Figure 3.5 illustrates one of the clustering examples. In this example, a meaningless job, low income, and job search difficulties are all related to one phenomenon – current or future employment. These factors together or individually indicate the concept of employment uncertainty. This clustering exercise was helpful for capturing initial categories. Clustering codes were quick and changeable. It was a good pre-writing exercise for memo-writing.

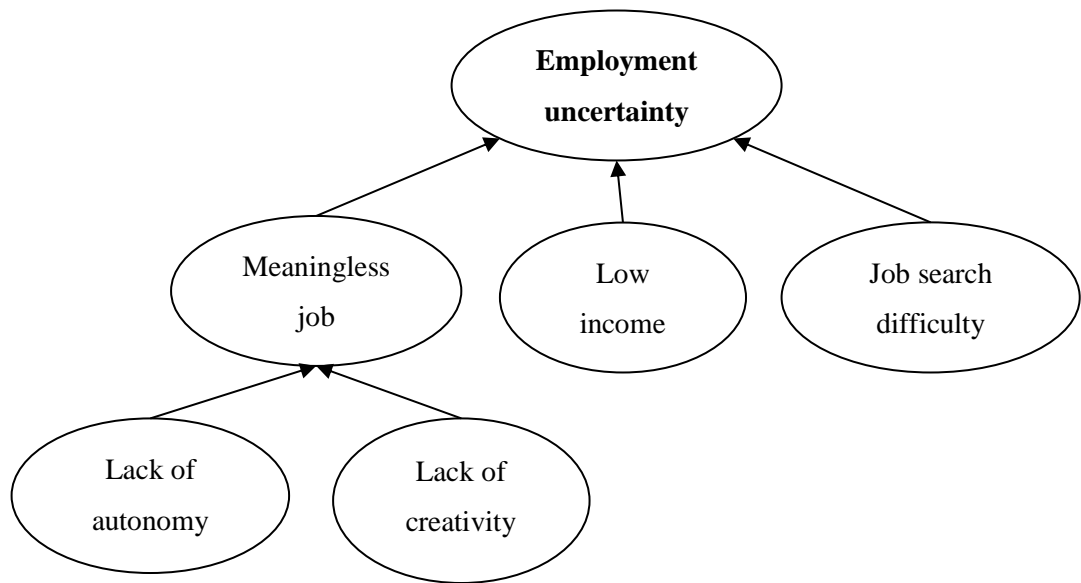


Figure 3.5 Clustering example

Memo-writing. Memos are analytical notes used to developed theoretical categories by analysing ideas about codes and data (Charmaz, 2006; Miles and Huberman, 1994). Memo writing is the next logical step after defining categories (ibid). At this step, the previously developed categories were taken to a new level for further development. Here, categories were defined by their analytical properties or characteristics. Memos helps to investigate emergent categories by breaking them down into their components. It also acts as a filter to identify codes that can be treated as analytical categories. Let us see an example of memo writing on the category ‘employment uncertainty’ (Table 3.8).

Example of Memo Writing
Employment uncertainty
Employment uncertainty refers to participants’ negative perception regarding their existing or

future job. Three major factors are responsible for raising employment uncertainty: a meaningless job, low income, and job search difficulty. These factors individually and/or combinedly represent employment uncertainty. Creative participants (musician, craftswoman, activist, and architect) become concerned about their current employment when they perceived their jobs to be meaningless. These individuals suffer a lack of autonomy and creativity in performing their jobs. Lack of autonomy and creativity are the salient factors behind meaningless jobs. In addition, participants, who struggle to manage their living expense, become concerned about their low-income job. Other participants, who search for their educational qualification-related job, expressed that a job is difficult to find. Due to perceived employment uncertainty, participants follow the career path of self-employment.

Table 3.8 Example of memo-writing

(d) Theme development

For theme development, I explored conceptual connection among categories. In this process, I examined the underlying ideas, assumptions, and nuances of participants' accounts. Themes emerged when categories individually and/or combinedly capture something significant to the study phenomenon – opportunity recognition. For example, experiential problem and perceived gap categories explain how participants become aware of customer needs and potential products. The entrepreneurial intention category explains this awareness at a new level. It explains further how participants translate needs and product awareness into opportunity-awareness. Together, experiential problem, perceived gap, and entrepreneurial intention categories conceptually explain how an individual comes to know opportunities. I have called this theme 'opportunity-awareness'.

My analysis showed that the 'opportunity-awareness' theme fits with all participants' accounts. However, their accounts are divided in terms of what and how they perceive opportunities. For example, under the opportunity-awareness theme, some participants become aware of customer needs through experiential problems, while others become aware of potential products either by experiential problems or perceived gap. In the perceived gap categories, their accounts are further divided into cross-cultural knowledge, market knowledge and specialist education.

The conceptual connection among categories is very important for the opportunity-awareness theme. In the absence of one category, for example, entrepreneurial intention,

the meaning of opportunity would not exist. Also, the theme of opportunity-awareness is significant as it explains the process of recognising opportunities. In my analysis, themes became discernible when these were consistent, widespread, unusual, and emerged from multiple sources of data. However, categories that conceptually connected to the main theme became sub-themes. For example, sub-themes of opportunity-awareness are experiential problems, perceived gaps, and entrepreneurial intentions. These sub-themes can explain the study phenomenon at a micro-level. For example, the experiential problem category explains how the encountered problem became significant enough to identify customers' needs. These categories are referred to here as the 'organising theme' (Table 3.9).

Main themes	Organising themes	Basic themes	First-order (in-vivo) coding
OPPORTUNITIES as two kinds of situation	1) Demand-driven situation	Customer needs	1) Musician's need: Market place for musicians, promoters and agencies 2) Bettor's need: Analysing, tracking and managing bets. 3) Dental students' need: Learner-friendly dental course 4) Bar/Club goer's need: saving queue-time in bars and clubs 4) Socio-political organisation's need: Effective co-ordination for organising people. 5) Alternative therapy market's need: increasing accessibility to the market 7) Cyclist's need: complete cycle market
	2) Supply-driven situation	Potential products	8) Jewellery crafting and design 9) Coffee ground scrub 10) Baobab fruit juice 11) American pie and dessert 12) Virtual Reality game 13) Wealth management software

OPPORTUNITY AWARENESS	1) Experiential problem	Customer needs revealed through personal encountered problem	<p>14) Finding gigs difficult in the Netherlands</p> <p>15) Finding good practitioners' treatment difficult</p> <p>16) Finding excel as an inefficient tool for bet tracking and analysing.</p> <p>17) Experiencing learning difficulty with dental course.</p> <p>18) Experiencing organising difficulty for socio-political events</p> <p>19) Experiencing queuing problems in bars and clubs.</p>
	2) Perceived gap	Potential product revealed through:	
		a) Cross-cultural awareness	<p>20) Having thought to introduce baobab juice in England</p> <p>21) Knowing baobab juices potentiality in Gambian market.</p> <p>22) Seeing the rise of American food market.</p> <p>23) Seeing Fintech's shift from USA to UK</p>
		b) Market knowledge	<p>24) Spotting gap in the cycle market</p> <p>25) Noticing the need for cycling accessories</p>

		c) Specialist education	26) Seeing UNICEF's 360-degree video as a new donation method 27) Being aware of coffee ground's alternative use.
	3) Entrepreneurial intention	a) Intention to start business	28) Wanting to become own boss 29) Wanting to sell own made things 30) Wanting to become entrepreneurs 31) Having influenced by London's start-up scene 32) Having desire to start online businesses
		b) Self-employment as an alternative career option	33) Experiencing employment uncertainties
OPPORTUNITY SEARCH	1) Opportunity search in social networks	a) Reliance on personal network	34) Sharing ideas with friends, family members, tutors, employers and colleague
		b) Reliance on business support organisation	35) Seeking business start-up from incubator, solicitors and government organisations
		c) Reliance on broader public network	36) Communicating ideas to wider audiences: experienced entrepreneurs, mentors, general public, potential customers, suppliers and competitors.

	2) Opportunity attachment	a) Persistency or perseverance	37) Believing in idea 38) Not seeing failure as an option
		b) Connectedness	39) Prioritising development over abandonment
		c) Dedication	40) Being 100% dedicated to ideas; working on 24/7 to make it work
		d) Sacrifice	41) Quitting employment 42) Deciding to live in a foreign country over home country
		e) Protectiveness	42) Hiding ideas from strangers
	3) Opportunity-attachment orientations	a) Insecure attachment: protectiveness	43) Perceiving strangers as idea poachers
		b) Secure attachment: openness	44) Perceiving strangers as informant helpers
	4) The influence of opportunity attachment orientations on social network reliance	a) Insecure attachment: reliance on personal and business support network	45) Relying on personal and business network to deter opportunistic behaviour of outsiders.
		b) Secure attachment: reliance on broader public network	46) Ramifying to broader network to objectify opportunities

	5) Effect of social network reliance	a) Belief reinforcement as a consequence of confirmation bias	47) Testing the veracity of ideas among like-minded people 48) Socially generated information affirm pre-existing belief
		b) Changes in attachment orientations	49) Realising the benefit of revealing ideas to outsiders.
		c) Knowledge accumulation	50) Creating new target customers 51) Discovering new revenue stream 52) Revealing new product features.

Table 3.9 From basic to organising to main themes

3.8 Ethical considerations

In the preceding section, I justified my decision to use the thematic data analysis method and explained the process of data analysis. In this section, I discuss the research ethics that I considered throughout the research phases. As part of good ethical practice, I followed the Economic and Social Research Council (ESRC) framework for research ethics (ESRC, 2015). Throughout the research phases, I emphasised the following areas: study approval and access permission, informed participants' consent, avoiding harm, and confidentiality and anonymity. In the next section, I discuss these areas.

Approval and permission. I commenced my field study after obtaining approval from the university research ethics board. Since the business incubator was my primary study site, I also sought the gatekeeper's (incubator director) permission for access. As part of obtaining permission, I attended a face-to-face interview with both the incubator director and manager. I provided them with a consent form outlining my study aim, data collection methods, participants, and data-protection policy (see Appendix C). I requested both oral and signed permission from them. After obtaining the gatekeeper's permission, I approached research participants for their consent.

Informed consent. Consent is the central act in research ethics. I sought informed consent from research participants. I provided them with a consent request form outlining my study purpose, data collection method, and my intended use of research outcome (see Appendix D). I also mentioned that their participation was voluntary and their choice to answer or skip interview questions. All participants agreed to participate in my study and provided both verbal and signed approval confirming their voluntary participation.

Avoiding harm. I conducted my field study at business incubator's premise. Prior to the field study, I considered potential risks that may arise from the study site and participants' travelling. The business incubator provided sufficient security for both its tenants and participants. As part of my data collection plan, I conducted most of the interviews on the same day as the business start-up programme. The reason for conducting interview on the same days as the business start-up programme, was to avoid unexpected incidents that may arise from participants' travelling to the study site. During the data collection, I was also aware that participants may become stressed in revealing their opportunity recognition process. In an attempt to make each interviewee as comfortable as possible, I avoided asking leading, personal, confusing, tricky, and interrogative questions.

Confidentiality and anonymity. These were an essential part of my research ethics. I ensured the confidentiality of participants' data by employing a robust data management system. Participants' data files were afforded a pseudonym to protect their identity, in case of data loss. I maintained appropriate safeguarding to prevent data loss. For example, a specialist recording device instead of smart phone was used to record data. Data were stored on the university network drive, which provided reasonable assurance of data protection. In reporting the findings of my study, each participant was afforded a pseudonym to preserve anonymity.

3.9 Research evaluation criteria

For the evaluation of business and management research, the most commonly used criteria are reliability, internal validity, external validity, and objectivity (Bryman and Bell, 2011). These criteria are gold standards for evaluating the quality of quantitative research. Several scholars have questioned the appropriateness of these criteria for qualitative research evaluation (Lincoln and Guba, 1985; Santiago-Delefosse et al.,

2015). They have argued that these evaluation criteria are rooted in a positivist paradigm in which a single absolute account of social reality subsists. They have pointed out that good evaluation criteria are linked to the paradigmatic reference of a research topic. This ongoing scholarly argument suggests that evaluation criteria varies between qualitative and quantitative research. For the evaluation of qualitative research, Lincoln and Guba (1985) suggested ‘trustworthiness’ as an alternative evaluation criteria. The term ‘trustworthiness’ refers to the standards for evaluating the quality of qualitative studies. The criteria comprises credibility, transferability, dependability, and confirmability. These criteria are akin to quantitative research evaluation criteria: reliability, internal validity, external validity, and objectivity. Since my study phenomenon, opportunity recognition, was rooted in an interpretive paradigm, I utilised the ‘trustworthiness’ criteria for my research evaluation. Throughout my research phases, I maintained a reflective journal to ensure the quality of research. Below I elucidate each aspect of trustworthiness.

Credibility. This aspect is concerned with the credibility of findings from multiple accounts of social reality (Bryman and Bell, 2011). I ensured the credibility of my findings by employing a number of techniques: considering the views of relevant actors (i.e. nascent entrepreneurs and incubator managers), triangulating multiple sources of data, and reporting unusual themes from the data. I collected data through semi-structured interviews, participant observation, and mind-mapping. During the data collection and analysis, I considered not only participants’ accounts, but also other actors, i.e. incubator managers and mentors. To arrive at the findings, I further triangulated multiple sources of data.

Transferability. This aspect is concerned with the transferability of findings to other similar contexts or the same context at a different point in time (ibid). Qualitative research requires the intensive study of a small group. The findings relate to the context and significance of the study phenomenon. I ensured the transferability of the findings by producing a rich account of nascent entrepreneurs’ opportunity recognition in a pre-incubator context. According to Lincoln and Guba (1985), a rich account or thick description is important to others for making judgements about the possible transferability of findings to another context.

Dependability. As a parallel to reliability, this aspect is concerned with the consistency of findings at other times (Bryman and Bell, 2011). I ensured the dependability of findings by employing an ‘auditing approach’. This involved keeping records throughout the phases of research so others can review and establish the extent to which proper procedures have been followed. The rigorous data management system, log of data collection, and log of my data analysis decisions were key parts of my auditing approach.

Confirmability. As a parallel to objectivity, this aspect is concerned with the extent to which findings are derived from a researcher’s personal values and/or prior theoretical inclinations (ibid). I maintained confirmability by keeping a record in a reflective journal. In the concluding chapter of this thesis, I have shown how my research positionalities affected the conduct of my research and subsequent data analysis and findings (see the reflective account section).

By utilising the above criteria of trustworthiness, I ensured the quality of this study.

3.10 Summary

This chapter began by describing the interpretive paradigm for the investigation of nascent entrepreneurs’ opportunity recognition. The choice of an interpretive paradigm view was derived from metatheoretical assumptions (philosophical assumptions and theory of society) in relation to the opportunity recognition phenomenon. In terms of philosophical assumption, my ontological and epistemological stance were social constructionist and interpretivist, respectively. The key interest of the social constructionist view was nascent entrepreneurs’ cognitive and behavioural process-related opportunity recognition, but equal attention was given to socio-cultural practices or norms that shape these processes. The key interest of the interpretivist epistemological view was to understand the cognitive and behavioural process by interpreting nascent entrepreneurs’ actions. In terms of the theory of society, I have viewed entrepreneurs as the agents of society who develop products or services to satisfy the needs of social actors. Need satisfaction is one of the key elements of the sociology of regulation in which unity and cohesiveness are the key focus. Together, these metatheoretical assumptions – social constructionist, interpretivist, and sociology of regulation – led my focus to understand opportunity recognition. Resultantly, I

adopted an interpretive paradigm to investigate the opportunity recognition of nascent entrepreneurs.

The interpretive paradigm position has led to the choice of an inductive research approach for developing explanations based on data. The connection between philosophical assumption and the inductive research approach has suggested a qualitative research strategy. To execute the qualitative research strategy, I selected a case-study research design. The decision to use the case-study research design mainly derived from the study phenomenon. For the case-study design, I selected individual nascent entrepreneurs as the unit of analysis. This decision was determined by the central research question: how do nascent entrepreneurs recognise entrepreneurial opportunities? Data were collected through semi-structured interviews, participant observation, and mind-mapping. The choice of data collection methods was guided by the research objectives. Before commencing the data analysis, I developed data management procedures to manage the data. The main rationale was to facilitate better data analysis. For the purpose of data analysis, I employed an inductive thematic analysis method. The decision to use an inductive thematic analysis method was made to develop theoretical explanations from data. Following the data analysis, I described the research ethics and research evaluation criteria.

Chapter 4 Findings: Opportunity awareness

In the preceding chapter, I justified the choice of qualitative research methodology. I provided a rationale for adopting inductive thematic analysis and described the process of data analysis. The aim of analysis was to address the following research question: how do pre-incubator supported nascent entrepreneurs recognise entrepreneurial opportunities? In this chapter, I present the case study of a pre-incubator and the findings of my analysis. My study findings present an integrative model of opportunity recognition. The opportunity recognition model comprises two discrete, yet interrelated, components: (a) opportunity awareness; and (b) opportunity search. Opportunity awareness and opportunity search are the first and second components of opportunity recognition process model. In this chapter, I present findings of the first component: opportunity awareness. Then, in the subsequent chapter, I will present the findings of the second component: opportunity search. All presented findings are inductively driven.

This chapter is structured as follows. Section 4.1 presents the case study of pre-incubator. The following ordered sections show a thematic representation of participants' opportunity awareness. Section 4.2 reveals the kind of opportunities that participants were aware of. Section 4.3 reveals the process by which they become aware of customer needs and potential products. Section 4.4 illuminates specific behaviour and intention, which translate into the awareness of customer needs and products into opportunity awareness.

4.1 A Case Study of London Metropolitan University's Pre-incubator

Accelerator is a London Metropolitan University's business incubator, located in Shoreditch, London. It was founded in 2005 with an aim to support hi-tech start-ups' growth and development. Since its foundation, it has supported thousands of technology start-ups. Currently, it houses and supports 30 technology start-ups. The support services for start-ups include subsidised and flexible office spaces, business mentoring, entrepreneurship events, and networking. The incubator is managed by three employees: the director, the student enterprise manager, and the creative enterprise manager. In 2016, its supported start-up companies raised an £8.8 million investment, created 122 jobs, and generated £9 million revenue.

In 2009, the incubator developed a pre-incubator, a new form of organisation, called the Student Enterprise Centre (SEC). The aim of this pre-incubator is to help London Met's students and graduates start their own businesses. It is managed by the same incubator managers, but they act as mentors, trainers, programme leaders, and advisors. The support services are free of charge and are provided through entrepreneurship events and programmes: the Big Idea Challenge, Launchpad, Quick start-up, Start-up Sprint, and the Christmas Market. In 2016, the pre-incubator supported 350 entrepreneurs through its entrepreneurship events and programmes. However, among those events and programmes, the Big Idea Challenge and Launchpad specifically supported opportunity recognition activities.

The Big Idea Challenge is an idea pitching competition, which encourages London Met's students, staff, and graduates to participate in and compete for prizes and awards. This event is organised into three consecutive stages: selection, training, and pitch. Through these three stages, managers ensure the supply of opportunity ideas that appears to be entrepreneurial. They select only ideas that are innovative and scalable. They then train participants to refine their ideas for pitch. Only 12 ideas can reach the final pitch that are featured in the event website for public votes and comments. The winner from the 12 finalists is awarded with prizes worth £30,000. Through the business idea competition, managers offer winners and finalists a chance to participate in their business start-up programme known as Launchpad. Figure 4.1 illustrates participants' pitches at the Big Idea Challenge event.



Figure 4.1 An illustration of Big Idea Challenges' pitch day (Illustrated by Dominika Olearczyk, 2016)

The business start-up programme is a 10-week programme. The aim of this programme is to support participatory nascent entrepreneurs to validate the viability of their opportunity ideas. *Validation* implies the evidence of a large number of customers who are not only interested in products, but also willingly to pay for them. For the outcome of validation, participants need to demonstrate the following: existence of market/customer, size of market/customer base, customers' interest and willingness to pay for and use the products. According to managers, these outcomes constitute the dimension of opportunities. At the end of the programme, participants present these outcomes to demonstrate the veracity of their opportunity ideas or new opportunities that they perceive during market research phase. Successful participants are provided with six months of free support for enacting their opportunities. This further support includes a free office space, small fund, funding advice, and a network of entrepreneurs.

In 2016, managers screened 73 applications, 14 of which were selected for the business start-up programme. Among these selected ideas, eight progressed from the business idea competition. The number of ideas were not representative of the number of participants. Some participants acted as a team with single ideas; others acted solo. Because of this, there were seven teams of participants for seven ideas. The rest of the participants acted alone. However, one participant withdrew from the programme to complete her dissertation retake. This resulted in a total of 13 business ideas with 21 participants. At the end of the programme, managers retained six opportunity ideas to transform into businesses. The other seven ideas were not supported further, but the majority started their businesses on their own.

It is the requirement of the business start-up programme that lead applicants must be graduates of the London Met and they must have an idea for a product or service. Managers assessed products and service ideas against a criteria of uniqueness, quality, innovation, potential commercial opportunities, and the likelihood of business success. These criteria indicate that managers recruit ideas that appear to be entrepreneurial. In addition, they assessed participants' time commitment, dedication to the programme, flexibility in refining and shaping ideas according to customer needs, and the capability to enact opportunities. The assessment was conducted through application forms and panel interviews.

The business start-up programme's activities were very prescriptive. The main activities included how to conduct customer-led market research, how to conduct market tests for products or services, how to fail without incurring costs, and how to make a pitch for investors. Through these activities, managers guided participants behaviour in a desired direction, i.e. searching for market and target customers, revealing opportunity ideas to outsiders, considering risk, and refining and adjusting product ideas based on customer's feedback. However, managers expressed that the programme is evolving; this indicates that their guided participants' behaviour will evolve according to the programme. They acknowledged that the success of opportunity recognition and the subsequent establishment of businesses are determined partly by their business start-up programme and partly by the quality of the participants. They endeavoured to maintain the balance between these two. Below, student enterprise manager clarifies this:

Umm... No.. I guess the part of the thing I say is that umm.. you know our **Launch Pad programme is continuing to evolve. So, we are running a programme we think umm. provides umm... value umm.. for participants.** Umm... but **we continuing to refine this approach.** You know the real metrics it says umm.. to some extent is the number of successful businesses that we help launch, which intends to create you know success stories for the university. **Now um.. you know .. the number of businesses would be determined partly by the programme and also partly by um.. the quality of the participants that we get. So, I guess we continue to try to strike that balance between finding the best students as an ongoing challenge and running the best programme for students.** But the programme has evolved significantly over the last few years and now I can say that, given the quality of the content and also the intensive mentoring this year, participants we have seen that there is a very well-constructed programme.

This student enterprise manager clarifies that their business start-up programme is evolving to ensure the effectiveness of their services. He believes that the effectiveness of opportunity recognition lies between the programme and quality of participants. According to him, finding the quality of the participants is a challenge.

The understanding of how nascent entrepreneurs' recognise opportunity in relation to cognitive and behavioural aspects would benefit managers when devising effective start-up programmes for their participants. The current prescriptive opportunity recognition practices are based on the model of successful opportunity recognition.

Extant literature claims that nascent entrepreneurs are very different from experienced entrepreneurs in terms of their cognitive ability and behaviour related to opportunity recognition. Since nascent entrepreneurs are not fully-fledged entrepreneurs, to pre-incubator managers, they have little credibility. Managers label their opportunity ideas as hunches, assumptions, or even intuition. The original source of ideas were ignored in their practice. Moreover, they dictated how they should think and behave in terms of verifying, refining, shaping, and even abandoning their opportunity ideas. Managers' intervention on opportunity recognition makes this a critical phenomenon for this study. Figure 4.2 captures the interaction between managers and participants during the business start-up programme.



Figure 4.2 An illustration of the business start-up programme activity

In this study, I aim to uncover pre-incubator supported nascent entrepreneurs' cognitive and behavioural processes related to opportunity recognition. Unravelling the opportunity-recognition process would enhance pre-incubator managers' understanding of their supported nascent entrepreneurs and the unintended effect of their business start-up programme. Having described the case study of the pre-incubator, the next section provides the findings relating to nascent entrepreneurs' opportunity recognition. Before proceeding to the findings' section, I illustrate key summarised findings on opportunity awareness in Figure 4.3.

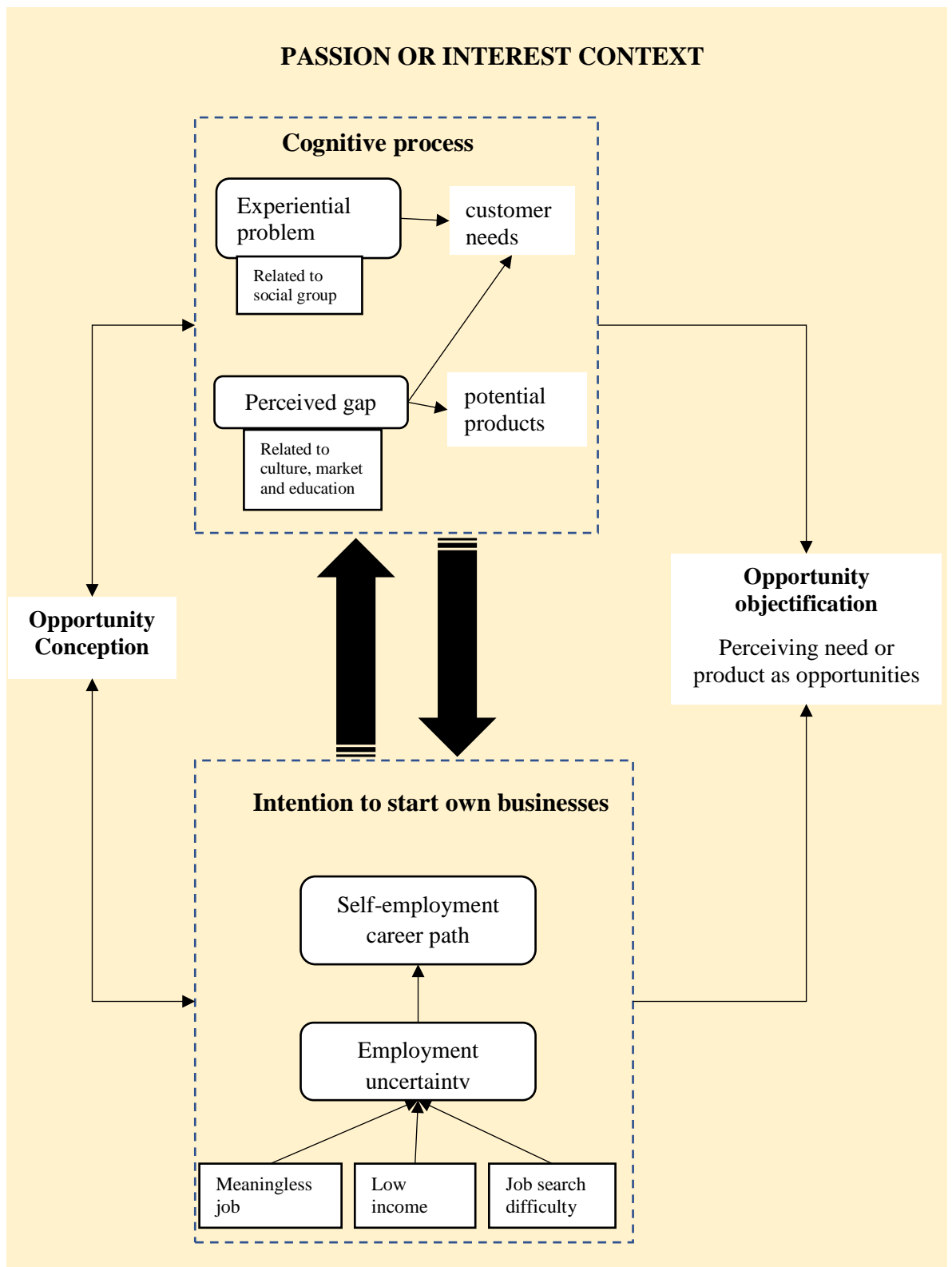


Figure 4.3 The process of opportunity-idea conceptualisation (data driven)

4.2 Opportunities as two types of situations: demand-driven and supply-driven

It emerges from the data set that participants' opportunity recognition process begins with the awareness of either customer needs or potential products. Over half of the participants were aware of customer needs, while less than half of participants were aware of the potential product. Participants who were aware of customer needs conceived product ideas. On the other hand, participants who were aware of potential products speculated market/customer needs. However, I note that the awareness of customer needs and potential products were induced by particular situations. Such need and products' situational awareness suggest two types of situations: demand-driven and supply-driven. I define a demand-driven situation as a situation in which participants are aware of customer needs, upon which they conceived their product ideas. On the other hand, I define the supply-driven situation as a situation in which participants are aware of potential products, but speculate the market need of those products. In demand-driven situations, the opportunity recognition process begins with the awareness of customers' needs. Conversely, in a supply-driven situation, this process begins with the awareness of a product. Throughout the opportunity recognition process, participants translate their situational awareness (demand- and supply-driven) into opportunity awareness. The following sections present these findings.

In the first column of Table 4.1, I provide a descriptive list of participants' awareness. Then, in the second column, I group them into organising themes: customer needs and potential products. Since the awareness of need and product are induced by situations, I further group them into main themes. These are shown in the final column of Table 4.1.

Basic themes	Organising themes	Main themes
<p>(1) Musicians' need: Market place for musicians, promoters, and agencies.</p> <p>(2) Bettors' need: Analysing, tracking, and managing bets.</p> <p>(3) Dental students' need: Learner-friendly dental course.</p>	Customer needs	Demand-driven opportunity

<p>(4) Bar/club goers' need: Saving queue-time in bars and clubs.</p> <p>(5) Socio-political organisation's need: Effective co-ordination for organising people.</p> <p>(6) Alternative therapy market need: Increasing accessibility to the market.</p> <p>(7) Cyclist's need: Complete cycle market.</p>		
<p>(8) Jewellery crafting and design</p> <p>(9) Coffee ground scrub</p> <p>(10) Baobab fruit juice</p> <p>(11) American pie and dessert</p> <p>(12) Virtual Reality game</p> <p>(13) Wealth management software</p>	<p>Potential products or services</p>	<p>Supply-driven opportunity</p>

Table 4.1 Two kinds of situational opportunity

During interviews, all lead participants reproduced accounts of their past experiences that depicted either demand- or supply-driven situations. In other words, they demonstrated either customer needs or product awareness in a particular situational context. It emerged that customer needs and products' perceived potential do not exist independently of the participants' minds. These are not objective facts, but participants' subjective interpretations of their experienced situations. With the help of social context, they interpreted and constructed such needs. This confirms that customer needs and products' perceived potential are inconspicuous, situational, and socially constructed. This theme is widespread across the data set. Therefore, I claim that customer needs and potential products are constructed out of the situations, and these represent two types of situational opportunities: demand-driven and supply-driven. To

illustrate demand-driven situational awareness, I present participant K's interview excerpt as representative of others:

I used to come to London. I live outside of London. Umm... but because it takes so long to go back home, when I decide to go up to [bars, clubs] with my friends, I don't wanna be spending [time], you know, waiting in a queue rather than sit there with them [*sic*]. Having done a survey around **the area, a lot of people thought the same way** umm... that **queuing is actually a problem in the UK and it wastes millions a year.** [*sic*]

Participant K above presents his demand-driven situational awareness. Here, he is aware of regular bars and clubs goers' unmet need: saving queueing time. He interprets queueing time as a problem based on his personal experience. When he finds congruency in his experience with other bar or club goers, he constructs queueing time as an important problem. His experience congruency with others is not a passive incident. He actively looks for others' validation to construct this as an important problem. His own expression clarifies this: '*having done a survey around the area, lots of people thought the same way...*'. This shows that participant K actively sought social validation to construct queueing time as a problem. Since he constructs queueing time as problem in the bars and club context, he is now aware of the need for a possible solution. This is a demand-driven situation.

Similarly, participants who were aware of supply-driven situations constructed products' perceived potential, based on their social worlds' validation. This pattern is consistent across participants. To illustrate this, I below present participants H's interview excerpt as representative of others:

We've been drinking it [**baobab fruit juice**] since we were little [in Gambia]. **Grandma sells it** [in Gambia]. It's like something really common, its popular and we know that **everyone likes it** [in Gambia]. So, we thought, you know, why not just try it (both now talking together) in England. Yeah! [*sic*]

Participant H above presents a supply-driven situation in which she constructs baobab fruit juice as a potential product in the UK. To construct baobab juice as a potential product, she demonstrates its commercial success among Gambian people in terms of its commonality and popularity. Her expressions: '*Grandma sells it*', and '*it's very common and everyone likes it*', signifies a concrete social validation behind her product

awareness. In other words, she constructs her argument based on the popularity of baobab juice among Gambians, including her grandmother. Because of such social acceptance, participant H becomes aware of its perceived potentiality in the UK. This is a supply-driven situation since H is aware of product, but speculates its marketability in the UK. Her expression shows her speculation about UK market: *‘so, we thought, you know, why not just try it in England’*.

Returning to the interview transcripts, participants’ reproduced accounts further reveals how they become aware of demand- or supply-driven situations. In other words, their accounts reveal the process by which they become aware of customer needs and potential products. Their account reveals two broad themes: experiential problems and perceived gaps. In the following sections, I present these findings.

4.3 Experiential problems and perceived gaps as the definers of situations

Participants’ accounts reveal how they became aware of demand- and supply-driven situations. Their experiential problem, or perceived gap, in certain situations activated their situational awareness. This theme is very consistent across data sets. Based on this pattern, I divided all participants into two categories: experiential problem and perceived gap. Figure 4.4 below shows the number of participants’ situational (demand- and supply-driven) awareness, according to their experiential problem and perceived gap. In the experiential problem category, almost half of the participants demonstrated a demand-driven situational awareness. This awareness is raised when an experienced problem signifies unmet customer needs. In the perceived gap category, the rest of the participants, except one, demonstrated supply-driven situational awareness. This awareness is raised when perceived gap signifies possibilities for new products. Experiential problem and perceived gap both depict phenomena consciousness (unmet need or potential product) in particular situations. This phenomena consciousness, in turn, raises situational awareness (demand-driven or supply-driven). In other words, participants become aware of demand- and supply-driven situations when they conceive product ideas based on customer needs and vice-versa. Aligning product ideas with customer needs becomes the opportunity idea. In the following sections, I present findings on experiential problem and perceived gap.

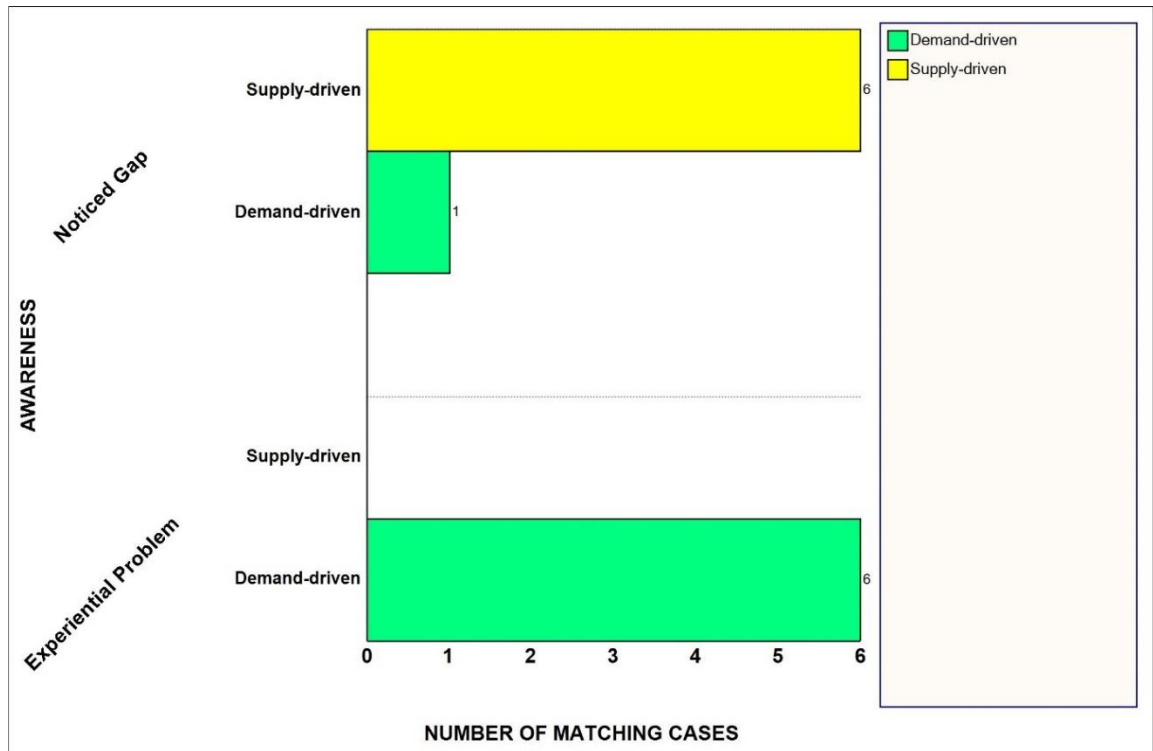


Figure 4.4 Participants' situational awareness according to their experienced problem and perceived gap

4.3.1 Awareness of an experiential problem

Almost half of the lead participants' accounts reveal that their experience of discomfort or difficulty, in particular situations, triggered their demand-driven situational awareness. In other words, their encountered problems made them conscious of unmet needs. This pattern emerges as a theme from multiple data sources: interviews, participant observation, mind-mapping, and secondary data sources. From primary data sources (interviews, observation and mind-mapping), this theme emerges from 26 coding references. Because of recurrence and consistency, I recognise this theme as an important one. Examples of experiential problem are shown in Table 4.2. Therefore, I claim that one's own experience of discomfort or difficulty surfaces unmet customer needs.

In an interview context, participants reconstructed their experience as a discomfort or difficulty in performing an action. They used first-person expressions to describe their own discomfort or difficulty in certain situations: *'We're suffering...'*, *'I managed to find gigs...'*, *'I find it very difficult...'*, *'I don't wanna spend time waiting in the queue...'*, *'... the element of frustration which I'm not happy about...'*. These first-

person expressions of discomfort or difficulty signify one's own negative rousing effect on experienced phenomena, such as music tours, sport betting, and so on. I refer to their experience of discomfort or difficulty as an 'experiential problem'. I define the term experiential problem as one's own experience of discomfort or difficulty that arises from his/her first-hand completed action. Considering the strength of this theme, from multiple data sources, I strongly claim that an experiential problem activates the awareness of customer needs. In other words, an experiential problem heightens demand-driven situational awareness. To illustrate this, below, I present participant A's interview excerpts as representative of other participants' experiential problem:

Let me tell you where my idea is coming from, at least from my side. Alessandro will tell you another side, but I can tell you mine. So, when I was 18, I just finished high school, and I had a band in Italy. We decided that we wanted to try and play around. My Space was still bigger that time. So, **I managed to find the band** that had around same place as we had, same views, yeah!, as us, in Amsterdam. So, I talked to them and say, "hey guys if we rent a band, can you find us couple of gigs in Netherland?" So, they actually found us couple of gigs in Netherland. So, we rented a band, went up there, then did couple of gigs. [sic]

....So, I've done this tour, yeah! from Italy. **I managed to book two gigs** in the Netherlands. **Nobody, without promoters or agency, manage to find gigs outside their own countries.** So, that is something very surprising to musicians. That's where the idea comes from. [sic]

Participant A above describes his first live music band performance arrangement experience in an international context. In the description, he constructs music arrangement as a difficult task, based on his experience. His expressions: '*I managed to find the band...*', '*I managed to book two gigs*', highlights inconveniences in organising music performances. Through the process of arranging and performing live music, participant A had become aware of the role of intermediaries in music performance arrangements. Such intermediaries are promoters and agencies. Based on A's personal experience, he constructs promoters and agencies as a barrier to musicians' international mobility for live music performance. He states this as problem: '*nobody, without promoters or an agency, manages to find gigs outside their own countries. So that's something surprising to musicians*'. As a musician, participant A finds his experiential

problem significant, because he can relate it to musicians. His music tour experience makes him conscious of musicians' need: an alternative new method for the arrangement of bands' music performances that supersedes the existing one. Thus, his experiential problem heightens his demand-driven situational awareness.

Quotations from interview excerpts	Category
<p>'I know myself, because I had like I had treatments... and I always look for good practitioners' treatment, whatever, it's always been quite difficult. I have been so many different treatments...at work. really not good and then even weeks and weeks gone, this wasn't given me any benefit'. (Participant S)</p>	EXPERIENTIAL PROBLEM
<p>'Excel is fine, but it's not as efficient as we would like to be and it's not as user friendly as we would like to be and then it does not provide enough analytical tools for people who are not actually genius, because for like if you want to use in excel you have to know how to code the rule, you have to know the formula. It's not like for.... So, we would like to proceed that this old process'. (Participant B)</p>	
<p>'So... I've done this tour yeah! from Italy, I manage to book two gigs in the Netherlands. Nobody, without promoters and agency, manage to find gigs outside their own country. So, there is something that is surprising to musician'. (Participant A)</p>	
<p>'...So, it's like a took the dental course, because dental school was for appealing like dental... [I] finished dental school. So, it's kind of introduction level for students. I found out we are suffering; my course was not so great. I didn't like the traditional methods. I didn't like kind of many, many things you know; I saw pain of students. It feels like if I create something that will pass my knowledge to younger students which now at the moment studying. That was the idea of helping...'. (Participant C)</p>	
<p>'Ah. in time. A few months ago, and it's sort of my career get in the boundary corporate sort of highlight it. So, over the last six months or so I've been involved in political groups um... and sort of experience from the insights. I guess the element of frustration for me personally which I am not happy with that and I guess the idea was looking to address the sort of</p>	

<p>frustration... The organisational capabilities, these groups that I've been involved in and also not just intra organisation, but just inter-organisation, so across the other groups. So that's what I am looking into kind of address'. (Participant D)</p>	
<p>'I used to come to London, I live outside of London. Umm... but because it takes so long to back home, when I decide to go up my friends, I don't wanna be spend time, you know, waiting in a queue rather than sat there with them and having done survey around the area a lot of people thought the same way umm... that queuing is actually a problem in the UK and it wastes millions a year'. (Participant K)</p>	

Table 4.2 Category representative data

Participants' experiential problems became significant when they found a relational connection between their experienced problem and their social world context. Because of the relatedness, they considered their own problems as the problems of their social group. Thus, social groups emerged as potential customers and their needs became customer needs. Participants' accounts reveal that they related their experiential problem to their social world context in one or a combination of the following: (a) embedding the problem in a social environment; and (b) representing own problems as the problem of a social group.

(a) Embedding problem in a social environment. Data suggest that participants' experiential problems occurred in their respective social environment. Their social environment comprised people, places, or organisations. They believed that their social environment lacks sophisticated internet technology, which causes their experiential problems. Such beliefs suggest a grand level discourse: 'technology makes life better'. Below, I present D's interview excerpts as representative to explain this:

Yeah, ok so ..umm...the problem was going to solve... **I believe there are insufficient tools online**, and I support people to organise themselves effectively in a **political context**. And there are platforms, existing platforms, platforms, which are marginal, general and broad such as FACEBOOK, TWITTER and there are other platforms, which are bolted down to that which existed, and **all of them don't really address the issue I feel like I can see, and I am looking for ... so.** [*sic*]

Participant D is a political and social activist. he above presents himself as a campaign co-ordinator. Here, he believes that his campaign co-ordination is not effective because of a lack of appropriate internet technological tools for it. Despite using the word ‘insufficient tool’, his evaluation of general and specialist social media platforms signifies their shortcomings rather than insufficiency. His logic about the use of internet technology implies that his social environment lacks the appropriate internet technology that causes the problem. Like other participants, he uses the first-person expression, ‘I’, when describing his subjective experience of his social environment – political context.

(b) Representing own problems as the problem of a social group. In the experiential problem category, all participants related their experiential problems to their social group/reference group. A social/reference group is referred to those groups of people who share common interests or passions in particular things. In the data set, these groups of people are musicians, bettors, dental students, and political activists. Participants actively presented themselves as a member of their social group. Expressions such as ‘*I’m a musician...*’, ‘*I’m a gambler...*’ depicts one’s own social identity. Because of social identity, participants related their experiential problem to their social group. Thus, they became aware of the need of social groups. This finding illuminates the role of social identity as an experience connector. I note that some participants were more concerned about their social/reference group than others. Their concern is captured by the number of times they relate their problems to their social groups. For example, participant A presented his problem as *musicians’ problems* more than 15 times during the interview. However, the common theme is that, because of social identity, participants relate their experiential problems as the problems of their social group or reference group. Thus, one’s own experiential problem becomes significant. Therefore, I claim that participants become consciously aware of their social group’s needs when they relate their problems to their respective social/reference group. Below, I present participant B’s interview excerpt as representative in supporting my claim:

We.. me and my business partner Salvomir, which I apologise he's not part of this interview, but he is working right now. We came up with the idea [product] as **we are currently professional gamblers. We've been doing gambling over two years, and the idea of creating product from our personal needs.** If we have that product, we would have been way more **time efficient**, then we

would be way more **analytical** than what we are right now. So, if we can create something **that will fulfil our needs**. And if that's something that doesn't exist on the market, that means all the **people's similar class they have to need that product**. So, we can easily sell it to them. [sic]

Participant B above presents himself, and his partner, as professional gamblers. His years of gambling experience demonstrate his association with other gamblers. His description illuminates the role of social representation. He relates his own need to his social group. His expressions: '*... people similar class they have to need that product*' signifies his understanding of own his own reference group's need. A social representative, such as professional gambler, only represents the needs of professional, not amateur, bettors, who track and analyse bets.

The above section demonstrates that participants become aware of customers' needs when their experiential problem relates to the context of their social world (i.e. social environment and social group). In the following section, I present findings on another category of participants who became aware of customer needs or potential product by perceiving gap.

4.3.2 Awareness of perceived gap

More than half of the lead participants' accounts reveal that they became aware of either demand- or supply-driven situations by perceiving a gap in the market. In this category, except one, participants' perceived gaps represented supply-driven situations. In other words, most participants were aware of potential products, but speculated the market need of those products. The theme 'awareness of perceived gap' is captured from 26 coding references from multiple data sources. I define 'perceived gap' as the perceived potential for new products or a perceived market need. Participants' accounts reveal that they became aware of either potential products or market need when they found a relatedness of their experienced phenomena to their prior knowledge. The experienced phenomena are an under-served market, rising trends in demography, market, and life-style. The relatedness triggers prior knowledge in the following areas: cross-cultural, market, and specialist education (Figure 4.5). Therefore, I claim that participants perceive gaps when they find a relational connection between their experienced phenomena and their prior knowledge (cross-cultural, market, and education).

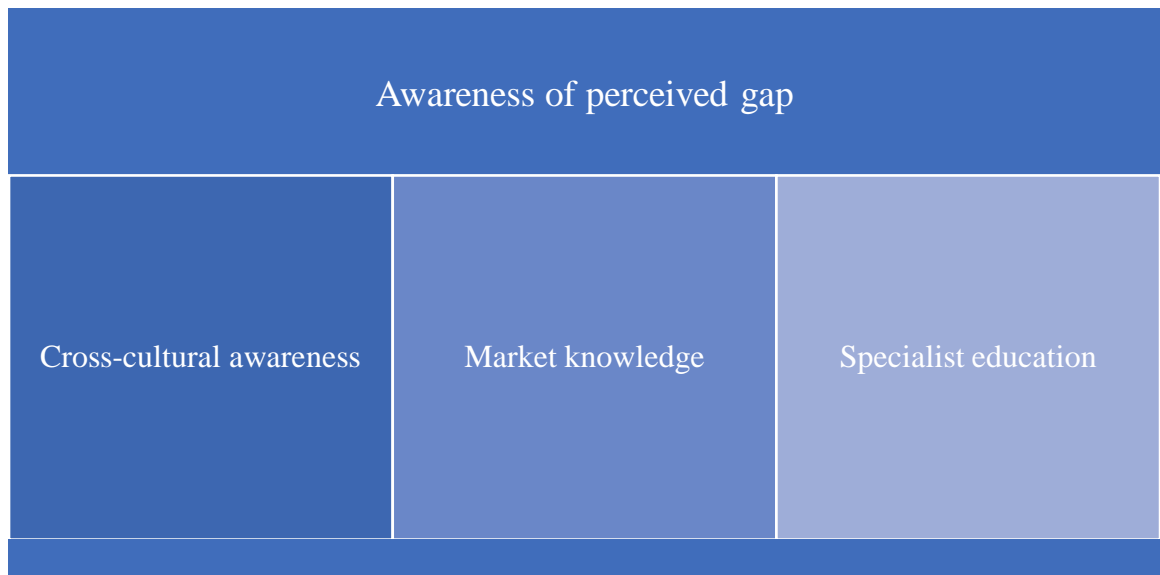


Figure 4.5 Participants different dimensions of knowledge affect awareness of gap

(a) **Cross-cultural knowledge.** Three lead participants' interview accounts reveal that they became aware of potential products because of their cross-cultural knowledge. This theme is also noticeable in participant observation data. Cross-cultural knowledge is an emergent construct from data. It refers to the awareness of similarities and/or difference on certain things between two countries/cultures. Participants perceived a gap for potential products when they compared certain things between their adoptive and reference countries: demographics of certain ethnicity, cultural habit, and market. Participant accounts further reveal that they adopted a successful product idea from the reference country and speculated its marketability to their adoptive country. Figure 4.6 illustrates participants' cross-cultural awareness. Reference country refers to the country from which participants adopted the product idea. Adoptive country refers to participants' country of residence, in which they perceive the gap for a product. Cultural upbringing or market familiarity provide such an advantage.

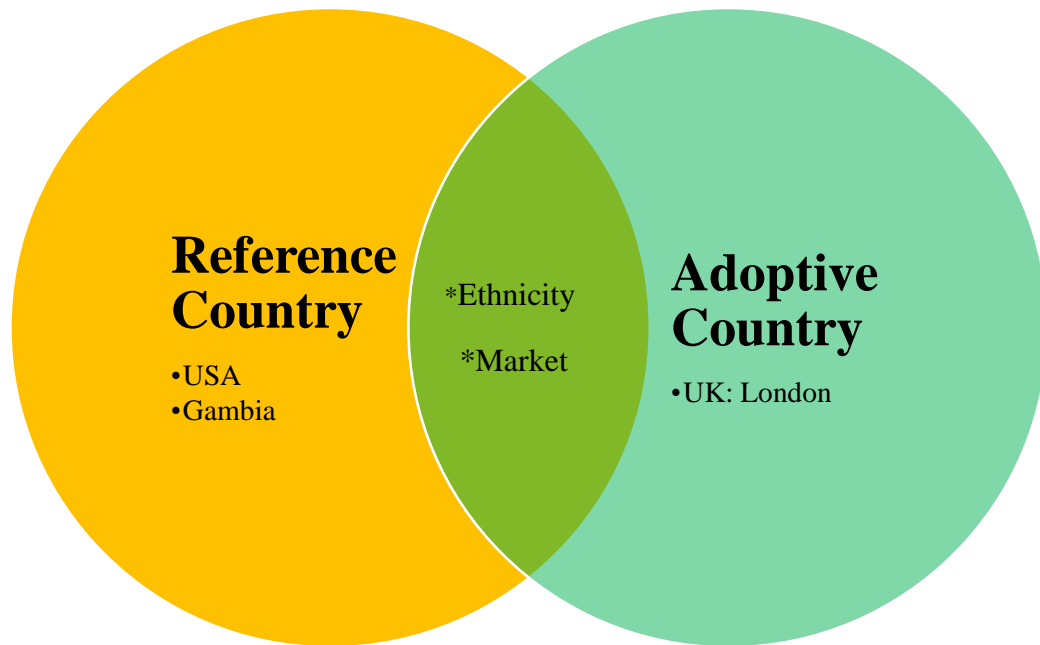


Figure 4.6 Participants' cross-cultural awareness

Participants’ cross-cultural awareness was triggered when they perceived trends in their own ethnicity, personal life-styles, and market in the adoptive country. They related the area of perceived trends to their reference country. This led them to scan for those products that are absent or scarce in the adoptive country, with the potential to serve rising trends in demographics, life-styles, and the market. I note that they introduced products that they had been closely related to. Therefore, I claim that some participants are aware of potential products based on their cross-cultural awareness. Below I present participant N’s interview excerpt as representative in supporting my claim:

My business idea umm.. so, we have pies American influenced dessert and pies. **We are two Americans living in London**, and we are kind of seeing that there is a rising, like, American food scene as well as other cultures and backgrounds you know this is like Malcolm Roberts – everything comes to life. And, also there is an **increase in American food cultures that's been growing in the last couple of years**. There is **one thing missing from the American market** and that was **our version of sweets, desserts, and pies what we consider a staple**. Umm so... pie is staple in America, yeah. Like any.. any like dinner that serves dinners always, always pie served, it’s a summer tradition, holiday tradition, that’s sort of thing. So that's where we... that's where we started and that's like what we are doing right now. [sic]

Participant N above presents herself as an American expat residing in London. Here, she establishes the US (America) as her reference country and UK (London) as her adoptive country. Her cross-cultural awareness is triggered by the rising trends of food culture, especially American. Having the reference country's (America) cultural knowledge, N can make a comparison with her adoptive country's (London) food market and find a gap for the new product. This comparability is reflected through her statement: *'there is one thing missing in the American market that is our version of sweets, pies and desserts'*. Her expression: *'our version of sweets, pies and desserts'* signifies her dominant American food-culture knowledge.

(b) Market knowledge. One participant was aware of market needs based on his market knowledge. His interaction with the market as a buyer made him aware of market inefficiency. Here, market inefficiency refers to an under-served market that lacks the capacity to serve buyers. Since the participant was related to the underserved market as a buyer, he perceived the need for enhanced service as a solution. Below, I present participant M's interview excerpts to explain this:

So, I saw also... I went for, apart from being bike enthusiast or into cycling, I also went for this idea, because **I also spotted that there is a gap in the market** as well. So, **the gap being arisen such an incomplete market place for cycling**. So, umm.. there isn't really such... **there is few... actually specially cycling market place** in the UK here, but **they are only and mainly focusing on bikes** whereas I wanted to create something which will really... absolutely cover and really put everything **for cycling** on one place like under one roof. This is in terms of huge range like a vast range category cycling...like a cycling related category starting from bikes to accessories to components, parts, books even for cycling. There is category for arts, crafts,...as well. Cycling activities and training courses, holidays and everything to do really with cycling so it's not only bikes and bikes accessories... [sic]

Participant M depicts his awareness of the cycle market gap. His awareness indicates a demand-driven situation. His description of the current market as an 'incomplete market place' and 'few market places', implies that there is an opportunity for creating a new market place as well as adding additional features within it. His awareness of the gap reflects his market experience as a regular buyer.

(c) Specialist Education. Three participants' interview accounts reveal that they

were aware of potential products because of their specialist education. These participants perceived a gap when they found the relatedness of their education to their experienced trend of jewellery market growth, rise of vegan cosmetics, and the application of virtual reality games. Below I present participant T's interview excerpt as representative of others:

Umm... I've always been interested in making things and **that probably shows a kind of chemistry side as well as formulation**, and I also just throughout my whole life **I've always been interested** in looking at like ingredients ...on products, on food or and ...confused by how many ingredients and certain things and **what they do** and **what they are in for** ...so in that for. And then that kind of takes me along the line kind of umm...**trusting these companies [cosmetics]** as well. [*sic*]

Participant T relates his interest in making things to his chemistry education. His interest and curiosity over ingredients' roles and functions reveals how a chemist perceives his world. Because of his specialised education (chemistry), he realises that he can create a product that may appear to be a better alternative of current product offered by established companies.

The above findings have shown that participants become aware of customer needs and potential products through their experiential problems and perceived gaps. Their awareness is heightened when they find relatedness of their experienced phenomena to their social group and cultural, educational, and market knowledge. Despite the awareness of customer needs and potential products, participants do not perceive them as opportunities. The process of an opportunity-awareness pattern suggests entrepreneurial intention as an emergent behavioural determinant. It plays a critical role in translating situational awareness (demand- and supply-driven) into opportunity awareness. I present these findings in the following section.

4.4 Entrepreneurial intention as part of opportunity awareness

In the data set, most participants demonstrated a strong desire to start their own businesses. I further note that their desire to start businesses emerged from the need for self-employment. They perceived starting their own business as a mean to create their own employment. This represents a desired expectation that participants intend to fulfil – making oneself employed by establishing business. I call this desired expectation

‘entrepreneurial intention’. I define entrepreneurial intention as one’s own desired expectation that s/he intends to fulfil. All participants’ entrepreneurial intention is related to their self-employment career choice. This theme is derived from 35 coding references from interview transcripts. Based on this, I claim that the self-employment career choice drives entrepreneurial intention. Participants used various expressions that demonstrate their entrepreneurial intention: ‘*to become own boss...*’, ‘*to be entrepreneurs...*’. Below, I present participant N’s interview excerpts to explain this:

Yeah! That's been like Whitney... Whitney and I..., we are just... **we want to be in charge of our own lives really**. So, after the time you just kind of go along with this thing because **it's just what we kind of programme to do**. Umm ... and there is nothing wrong with that I just go to the point where I was like **sick of feeling like I wasn't the one in control of my life**, so I've done something, Whitney's done something to take that stuff, to **become our own boss, do something for ourselves** and this is it... [*sic*]

In the above interview excerpt, participant N reveals her need for an autonomous life. She perceives self-employment as a mean to regain the ownership of her life. This leads her to consider a business start-up as a self-employment career option. Like N, most participants related personal freedom to a self-employment career option.

Participant accounts further reveal the influence of intention on their perception. Below I present these findings.

4.4.1 The influence of intention on opportunity-perception

Having developed entrepreneurial intent, all participants translated their previous ‘situational awareness’ (demand- or supply-driven) into ‘opportunity awareness’. Participants were previously aware of situations (demand- and supply-driven) as their experiential problem or perceived gap, but, later, they perceived those situations as opportunities. I recognised this as a change in perception. This sudden change in perception was triggered by their intention. This is a retrospective effect of entrepreneurial intention. It confirms that entrepreneurial intention did not lead participants to search for new opportunities, but it modified their perception from situational awareness to opportunity awareness. When participants became aware of opportunities, they formed assumptions and beliefs about the products that have the possibilities to satisfy customer needs, and vice-versa. I referred to their belief or

assumptions as ‘opportunity ideas’. Below, I present participant A’s interview excerpt to explain this:

I really didn’t have the platform going app [*sic*]. That is the main idea. **In the beginning when I was 18, I didn’t care about making money.** I didn’t have that platform, and I wanted to have it. So that is the main idea. It is a poo that’s not out there, and people [musicians] need it. [*sic*]

Participant A above reveals his prior perception on his current opportunity idea that is a product for his identified need. Almost seven years ago (from the date of interview), he did not consider it as opportunity idea for business. His expression clarifies this: ‘...when I was 18, I didn’t care about money’. His desire to create his own music arrangement platform for musicians signifies his passion for live music. At the age of 18, he perceived the idea for a platform as a solution to his experiential problem rather than as a commercial product. During my interview, participant A was 25 years old. The longevity of his situational awareness indicates that he did not previously consider starting his own business. During my mind-mapping (another data collection method), A reveals the change in his perception:

A: London’s start-up scene made me go back to my initial idea.

Participant A has now re-considered his idea’s commercial viability based on the start-up scenario in London. Since he has developed an intention to start a business, London becomes an attractive place for doing business. This is a retrospective effect on his perception. This pattern is noticeable in majority of participants. Therefore, I strongly claim that intention modifies and shapes perception, which in turn raises opportunity awareness.

Participant accounts further explain the change in their perceptions of opportunity. I note a match between their perceived opportunity and their passions or interests. During the interview, most participants explicitly related their passions or interests to their business opportunities. When they developed entrepreneurial intent, they turned their passion or interest into business opportunity. They became aware of opportunity, not because they were aware of a need or product, but they found those unmet needs or products within the context of their passion. Below, I present participant M’s interview excerpts to explain this:

Just for... just... I don't know I... So basically, I guess I wanted to really get involved in online or internet kind of like business in here. So, it's like I just trying to figure out what exactly **I really will be really passionate about and want to do**. So, I guess a few things may be come together like ... **I like cycling**. Cycling is growing in the UK, like really a lot, constantly, especially with more and more strategies implemented to encourage cycling. [sic]

Participant M explains that his intention to start business led him to look for opportunities in the area of his passion. He presents cycling as one of his passions. Since, M is aware of the cycle market gap, as I mentioned earlier, he perceives this as a potential opportunity.

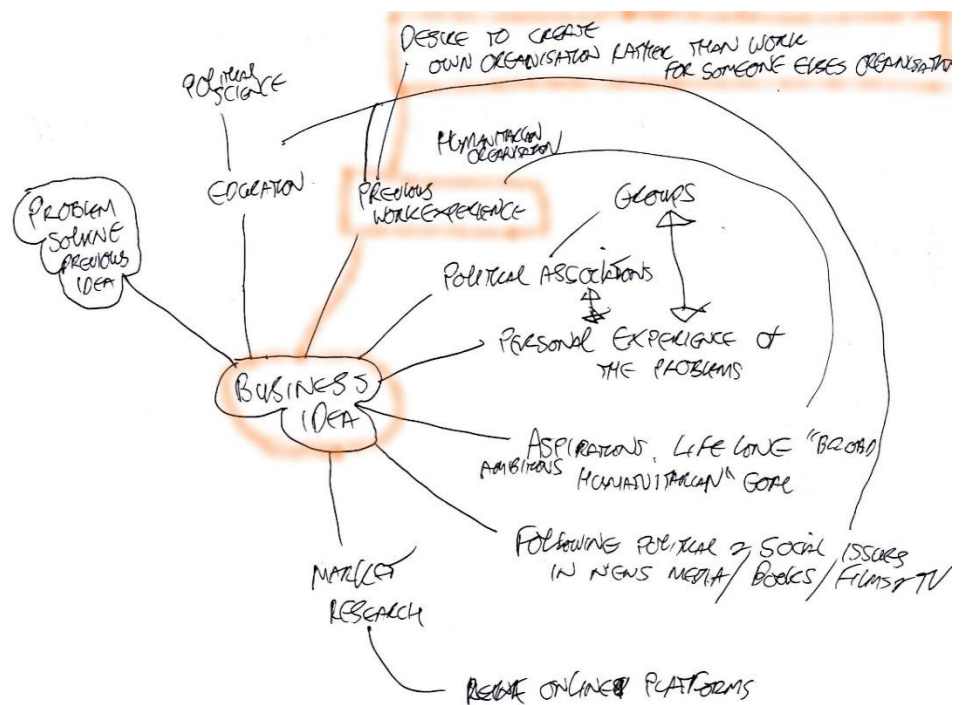
I turn now to the self-employment career path that raises participants' entrepreneurial intentions. Participants revealed employment uncertainty as a driving factor behind their self-employment career option. Below, I present the constituent factors of employment uncertainty and explain how they influence career choice.

4.4.2 Employment uncertainty as a driving factor

Across data sets, participants demonstrated a strong negative perception of their current or prospective employment. Their subjective experience with current employment and negative speculation about future employment led them to perceive employment uncertainty. I define employment uncertainty as one's own negative perception of his/her current or future employment. Because of perceived employment, participants followed the career option for self-employment. Most participants expressed a negative rousing affect (i.e. dissatisfaction) regarding their current employment or prospective employment. Below, I present participant D's interview excerpts to illustrate this:

Umm... I guess a number of things probably. Umm... I guess **frustrated**, I mean I was looking at myself umm...as I was approaching sort of you know I am at the age of 30...31 at the moment so I was going through I guess existential crisis through some descriptions and also examining where I am; what I am doing with my life. **I think a real great dissatisfaction from the work I was doing I never had done and that was something which probably...** The **idea itself came through a process, wanting to start a business**, umm... think what **I wanted to do, just start my business...** [sic]

In this interview excerpt, participant D highlights his work dissatisfaction to express his negative perception on working for others. Like many other participants, he also relates the influence of employment on his personal life circumstances. Starting one's own business is perceived as a mean to create one's own identity and stability as well as freedom from others [employers]. Employment uncertainty is a very important theme. Some participants included their employment uncertainty in their mind-mapping (another data collection method). During participant D's mind-mapping, he demonstrates his reluctance to work for others: 'desire to create own organisation rather than work for someone else organisations' (Figure 4.7).



Daniel's mind map.
Date: 05/07/2016

Mikhael

Figure 4.7 Participant D's Mind Map

Participants depicted three main factors as the cause of their employment uncertainty. These factors are: (a) lack of autonomy and creativity; (b) low income; and (c) job-search difficulty. These factors constitute employment uncertainty (Figure 4.8). Data suggest that these factors are individually and/or jointly responsible for the cause employment uncertainty. Below I present these findings.

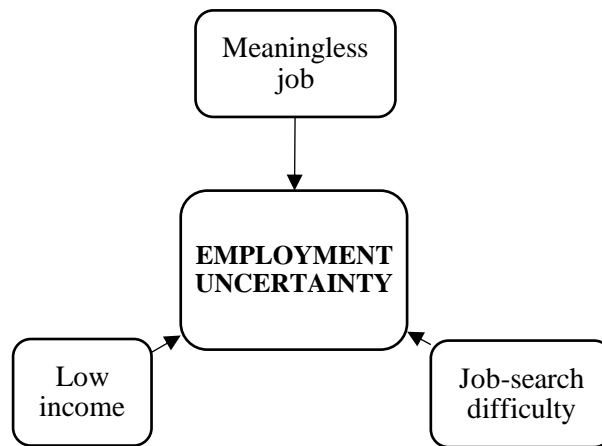


Figure 4.8 Factors affecting employment uncertainty

(a) **Lack of autonomy and creativity.** In the data set, it emerges that participants perceived their job as meaningless because they suffered a lack of autonomy and creativity within their current employment. Lack of autonomy and creativity is one’s own subjective experience. However, these are more conspicuous to creative people than others. Most of my participants’ backgrounds show that they are creative people: architect, craftsperson, musician, humanitarian activist. Below, I present participant G’s interview excerpts as representative of others:

I never sort of planned to work for someone for the rest of my life, because that just sounds like **not making the most of what I have**...It seems a little bit **futile** to me and I always feel that way. Umm.. as soon as I decided I want to be a jewellery designer, it was always my idea to do it for myself. And then in fact, it feels like I work for someone else (Laughter). [sic]

Participant G shows her reluctance to work for others. She contends that employment restricts her from reaching her full potential. Working for others is perceived as ‘*futile*’. During the mind-mapping, participant G again showed her reluctance to work for others by expressing: ‘*I’m bored at work*’, ‘*I miss not being creative*’, ‘*imagine having to work for someone else again*’. Here, expressions such as ‘bored’ and ‘not being creative’ implies that participant G views her job as meaningless.

(b) **Low income.** Income is a significant factor of employment. Most participants highlighted that they rely on employment income to fulfil their basic needs. This suggests that participants’ income is significantly low. They depicted their income

as: *a safety net, much needed, and a necessity of life*. Below, I present participant D's interview excerpts to explain this:

Umm...I would say ideally like I say probably work on it. Umm ... I guess the conflict for me is **having an income alongside because that is necessity of life** and I would say working with assumptions at work 60 hours a week that includes paid employment so there 40 hours if I was to achieve ... find way of actually making more **you know sustaining some sort of income from the business**, then you know I apply that 60 hours to the business. [*sic*]

Participant D highlights the necessity of having regular income as life support. He explains that if he can generate income from his business, he will be able to quit his current employment. Like many others, participant D considers sustainable income from a prospective business.

(c) **Job-search difficulty**. For some participants, job-search difficulty was responsible for employment uncertainty. They expressed their concern about finding a graduate-level job. Their job-search difficulty made current and prospective employment less attractive. Below, I present participant T's interview excerpt to explain this:

...an undergraduate student who is just kind of looking for work experience, they can't get experience because they haven't already got the experience so it's kind of I am very much for.... I mean it's kind of very attractive to me for being an inspiration...I mean other people coming out of uni [university] and being kind of motivated and tell you can do this, **you don't have to be like years of age, have work experience, you can do yourself and learn yourself**. Umm and use that as work experience if you need in future....yeah I just looked to be kind of aspiring character for the people... [*sic*]

Participant T highlights his struggle for getting a graduate-level job through the description of other undergraduates. At his age, work experience appears to be an important factor for securing degree-related employment. He projects himself as an aspiring character for those university graduates who have difficulty in getting into employment. Here, he perceives business start-ups as an alternative career option for prospective job seekers.

In the above, we have seen the three constituting factors of employment uncertainty. These factors individually and/or jointly drive participants onto a self-employment career path. As a result, they intend starting their own business.

4.5 Summary

The above findings have revealed the process by which nascent entrepreneurs become aware of opportunities. The findings have shown that opportunities comprise two kind of situations: demand-driven and supply-driven situations. In demand-driven situations, participants are aware of unmet customer needs upon which they conceive product ideas. Conversely, in supply-driven situations, participants are aware of a potential product, but speculate their market needs. Customer needs and potential products are inconspicuous and socially situated. Participants become aware of them through their experiential problems and perceived gap. However, findings have revealed that the awareness of customer needs and potential products exist as recurrent phenomena in the mind of participants. When they developed an intention to start a business, they translated their awareness of customer needs and products into opportunity awareness. The awareness of opportunities exist in the form of opportunity ideas within participants. Based on this chapter's findings, I claim that opportunity awareness represents either demand- or supply-driven opportunities.

Participants initiate the search process within their social sources to test the veracity of their opportunity idea. In the next chapter, I present the findings on participants' opportunity-search behaviour.

Chapter 5 Findings: Opportunity search

In the preceding chapter, my study findings have shown the process by which participants become aware of demand- and supply-driven opportunities. The findings have revealed how participants constructed opportunity meaning in particular situational context. They formed a belief based on their opportunity awareness, which I refer to as 'opportunity idea'. However, their accounts further reveal that their opportunity awareness manifested in their opportunity search behaviour. During the search process, they tested the veracity of their opportunity ideas. In this chapter, I present findings on opportunity search process. Opportunity search emerges and qualifies as a second empirical component of opportunity recognition.

The chapter is structured according to the findings of opportunity search process. The ordered sections show a thematic representation of opportunity search process. Section 5.1 shows opportunity search as a reactive behavioural response. In this section, findings reveal social network as main source in which participants tested veracity of their opportunity idea and searched opportunity-related information. Section 5.2 reveals participants' emotional attachment to their opportunities, which I call 'opportunity attachment'. This section reveals two dimensions of opportunity attachment: insecure attachment (protectiveness) and secure attachment (openness). I refer to these dimensions as 'opportunity-attachment orientations'. Section 5.3 findings show the influence of opportunity attachment orientations on social network reliance. This section also presents the effect of social network reliance on opportunity recognition.

5.1 Opportunity search in information

Subsequent to opportunity awareness, all participants (100%) demonstrated opportunity-related information-seeking behaviour across data set. Such behavioural pattern is consistent and recurrent across participants. The consistency in information seeking behaviour makes this theme equally important as opportunity awareness. In this chapter, I refer to this theme as "opportunity search". Opportunity search is a deliberate conscious behavioural action. I define opportunity search as participants' deliberate conscious action through which they make sense of opportunities from various sources. Making sense of opportunities involves testing the veracity of opportunity ideas as well as extrapolating, searching and interpreting information. The nature of search reveals it as a reactive behavioural response. Participants did not proactively search for opportunities rather they became sensitive to information when they were aware of

opportunities. Their opportunity search proceeds from opportunity awareness. This reactive behavioural response is wide-spread across the data set. There was not any single participant that demonstrated any exceptional behaviour in terms of opportunity search. All participants deliberately searched for information in order to: confirm and/or clarify their demand- and supply-driven opportunity awareness. Therefore, I claim that opportunity search is a reactive behavioural response which begins after opportunity awareness.

Opportunity search varies, according to opportunity awareness. Participants who were aware of customer needs searched for products that would satisfy those needs. On the other hand, participants who were aware of potential products searched for customers/market demand. In other words, demand-driven opportunity participants searched for possible product and/or product features, and supply-driven opportunity participants searched for customer/market demand for their products (Figure 5.1). However, this specific information search is not static. Participants searched different information as they progressed through, and were influenced by, social networks. I present these findings in the following sections.

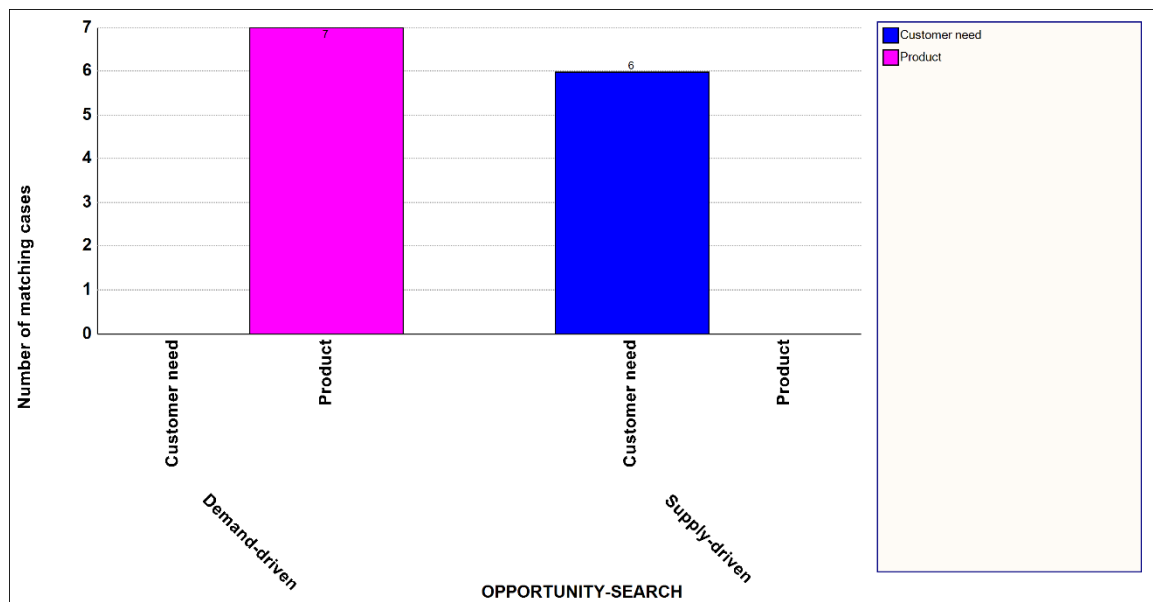


Figure 5.1 Opportunity search according to opportunity awareness

In the previous chapter, my findings demonstrated that opportunity awareness is a single person interpretation. Unlike opportunity awareness, opportunity search is a co-operative activity. Lead participants brought together others (fellow entrepreneurs, incubator managers, market actors, and many others) to jointly search and interpret for

opportunity-related information. Information and its subsequent interpretation were essential to understand and construct previously experienced phenomena (i.e. customer needs or potential products) as opportunities. I noticed that participants relied on various social sources for information. Their reliance on social sources and search pattern revealed opportunities as a socially constructed phenomenon. Below, I present these findings.

5.1.1 Reliance on social network

A social source emerged as the main information source in which all participants searched for opportunity-related information. It is consisted of people and organisations. Social-source reliance is a dominant theme across the data set. All participants (100%) actively relied on social actors to confirm, clarify, and develop their opportunity ideas into opportunities. At first, it appears that they turned to random people. Structural coding on their search pattern reveals a hierarchical structure of social-source reliance (Figure 5.2). This hierarchical structure depicts subsequent reliance. It also reveals participants relational aspect with network actors. Social network reliance starts with strong social ties and then extends to weak or no social ties. Below, I further elaborate these findings.

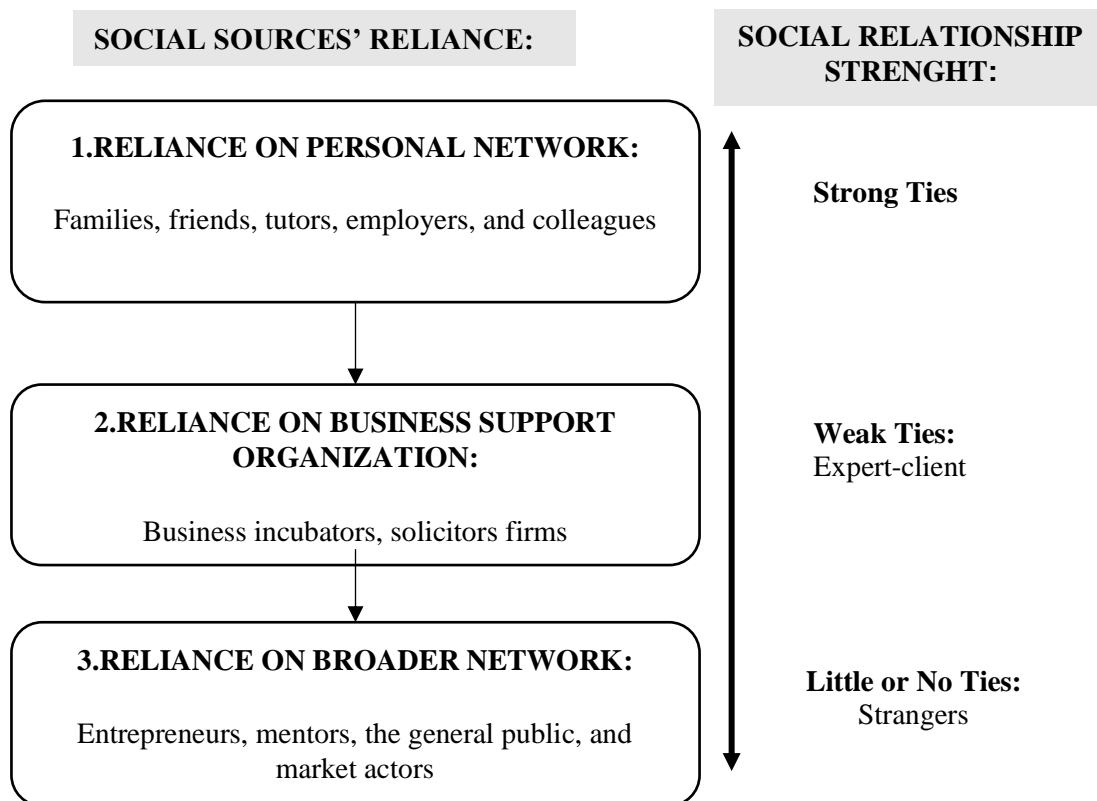


Figure 5.2 Participants' subsequent social-network reliance (data-driven model)

First, participants turned to those people with whom they have strong social ties. These people were family members, friends, tutors, employers, and colleagues. Symbols, such as friends and family, denote deep social relationships or informal social ties. I call them a personal network. A personal network consists of people with whom one has strong social ties or relations. The reliance on a personal network as a first information source is consistent across data sets. Second, participants turned to those people with whom they have formal social relationships, such as the expert-client relationship. These people were the representatives of different organisations: business incubators, or solicitors firms. I call this a second social network 'business support organisation'. The reliance on a business support organisation as a second information source is consistent across the data set. Third, participants turned to those people with whom they have no prior social ties. These people were entrepreneurs, mentors, the general public, and market actors (customers, suppliers, and competitors). I call them a 'broader public network'. The reliance on a broader public network as a third information source is consistent across the data set. Based on these findings, I claim that social sources are a

vital information source. I also claim that participants prioritise their social-network reliance based on their social ties.

5.2 Opportunity attachment

Participants' social-network reliance, based on social relationships, reveals new insight into their emotions. It sheds light on emotional attachment to opportunities. Because of emotional attachment, participants extended their social network reliance from strong ties, to weak, to no ties at all. These findings are presented in the following sections.

All participants (100%) demonstrated strong emotional attachment to their opportunity ideas across data sets. This theme corroborates my field observation notes. During my field study, I observed and experienced participants' emotional attachment. Emotional attachment to opportunities became emergent through participants' recurrent behavioural actions: demonstrating protectiveness over, persistence to, devotion to, connectedness to, and sacrifice for an idea (Figure 5.3). I refer to such emotional attachment as opportunity attachment. I define opportunity attachment as emotional bond between individuals and their opportunity-ideas. I claim that opportunity attachment is a key factor of the opportunity-recognition process. Below, I present participant B's interview excerpt as representative of others to support my claim:

To be honest, **I really don't want to change my idea. I just want to make it work. I want to build the product.** Like the best-case scenario, **it's not to change the idea** which means we were right from the very beginning, but that doesn't mean that I am not flexible if I see that my idea is not right. **I am not gonna change it.** Of, course I am gonna change it, but before answering that question, I have to see whether my idea can be validated. If validate my idea successfully... our idea successfully, I am just gonna proceed to execution. **I don't expect to change the idea**, although I am open to change it if I see better opportunities. [*sic*]

Participant B demonstrates his close connectedness with his opportunity idea. He reveals his connectedness when I query his intention to give up the idea at the end of the entrepreneurship programme. His expressions: '*I don't want to change my idea...*', '*I want to make it work...*' signifies his strong connectedness with his idea. During the interview, this participant thought that I was acting as an agent of the incubator (see my reflective account on how my positionality influenced the knowledge production

process). He believed that the incubators employed me to determine participants' flexibility in changing their ideas. I noted such speculation across the participants. All of them made it clear that they participated in a business start-up not to change their ideas, but to make it work. Commonly held expressions: '*we want to make it: grow, bigger, stronger, work ...*', imply a parent-offspring metaphorical relationship. In that relationship, opportunity development is emphasised over abandonment.

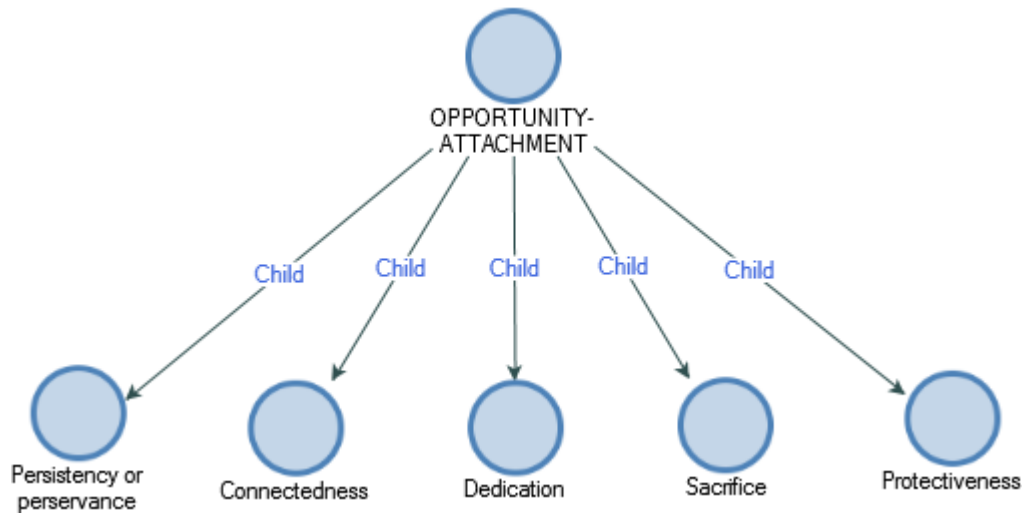


Figure 5.3 Key features of the opportunity-attachment theme

Attachment orientations. Social network reliance is a conscious behavioural action. The pattern of behavioural action reveals two dimensions of opportunity attachment: insecure and secure (Figure 5.4). Network members that appeared as a trustable source became a primary source of reliance. Participants considered those network members as a trustable source with whom they have strong informal, and formal, social ties. Personal networks (strong, informal social ties) and business support organisations (formal social ties) were considered as trusted sources. The main rationale of these social networks' reliance was to protect ideas from outsiders or to deter opportunistic behaviour. This makes strong social ties or relations (including expert-client relationship) more critical. All participants (100%) demonstrated a strong concern about losing their ideas to outsiders. Their avoidance attitude was consistent during my field study. Avoidance attitude signifies strong protectiveness over an idea. Their protectiveness suggests insecure opportunity attachment. Because of their insecurity over ideas, they perceived outsiders as 'idea poachers' (a person who steals others' ideas). Below, I present participant D's interview excerpt as representative of others to illustrate this:

Umm.... not a great deal. First time **I start speaking more about it, it's literally last week or so.** Umm.. I spoke to two or three people [**friends, family**] prior to that very in sort of limited amount. **The reason being I guess it sort of over protectiveness of the idea itself which I experienced which seem to be quite common.** [*sic*]

Participant D explains that, due to over protectiveness, he restricts himself in revealing his idea to others. He relies only on his personal network, friends, and family, to reveal his idea. In this interview excerpt, he recognises his over protectiveness as a common experience.

On the other hand, participants' reliance on broader public networks reveals their development of an open attitude. Their eagerness to reveal opportunities to outsiders is very exceptional. This indicates that they are no longer concerned about losing their ideas to others. This open attitude suggests another dimension of opportunity attachment: the openness. I refer to this theme as a secure opportunity attachment. Because of secure attachment, participants perceived outsiders as 'key informants' rather than a potential threat. I claim that participants' opportunity search behaviour is influenced by two-dimensional opportunity-attachment orientations: insecure and secure. Below, I present the findings on attachment orientations' influence on social network reliance.

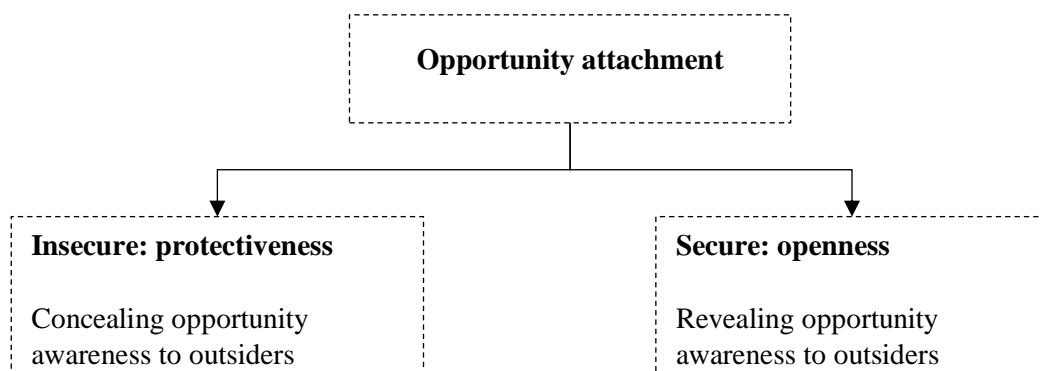


Figure 5.4 Participants' opportunity-attachment orientations (data-driven model)

5.3 Attachment orientations' influence on social network reliance

Opportunity attachment orientations drive specific social network reliance. I note that all participants were very protective over their ideas at the early stage of the search process. This insecure attachment led them to rely on personal and business networks as primary information sources. Reliance on business support organisations has an effect on participants. It brings a change in opportunity attachment orientations. Protective participants became open to reveal their opportunity idea to others. This secure attachment led them to rely on a broader network as a third information source. Social network reliance plays a critical role in opportunity recognition. It reinforces participants belief on their opportunity awareness. I claim that opportunity attachment orientation has an influence on social network reliance. I present these summarised findings in Figure 5.5. Based on this figure, I present these findings in the subsequent sections.

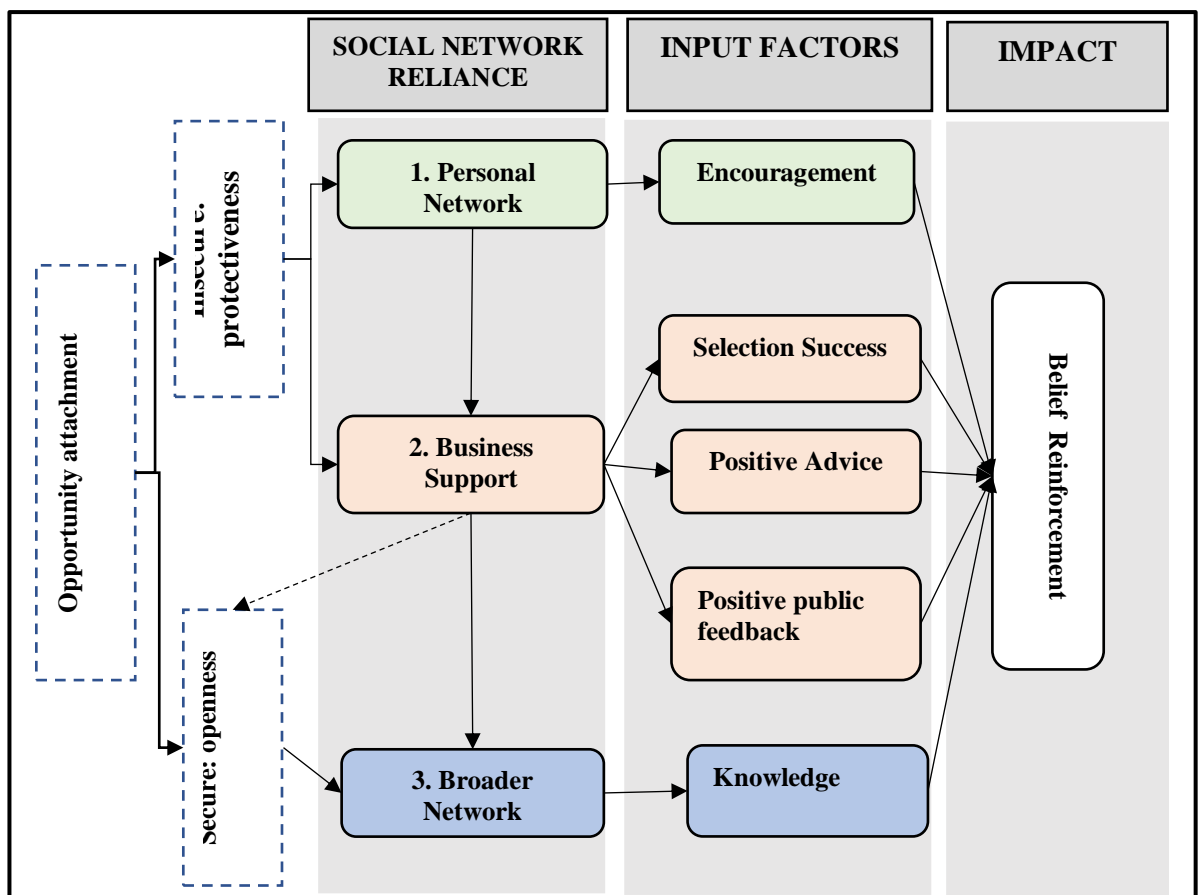


Figure 5.5 Opportunity attachment orientations' influence on social source reliance (data-driven model)

5.3.1 Insecure attachment's influence on the reliance of personal network and business support organisations

In the data set, all participants expressed their concern about losing their opportunity ideas. This was an initial emotional response after opportunity awareness. They perceived higher value in opportunities. They were concerned that others may enact an opportunity idea before them, if they became aware of it. This concern made them protective over their opportunity ideas. Because of this, they deliberately, and intentionally, avoided others who were unknown to them (including me). In other words, they avoided those with whom they had no established social ties. This particular behavioural response was very dominant across the data set. During my field study, I noted the regularity of such protective behaviour. Therefore, I claim that participants avoid outsiders because of their protectiveness over their opportunities. Below I present participant B's interview excerpt as representative of others to illustrate this:

Oh.. well, I mean I would like to do that, but this is something unrelated to what we are doing. I mean this is gonna be totally different business creating betting software plus I mean like the way we perceive gambling is like in house methodology that **we are not disclosing... as this is our intangible knowledge. I mean this is something we make money if I start disclosing it really, I think we will... we will expose ourselves to some kind of risk.** [*sic*]

Participant B demonstrates a strong protective attitude by refusing to describe his opportunity idea in detail. In an interview context, he perceives me (the interviewer) as a potential threat, since I am an outsider. This protective attitude exists because he perceives higher monetary value from his idea. His expression reveals the perceived monetary value: '*I mean this is something we make money from...*'.

However, participants' protective attitude has an influence on their social network reliance. Because of their protective attitude, they rely on people with whom they have strong informal social ties and formal expert-client relationships. I note their reliance on the following social network respectively: personal network (strong informal social ties) and business support organisations (formal expert-client relationship) (Figure 5.6). They consider these two social networks as trustable search mediums for opportunity-related information. Below I present these findings.

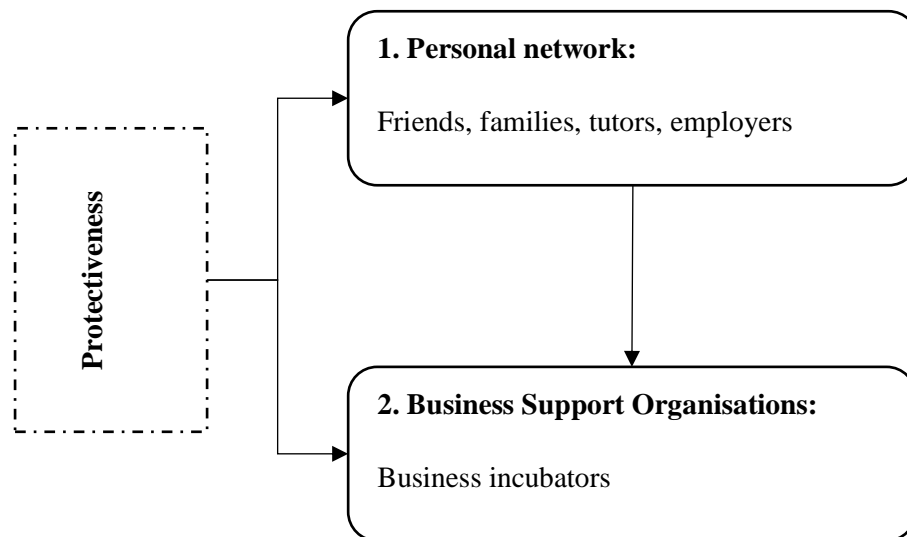


Figure 5.6 Insecure attachment's influence on social network reliance (data-driven)

5.3.1.1 Reliance on personal networks and its impact

The reliance on personal network as a first information source is consistent across data sets. Network members include family members, friends, tutors, employers, and colleagues. I define a personal network as the network of people with whom one has strong informal social ties or a deep social relationship. Data further reveals that they rely on personal networks to minimise the exposure of their opportunity ideas to outsiders. This protective attitude is a recurrent theme across the data set. Therefore, I claim that, because of protectiveness over opportunity, participants rely on personal networks as the first and foremost information source. Below, I present participant S's interview excerpt as representative of others, to illustrate this:

Yeah, we recognise that **we don't let anyone to get this idea, we realise it was such a good idea**. So, we just thought we gotta be protective about it. So, we only meant to like **very, very close persons such as my family** one each of us.... [*sic*]

Participant S explains the rationale for concealing his opportunity idea from outsiders. Because of perceived value of opportunity, he views outsiders as a potential threat. His protective attitude over opportunity denotes insecure opportunity attachment. Family

members are viewed as a trustable source for idea protection. The expression: ‘very, very close person, such as my family...’ implies strong informal social ties.

However, I noticed that participants turned to only like-minded and/or caring people within their personal network. They believed that like-minded or caring people would better understand their opportunity ideas than others. For some participants, like-minded people were friends, and for others, they were friends, tutors, and others. This selective reliance was irrational and purely driven by their insecure opportunity attachment. A protective individual would reveal his/her attached belongings to the person whom s/he cares the most about. However, I also note that participants proactively sought encouragement, support, and help from their network. This, in turn, reinforced their belief in their opportunity idea. Therefore, I claim that the reliance on like-minded people within personal networks reinforces their belief. Below, I present participant S’s interview excerpt to explain this:

I spoke to my **sister**. She has business development... she works for project management. So, I mentioned the whole idea to her, and **she couldn't tell me you know if there's any problem in it**. She just told me "*that's great, if you need help just tell me.*" **You know it's just all positive feedback.** [sic]

Participant S reveals his idea to a specific family member: his sister. The symbolic word ‘sister’ represents a deep social relationship. In addition, participant S’s occupational background in project management matches his sister’s occupation. The deep social relationship and the commonality of occupation indicate that both brother and sister are like-minded and caring toward each other. Moreover, a protective person would only reveal his idea to others whom s/he cares most. His expression: ‘*she couldn't tell me you know if there's any problem in it*’ implies a concrete acceptance from a caring person.

(a) **Belief reinforcement as consequence of confirmation bias.** Participants’ reliance on a like-minded person indicates that they consciously avoided those sceptics who might challenge their ideas. This is bias selection. It appears that participants created bias selection to facilitate successful social interaction. In other words, they sought acceptance, support, and encouragement from their personal network. Relying on selective network members to confirm pre-existing belief is a confirmation bias. This theme is heavily dominant across the data set. Because of selective search, participants

received only strong encouragement from network members. Encouragement from like-minded people is significant for participants. It reconfirms their pre-existing belief and boosts their motivation, which enables them to continue their opportunity development. Therefore, I claim that participants make confirmation bias because of their reliance on like-minded people. This, in turn, reinforces their previous opportunity idea. Below, I present participant A's interview excerpt as representative of others to explain this:

All of my friend are musicians. So, I simply talked to them; I told them what I did, and **they replied to me why didn't I do it.** So, 2+2 was like wow you didn't do, because there is not a platform that allows you to do that. So, let's just make a platform. [*sic*]

Participant A turns to musician friends to clarify his thoughts on his experienced problem. His expression '2+2' implies that friends' feedback confirms his previous conviction. In this excerpt, participant A demonstrates how his peer group's support reinforces his opportunity belief. As a musician, A's reliance on musician friends only produces reconfirmation and encouragement. Searching information to re-confirm pre-existing beliefs is a confirmation bias. Surprisingly, like many other participants, A did not report any discouragement from his peer group. The same patterns is noticeable in other participants.

5.3.1.2 *Reliance on business support organisations and its impact*

Subsequent to personal networks, all lead participants extended their network reliance to business support organisations. This makes business support organisations a second information source. Members include business incubators, solicitors firms, and other government-backed organisations. Participants' over protectiveness leads them to rely on this network. They perceived them as business development experts rather than as a potential threat. They relied on this network for idea development support service. The services of business support organisations are free or *pro bono*. This incentivised participants to rely on them. Below, I present participant S's interview excerpt as representative of others to illustrate this:

S: I mean the actual idea stays the same itself, the concept remains the same. So, it hasn't really changed, we just need to... we started approaching business development one way. Process we need to do: we need to register, we need to do all the legal things first. Umm... and then reached a point, we realised that

there are others factor we need to do. We realise that we notice this gap, so bit of information we needed to help our business up. Then we started to look for business help. So, **we contacted few organisations one is called Business Support Help Line and another one is called.... Spark. Then we joined other business for business advice and then this one is the best organisation to help us.** [*sic*]

Interviewer (me): You mean Accelerator?

S: Yeah!

Participant S clarifies that he relies on a business support organisation for business advice. In this interview excerpt, he depicts business support organisations as business development experts. The need for his idea development directs him to seek support from them than any other social network. His way of constructing an explanation suggests the business support organisation as a second information source.

Impact of reliance. The reliance on business support network, i.e. pre-incubator, has two major impacts: (a) it reinforces opportunity awareness; and (b) it brings a change in attachment orientations. Data reveal that three input factors: selection success, positive advice, and positive feedback strengthens participants' belief in their opportunity ideas. These three input factors emerged from pre-incubation components: selection process, internal business support service, and external business support service through mediation/network. The selection process promotes selection success bias, internal business support service promotes only positive advice, and external network mediated through public events promotes positive feedback and comments. These factors strengthen participants' pre-existing belief as well as bringing a change in attachment orientations (Figure 5.7). In the following subsections, I present these findings.

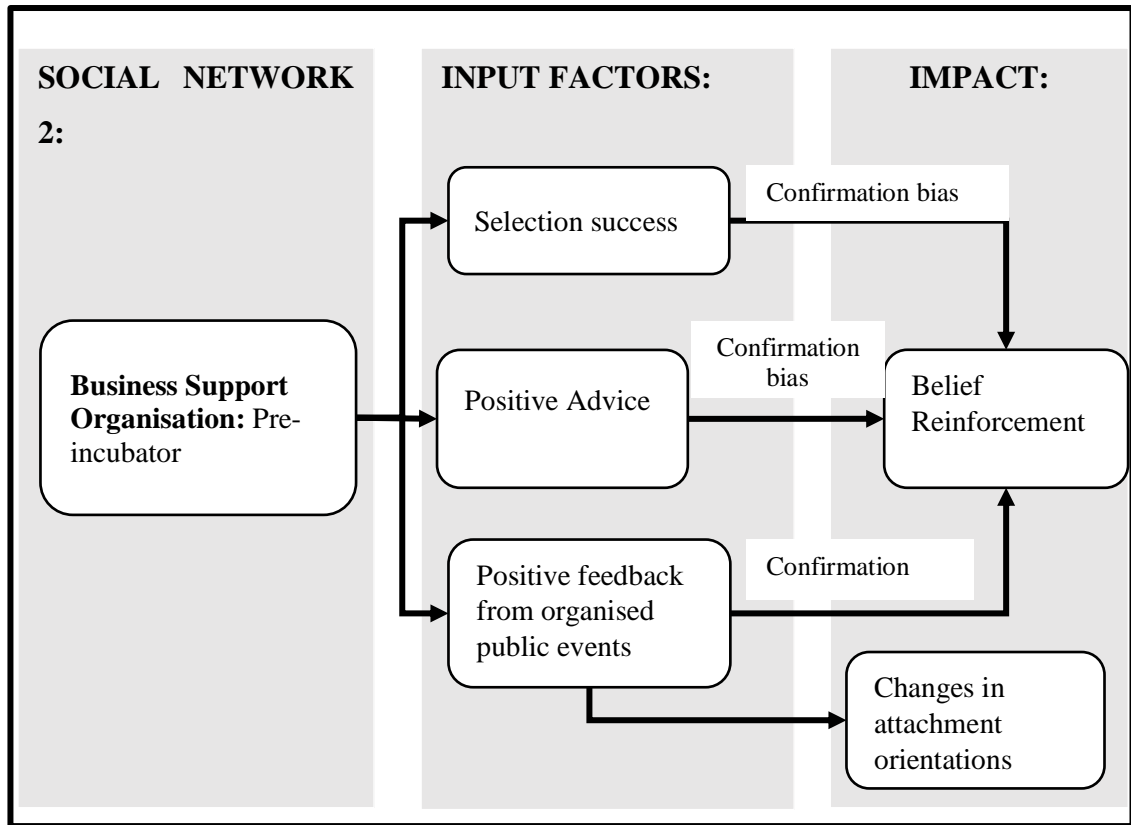


Figure 5.7 Business support organisations’ impact on belief reinforcement and attachment orientations

(a) **Belief reinforcement as a consequence of confirmation bias.** Pre-incubator’s selection, positive advice, and positive feedback from organised public events have a significant impact on participants. These factors individually and/or jointly reinforce belief on pre-existing opportunity ideas. This results in belief reinforcement. However, further analysis reveals that participants interpret those input factors (selection success, advice and feedback) in a way that confirms the veracity of their opportunity ideas. This leads to belief reinforcement. Such interpretation supports specific cognitive bias called ‘confirmation bias’. Participants’ belief-reinforcement, as a consequence of confirmation bias, is dominant across the data set. I claim that the pre-incubator’s input factors: selection process, positive advice, and public event feedback reinforces opportunity recognition beliefs.

(i) **Selection success.** The pre-incubator maintains a selection process to recruit participants for its business start-up programme. The selection process involves an online application and a face-to-face interview. It enables pre-incubator managers to selectively support a handful of participants, not everyone, through its business start-up

programme. In my analysis, it emerges that selected participants interpret their selection success as the success of their opportunity ideas. They believe that the pre-incubator's managers only screen-in viable opportunity ideas through the selection process. In my field study, I noted that participants formed such beliefs based on the outcome of selection – lower acceptance accompanying higher rejection. This reinforced their belief on opportunity ideas. However, such interpretation is biased because participants led their interpretation in favour of their pre-existing opportunity ideas. Interpreting information in a way to confirm pre-existing belief is a confirmation bias. Therefore, I claim that pre-incubator's selection process leads participants to confirmation bias that results in belief reinforcement of opportunity ideas. Below, I present participant A's interview excerpt as representative of others to illustrate this:

I think even before that. Becoming industry standard is gonna take some time. Well, already... **getting accepted at Accelerator [pre-incubator] for me is a good sign, good feedback.** Because this idea is actually interesting, because some other people are interested. Emm ... [*sic*]

Participant A above interprets the pre-incubator's acceptance as a good validation of his opportunity idea. Securing a place at the pre-incubator is perceived as a 'good sign', 'good feedback' on an idea. Such interpretation only leads to the confirmation of pre-existing beliefs on opportunity ideas. I note that it is not the selection component, but the outcome of selection – low acceptance accompanying higher rejection – influences a participants' bias interpretation of their opportunity idea.

My interview with the incubator manager and my role as a selection panel member reveals that selection was based on entrepreneurs' motivation and commitment to their idea rather than the idea itself. This confirms that participants' interpretation of their selection success as the validation of opportunity ideas was biased. Below, the incubator manager states the selection criteria of participants.

Ahh ..definitely participants, because the thing is you can shape a bad idea. If the participant though or the team does not have the, or the passion you can't do anything with that. I mean that's if you ask anybody... in this space [incubator] you know **they will always invest in a quality team with a bad idea ahead of the killer idea with a bad team. Yup, it's all about people.**

The Incubator manager explains the pre-incubator's priority in selecting quality participants over a quality idea. It is managers' general belief that a committed, passionate participant can shape a bad idea into a good idea. The management statement concludes that they are more interested in participants who are willing to shape their opportunity ideas. This confirms that being accepted onto a business start-up programme is not the validation of an opportunity idea, but participants' commitment towards managers' guidance. Therefore, participants' interpretation of their selection success in favour of opportunity ideas only shows confirmation bias.

(ii) Positive Advice. Prior to the selection for the business start-up programme, some participants approached incubator managers for business advice. Advice was *pro bono* and was a technique for attracting potential participants to the business start-up programme. Participants who sought incubator managers' advice, impacted on their belief reinforcement. It was the content of advice that led participants to interpret the veracity of their opportunity ideas. Advice was orientated towards opportunity idea enactment rather than evaluation. Managers actively advised participants to enact their ideas through pre-sales, fake sales, or demonstrating product prototypes to the public. Their advice stabilised participants' pre-existing belief on their opportunity ideas. This theme is consistent among those participants who sought advice prior to joining a business start-up programme. Therefore, I claim that incubator manager's positive advice influences participants' interpretation in a way that confirms their existing opportunity idea. This, in turn, reinforces their opportunity belief. Below, I present participant H's interview excerpt to explain this:

Yeah! first we wanted to have one line of different products and our original idea was to sell like food, fitness food. And then **he [incubator manager] told us like how to focus on like certain.... like certain things like to really make sure get out focus out there.** Instead of focusing like a whole line of different things that we focus on juices. Yeah. And it's something new, potentially a good business idea. [*sic*]

Participant H describes the incubator manager's advice for her opportunity idea. The content of advice indicates the process of the opportunity idea enactment. Expressions such as 'get out there' signify the operational aspect of the idea. Since participant H believes her ideas are worthy to enact, she forms a strong belief in her opportunity idea. Her opportunity idea belief is reinforced because of favourable interpretation of the

manager's advice.

(iii) Favourable outcomes of a public event. Public events have a significant influence on belief reinforcement, providing positive feedback, information, and recognition of opportunity ideas. All participants interpreted the event's outcome as the social acceptance of their ideas. As a consequence, participants strongly believe their pre-existing belief. Belief reinforcement, as a consequence of public event outcome, is widespread across data. Therefore, I claim that incubator's organised public event reinforce participants' opportunity awareness. Below I present participant T's interview excerpt as representative to illustrate this:

Umm... I guess support from the people umm...definitely helped. Umm... when the **public trust award**, the competition was like a big plausible kind a really and **made me think this is something I kind of definitely go through.** [*sic*]

Participant T above describes the effect of a business idea competition. He was one of the winners of the above competition. He describes his recognition of the 'public trust award' to refer to the social validation of his idea. The effect of this competition is significant. It reinforces his belief about his opportunity awareness.

However, the public response to competition was favourably influenced by pre-incubator managers. The competition was voted for online through the incubator's website. The incubator's customised feedback form was designed to encourage positive feedback. Since participants were exposed to positive feedback, they interpreted the feedback as the social acceptance of their ideas. This is a confirmation bias because lack of critical feedback participants strength their belief in opportunity awareness. Below, I present the incubator's feedback form for the public competition (Figure 5.8). The title of the form: '*Interested in this idea?*' encourages only interested people to put forward their comments and feedback. Therefore, I claim that the pre-incubator's organised public event creates confirmation bias, which, in turn, strengthens opportunity belief.

Figure 5.8 Incubator's feedback form

I note that the public event not only reinforces belief, but also influences opportunity attachment orientations. I present these findings in the following section.

(b) Changes in opportunity-attachment orientations. Reliance on business incubator has an impact on participants opportunity attachment orientations. The business incubator acts as a catalyst or moderator of opportunity-attachment orientations. Because of its influence, a gradual change takes place in insecure opportunity attachment. Participants gradually became more open to outsiders. Through the business start-up programme and organised public events, the incubator's managers actively encourage participants to interact with people to test the veracity of their ideas. During my observation, I noted such active encouragement. Below, I present participant V's interview excerpt as representative of others to illustrate the incubators' encouragement:

Umm... I mean like Big Idea Challenge competition make **me think more about details emm.. which hadn't thought of before.** Umm... I found certain

barriers I had to find out, work around or like solve or do things new. And **the Launch Pad, I will .. it's currently very encouraging me to go to talk to people more like all sort of charities**, because it was like more detail and find out how I can actually emm.. bring them on board in the development process, or like before development find out what things I need to consider from their point of view to make it something they would like to participate and pay for. [sic]

Participant V above describes the effect of the business incubator's business idea competition event (Big Idea Challenge) and business start-up programme (Launchpad). She acknowledges that business start-up programmes actively encourage her to interact with people. Her expression: '*...to find out how I can actually bring them on board in the developmental process*' reveals that incubator's present outsiders as valuable actors of the opportunity-recognition process.

During my participant observation, I noted changes in participants' protectiveness. They were eager to reveal their previously concealed opportunity ideas to outsiders. This was a secure opportunity attachment. This dimension of attachment signifies openness over protectiveness. Such behavioural changes is also emergent in the interview data set. This pattern is heavily dominant across the data set. Therefore, I claim that pre-incubator managers bring change in opportunity-attachment orientations through the business start-up programme and business idea competition. Below, I present participant D's interview excerpt as representative to illustrate this:

Interviewer: Yea, so when did you overcome your protectiveness over your idea?

D: Last week probably

Interviewer: After coming to incubator?

Dan: Yeah, as an....I'm still working on it umm.. still working on it. Umm...**I mean this sort of ...kind of coming out bit more**. Umm.. I've done some interviews like yesterday. **I was talking to strangers for the first time**. Umm.. yeah that was...that was fine actually umm...**I don't know why I was so worried about it**. Let's see how that goes as well. [sic]

Participant D describes the changes in his protectiveness over his opportunity idea. Before I asked the following question: '*After coming to the incubator?*', he

acknowledges the incubator's influence. The time 'last week' is the incubator's third training week. His behavioural transition from protectiveness to openness is reflected through his expressions: '*I'm working on it...*', '*...coming out bit more..*', '*I was talking to strangers for the first-time*'. These expressions also imply that changes in insecure attachment orientation is a gradual process. Also, his expression: '*I don't know why I was so worried about it*' implies that his earlier protectiveness over the idea was a natural instinct. I personally encountered participant D's protectiveness at the beginning of business start-up programme. Participant D explicitly refused to participate in my study, saying: '*I am not sure whether it is appropriate to share my idea with you*'. However, as the incubator programme progresses, he participated in my research.

Participants who took part in the incubator's organised public event also demonstrated their behavioural transition from protectiveness to openness. Public events such as the business idea competition engaged both public and participants for the evaluation of opportunities through voting and feedback. The positive feedback and comments made them believe that they can operationalise their idea into business. This resulted in the belief reinforcement of opportunity awareness. Due to the perceived value of positive feedback, individuals became interested in revealing their ideas to outsiders, rather than concealing them. They perceived outsiders as key motivators rather than a potential threat. In this way, they overcame their protective attitude and became more open. In other words, their insecure opportunity attachment shifted to a secure opportunity attachment dimension. This theme is consistent in all public event participants. Therefore, I claim public events bring changes in opportunity attachment orientations. Below, I present participant T's interview excerpt as representative of others to illustrate this:

Umm.. Big Idea Competition I **gathered quite a lot of feedback and information through that**, because people have a choice to say what they think as well and not just people just voted, kind of people telling about this competition I entered. They asked me "what is it you doing". You know they kind of talked to me about that and I **want to share about it too**. The ..the **people are interested** in what I want to do... [sic]

Participant T describes the idea competition as a source of feedback and information. He perceives people as key informants of his opportunity. According to his description, this event reveals people's interests about his idea. Because of people's interests, T

wants to reveal his previously concealed idea. His expression ‘*I want to share it too*’ implies his openness.

Prior studies have mentioned managers who intend to be an entrepreneur construct an environment that modifies their future behaviour (Wood and McKinley, 2010). Though managers of this study are not entrepreneurs, the findings not only affirm this claim but also reveal the specific changes that occur within participatory nascent entrepreneurs. The findings show that managers modify participatory nascent entrepreneurs’ opportunity-attachment orientations through pre-incubation environment.

5.3.2 Secure attachment’s influence on broader public network

Participants developed secure opportunity attachment when they learned the technique of protecting their opportunity ideas and/or they overcome their concern of losing it. Opportunity idea development is a key concern here. As participants became more open about revealing their opportunities, they extended their reliance into a broader public network (Figure 5.9).

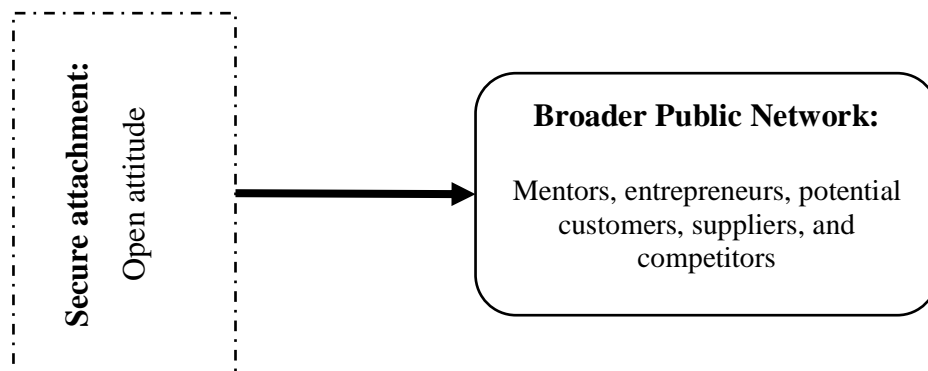


Figure 5.9 Secure attachments' influence on broader public network (Data driven)

5.3.2.1 Reliance on broader public network and its impact

Subsequent to business support organisations, all participants extended their network to a broader public network. This makes broader public network a third information source. Members include mentors, entrepreneurs, suppliers, and potential customers. Participants reliance on this network was guided by incubator managers. Data reveals that participants mainly searched for information about potential target customers,

customer interest, and customer needs and/or preferences. Figure 5.10 reveals the kind of information participants searched for in market actors. The size of the area reveals the number of the coded item. The pattern suggests that participants performed customer-centric market research. From my participants observation, I conclude that this systematic market search was directed by incubator managers.



Figure 5.10 Hierarchical chart for market research information

Through this network, participants searched not only peoples' interest in their idea, but also the potential operational aspect of their ideas. This operational aspect includes new customer segment, possible product features, and revenue streams. I refer to this information as opportunity-related information.

(a) Knowledge accumulation. Market actors' knowledge play a pivotal role in opportunity recognition. During the information-search process, participants accumulated knowledge from various social actors: potential customers, suppliers, and competitors. Interaction with social actors help participants to construct a new customers segment, product features, market demand, and revenue stream. Since individuals exposed to new information that complements their pre-existing knowledge, it reinforces opportunity recognition belief. Below, I present participant A's interview excerpt as representative to illustrate this:

Also, umm... thinking only about the Italian market, we would have targeted only venue owners and musicians. While by talking around here in London, we

went around in pubs, **venues asking them how they organise gigs**. We found out that they use promoters. So, **we actually created a new account, a whole new target customers -- there is promoters -- which I really wasn't thinking before**. So possibly that is the main difference from when I started to now. And then I mean in the beginning I was not actually doing anything, right now we are doing stuff. So operationally it means a lot, because now we actually going out and talking to people and trying to out this idea for work.
[sic]

Participant A describes how he searched for information in market. His market research question: “*How they organised gigs?*” is based upon his prior experiential problem of arranging live music performances. Without prior knowledge of the problem, participant A would not initially be able to locate his search. His interaction with pubs or bars owners regarding live music performance arrangements implies socially constructed situations. His expression ‘*we created whole new accounts, target customers*’ signifies that target customer section is a creation of the interpreter.

5.4 Summary

The above findings have shown that opportunity search is a key component of first-time nascent entrepreneurs’ opportunity recognition process. Subsequent to opportunity awareness, participants test the veracity of their opportunity ideas and search opportunity-related information within social networks. The opportunity search emerges as a reactive behavioural response. This reactive nature of search process signifies participants’ sensitivity towards their opportunity awareness. It establishes opportunity awareness as a significant phenomenon. Participants relied on various social networks to develop their opportunity ideas into *bona fide* opportunities. Social interaction played a major role in this context. It affected the process of opportunity interpretation to opportunity belief reinforcement. However, participants’ social network reliance illuminates their emotional attachment to their opportunities. I call this emotional attachment ‘opportunity attachment’. Opportunity attachment not only elucidates specific social-network reliance, but also sheds light on cognitive bias. Two dimensions of opportunity attachment orientations – insecure and secure attachment – illuminate the relational aspect of social-network reliance. Insecure/protective participants relies on immediate social networks based on strong informal social ties as well as formal social ties. Examples of immediate social networks are personal networks and business

support organizations. It emerges that business incubators (within business support organisations) bring changes in participants' opportunity attachment orientation. Participants develop a secure opportunity attachment as a result of the incubator's support. Because of such a change in attachment, participants extend their immediate social network (personal network and business support organisation) to a broader public network. The reliance on the broader network results in social technical knowledge that participants convert into different features of opportunities; i.e. product features, target customers, revenue streams, market size, and so on.

Overall, the opportunity-search process highlights the following: (a) participants' behavioural actions, i.e. social network reliance; (b) the role of emotion on social network reliance; and (c) the influence of social network members on participants' belief reinforcement.

Chapter 6 Discussion

In the preceding chapters, I presented the findings of my study. In this chapter, I provide a discussion of my findings. Extant literature holds a wealth of knowledge about experienced and successful entrepreneurs' opportunity recognition. The extant knowledge is mainly derived from retrospective studies (Grégoire, Barr, and Shepherd, 2010). Retrospective studies refer to those studies that are concerned with the study of past phenomena or events, i.e. previously recognised opportunities. Because of the retrospective nature of studies, nascent entrepreneurs' on-going opportunity-recognition process has remained largely overlooked. Also, certain empirical challenges (i.e. access to participants, access to data, the lack of a valid and reliable opportunity-recognition measurement scale) have impeded research progression in this area (Grégoire, Shepherd, and Schurer, 2009). Due to the paucity of studies, we lack understanding of nascent entrepreneurs' cognitive and behavioural process related to opportunity recognition.

In this study, I addressed this knowledge gap by fulfilling the following research objectives: (1) to explore the process by which nascent entrepreneurs come up with opportunity ideas; (2) to understand how nascent entrepreneurs' behavioural actions shape opportunity ideas into entrepreneurial opportunities; (3) to understand the role of the pre-incubator on nascent entrepreneurs' cognitive and behavioural processes related to opportunity recognition; and (4) to improve opportunity recognition practice by providing recommendations. My study findings shed light on the nascent entrepreneurs' opportunity-recognition process. I inductively derive two components of opportunity recognition that elucidate the nascent entrepreneurs' cognitive and behavioural process. These two components are opportunity awareness and opportunity search. Opportunity awareness reveals the process by which nascent entrepreneurs come up with opportunity ideas. Opportunity search reveals nascent entrepreneurs' behaviour and emotions. The findings are presented in an empirical model (Figure 6.1). Below, I present my empirical model of opportunity recognition. Then I begin the discussion of my study findings.

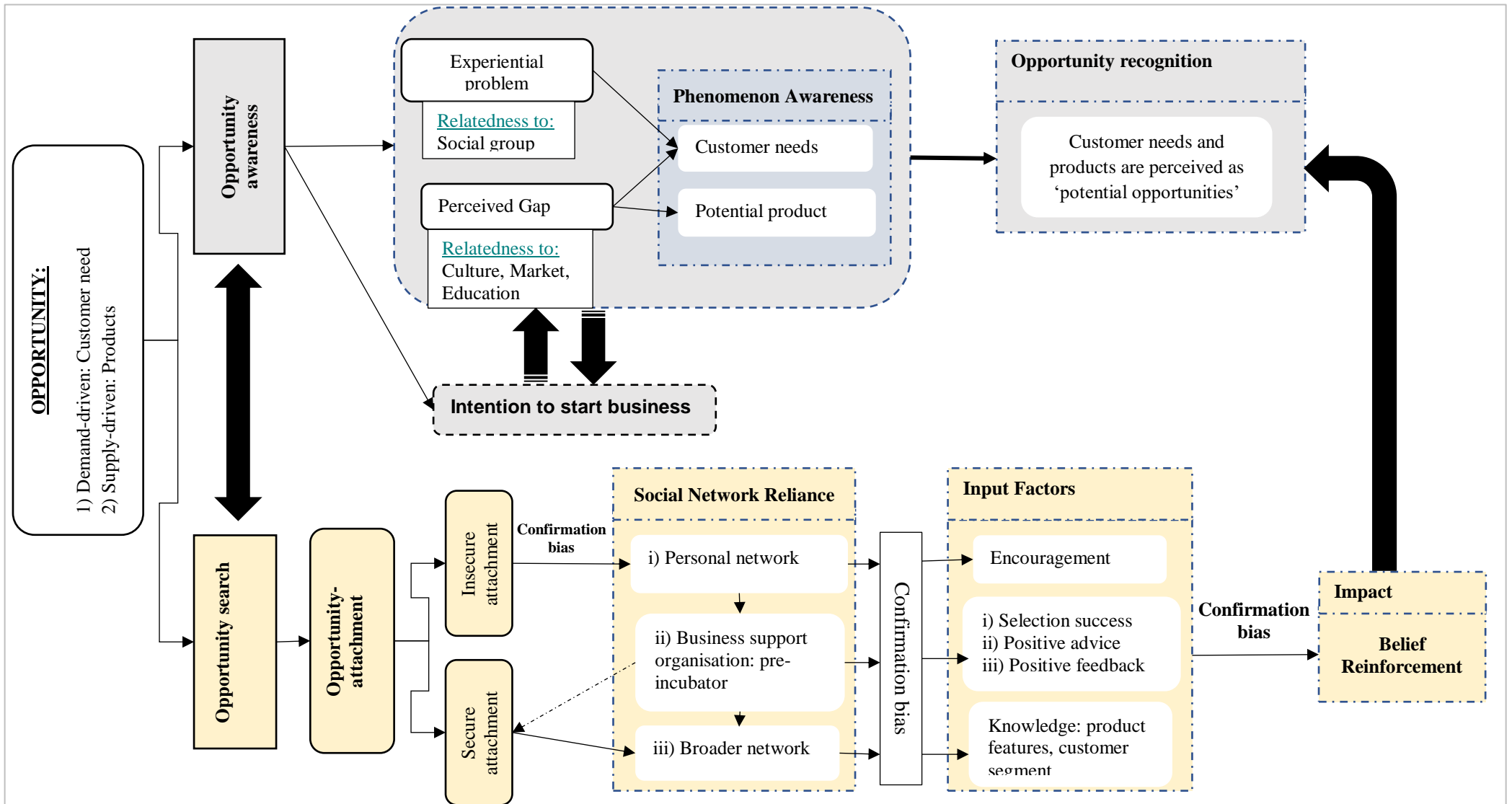


Figure 6.1 Empirical model of opportunity recognition

6.1 Opportunities as socially constructed situations

In this study, I first examined entrepreneurial opportunities that study participants claimed to recognise. My empirical analysis shows that opportunities are based on two types of situations: demand-driven and supply-driven. In demand-driven situations, participants were aware of unmet needs upon which they came up with product or service ideas. In supply-driven situations, participants were aware of emerging products upon which they explored market or customers' needs. Demand-driven and supply-driven opportunities are not new findings and have already been discussed in extant literature (Dimov, 2007a; Grégoire and Shephard, 2012; Santos et al., 2015). Whether situations are demand-driven or supply-driven, participants matched unmet customers' needs with relevant products or vice-versa. Matching product ideas with customers' needs is called opportunity recognition. This finding is in line with mainstream opportunity recognition literature that has extensively discussed the alignment of customer needs and products (O'Connor and Rice, 2001; Shane, 2003; Grégoire, Shepherd and Lambert, 2009; Kuckertz et al., 2017).

Extant literature has shown that both demand- and supply-driven opportunities (awareness of unmet needs or an emerging product) are objective phenomena (Miller, 2007; Dyer, Gregersen and Christensen, 2008). Individuals recognise those realist opportunities through discovery. My empirical findings contradict this. I find that demand- and supply-driven opportunities are inconspicuous and socially constructed. None of these situations are objectively discoverable and measurable; therefore, they are an interpretation of participants' experienced phenomena. This finding empirically supports a social constructionist view of opportunities. In the extant literature, scholars have extreme polarised views about the ontological nature of opportunities. Several scholars have claimed opportunities are objective phenomena (Kirzner, 1997; Shane and Venkataraman, 2000; Shane, 2003). In other words, opportunities (customers' needs or emerging products) exist independent of individuals. Others have provided a social constructionist view of opportunities (Fletcher, 2006; Alvarez and Barney, 2007; Wood and McKinley, 2010). According to them, situations are the result of social interactions. In my study, while describing opportunities, participants presented themselves as agents of the situations in which they interacted within their social circles. They did not observe situations; they participated in and acted upon those situations. Without participants' actions, customer needs and potential products would not exist. This

finding is significant. It empirically highlights the social constructionist view of opportunities from the vantage point of participants.

I further examine how study participants recognised the above entrepreneurial opportunities. My findings show that opportunity recognition comprises two distinct, yet interrelated components: opportunity awareness and opportunity search. In the following section, I discuss these findings.

6.2 Opportunity awareness

My finding shows that study participants became consciously aware of those inconspicuous situations (demand- and supply-driven) in the context of their passion/interest. They did not purposefully search for unmet customer needs or potential products, but became consciously aware of them. Here, I refer their situational awareness (demand- or supply-driven) as opportunity awareness. Several prior studies have shown that individuals do not search for opportunities, but accidentally stumble upon them (Shane, 2000; Ardichvili and Cardozo, 2000). My finding reconfirms that individuals do not search for opportunities, but contradicts with the claim that opportunity recognition is the result of serendipitous discovery.

Several scholars have claimed that individuals recognise hitherto overlooked opportunities due to their heightened awareness or alertness (Kirzner, 1997; Ardichvili and Cardozo 2000; Gaglio and Katz, 2001; Tang, Kacmar, and Busenitz, 2012). They have used ‘awareness’ and ‘alertness’ as interchangeable concepts to refer to an individual’s natural ability to spot opportunities. They have claimed that alertness is triggered by a lucky hunch, sheer luck, superior intuition, and sudden surprise (ibid). My empirical findings contradict this common view of alertness and awareness. I find opportunity awareness (of an unmet need or product potential) is neither a lucky hunch nor superior intuition, but an individual’s interpretation of experienced phenomena. The interpretation is relational and supported by social and cultural context. These findings empirically support prior studies’ conceptual claims that opportunity awareness is the interpretation of individuals (Wood and McKinley, 2010). Dominant alertness theorists view opportunity as an objective phenomenon. Because of such realist views, scholars have extensively focused on understanding individuals’ cognitive ability in relation to opportunity recognition (Shane and Venkatraman, 2000; Baron and Ensley, 2006). As a result, these authors have largely ignored social world context that shapes

entrepreneurs' cognitive functioning. My empirical analysis shows that social world contexts play a critical role in raising opportunity awareness.

To date, scholars have used the term 'awareness' and 'alertness' as interchangeable concepts without attempting to make any conceptual distinction. My study findings demonstrate that opportunity awareness is conceptually distinct from entrepreneurial alertness. Awareness is associated with an understanding of the meaning of a previously experienced phenomenon. The experienced phenomenon exists within consciousness. I find that participants created opportunity meaning by connecting their meaningful experiences with an entrepreneurial intention. On the other hand, alertness is more like natural responsiveness to a situation without making sense of it. I note one study that made an explicit distinction between awareness and alertness. Aviram (2009) examined the conceptual distinction between awareness and alertness. His finding showed that these two concepts are empirically distinct. He defined: alertness as 'a continuous state of being on call', and awareness as 'the interpretation of perceived situations'. Despite the clarity of this conceptual distinction, Aviram did not further explain which one related to opportunity recognition. My study findings explicitly show that individual's awareness of opportunities is related to opportunity recognition.

6.2.1 Experiential problem and perceived gap as the definers of the situations

My finding shows that participants were aware of situations (demand- and supply-driven) as a result of either experiential problems or a perceived gap. In the experiential problem category, participants were aware of a demand-driven situation (unmet need of others). In the perceived gap category, participants were aware of either demand- or supply-driven situations (unmet need or potential product). I further note that the awareness of problems and perceived gaps raise specific phenomenon consciousness, not opportunity consciousness. In other words, participants were aware of customer needs or potential products without considering them as potential opportunities. This is an unexpected finding, which illuminates the importance of perception. One's own experience of a problem or perceived gap is dependent on the state of the perceiver. Otherwise, those inconspicuous situations would have been conspicuous to everyone in society. This provides an alternative explanation of the most important research question in the literature: why do some individuals, but not all, recognise entrepreneurial opportunities? (Shane and Venkataraman, 2000). However, perception

itself is not useful, unless it reconstructs experience into a meaningful thing; i.e. a problem or gap. This finding strongly contradicts the alertness theory, which claims that opportunities are subject to serendipitous discovery.

Extant literature has shown that customer problems and market gap are major dimensions of opportunity recognition (Hsieh, Nickerson, and Zenger, 2007; Santos et al., 2015). According to the findings of prior studies, participants should have considered their encountered problems or perceived gaps as potential opportunities in the first place. In my empirical analysis, this was not the case. My findings show that participants considered their experiential problems or perceived gaps as meaningful phenomena rather than potential opportunities. A possible explanation of this finding is that, due to lack of prior business start-up experience, participants could not recognise those problems or gaps as a dimension of opportunities. This unexpected finding is significant. It signifies the importance of perceptions on opportunity awareness.

Prior studies have shown how prior knowledge is used to solve identified problems (Shane, 2000; Shepherd and DeTienne 2005; Marvel and Lumpkin, 2007; Kuckertz et al., 2017). Despite the fact that these studies advance our understanding of opportunity recognition, they do not adequately explain how individuals interpret their experiential problem and perceived gap into customer needs and potential products. As a result, the key intellectual question of opportunity recognition remains overlooked: how do individuals translate their experiential problem and perceived gap into customer needs and potential products?

a) Meaning interpretation of situations

Meaning interpretation is complex as one thing may represent multiple subjective meanings. I looked at how participants interpreted their experienced phenomena (i.e. experiential problem and perceived gap). My empirical analysis shows that the meaning of their customer problem and potential product is established when participants find relatedness of their experienced phenomena to their social, cultural, and educational context. The relatedness activates context-specific knowledge, which I call related prior knowledge. Extant literature has heavily emphasised the importance of prior knowledge in opportunity recognition. Several prior studies have empirically shown that prior knowledge has a positive impact on opportunity (Shane, 2000; Shepherd and DeTienne, 2005; Marvel and Lumpkin, 2007; Arentz, Sautet and Storr, 2013; Gruber, McMillan

and Thompson, 2013; Hajizadeh and Zali, 2016). However, none of these studies explain how individuals find related prior knowledge during the opportunity recognition process. My findings show that the relatedness of experienced phenomena to participants' social, cultural, and educational context activate related prior knowledge, which participants utilise to interpret the meaning of the experienced phenomena. This finding is significant. It highlights the role of relationality in activating prior knowledge.

In the experiential problem category, participants who were part of the social/reference group interpreted their experiential problem as the problem of their social group. Their social identity enabled them to interpret their experiential problem as their reference group's problem. Social identity is an experience connector that relates participants to social groups. It provides an intimate knowledge of the social group's problem. Thus, the social group becomes potential target customers, and their problems emerge as unmet customer needs. This finding not only reaffirms the notion that social circle and social identity helps interpret the meaning of opportunity (Dimov, 2007b), but also advances our understanding of how first-time nascent entrepreneurs come to know the existence of future customers and their needs. The implication of this finding is that individuals who present their experiential problems as social group problems may already know their future customers.

Participants interpreted their perceived gap when they found the relatedness of their perceived gap to their cultural, educational and market context. The relatedness triggers the context specific prior knowledge: cross-cultural knowledge, market knowledge, and specialist education. This finding is significant, as it sheds light on the role of relationality, which enables meaning interpretation.

Extant literature has already discussed the role of market knowledge and specialised education in opportunity recognition (Shane, 2000; Marvel and Lumpkin, 2007). However, the role of cross-cultural knowledge in opportunity recognition is fairly new. To date, one study empirically showed that cross-cultural knowledge increases individuals' ability to recognise opportunity (Vandor and Franke, 2016). The study was experimental. My qualitative study finding not only strengthens Vandor and Franke's experimental findings, but also provides a deeper explanation. My empirical analysis shows that cross-cultural awareness is triggered when participants find the relatedness between their experienced phenomena and cultural context. The experienced

phenomena are demographics, life-styles, and market trends. Participants reported that they perceived potential products because of the relatedness of perceived trends to their reference countries. My finding has a broader implication as it not only highlights the importance of immigrants in their adoptive country, but also open up a new avenue for future study.

However, my findings show that even though experiential problems and perceived gaps heightened the awareness of customer needs and potential products, they did not consider these as opportunities. They reported them as opportunities when they developed an intention to start businesses. In the following section, I discuss this finding.

6.2.2 Intention as part of opportunity awareness

Entrepreneurial intention is a well-studied topic in extant literature. Several scholars have claimed that the opportunity recognition process is an intentional process (Krueger, Reilly, and Carsrud, 2000). However, large number of prior studies have studied individual's general intention of starting business (Segal, Borgia, and Schoenfeld, 2005; Turker and Selcuk, 2009; Mohamad et al., 2015). Their generic studies lack connection between intention and opportunity recognition. Few studies have acknowledged that such broad entrepreneurial intention studies may not precisely predict whether individuals would act on given opportunities (Dimov, 2007a). My study findings reveal that intention plays a critical role in opportunity recognition. It is a key component of opportunity awareness. Study participants became consciously aware of opportunities when they had a business start-up intention. This indicates that intention raises awareness. This is an unanticipated finding. Although few prior studies have claimed that intention drives consciousness towards a specific object to achieve it (Birds, 1988, Hamidi et al. 2008, Ferreira et al. 2012), there was no conclusive claim that intention contributes to opportunity awareness. My finding is significant. It suggests participants' behavioural significance on their opportunity recognition.

My empirical analysis shows that intention shapes and modifies opportunity perception. Before intention, participants perceived situations (demand- and supply-driven) as experienced problems and perceived gaps. When they had an intention to start a business, they translated their experiential problem and perceived gap into potential opportunities. This is a new finding. Opportunity is not captured by consciousness, but

through the act of intentionality. From prior studies, we know that perception influences individuals' intentions (Krueger, Reilly, and Carsrud, 2000). My empirical result reveals that intention also shapes opportunity perception. This finding has a broader implication. An individual's willingness to become an entrepreneur may lead him/her to recognise opportunities. In other words, a person may become aware of opportunities because of his/her entrepreneurial intention.

I also note that, because of intention, participants perceived opportunities in the area of their passion or interest. This shows that entrepreneurial intention leads to opportunity awareness in the context of passion or interests. This finding contradicts Biraglia and Kadile's (2017) study findings that showed nascent entrepreneurs transform their passion and interest into entrepreneurial intention. Their study findings showed a deterministic view of human nature, in which context (passion/hobby) determines human action. My finding shows a voluntary view of human nature in which participants with entrepreneurial intent willingly perceive something as an opportunity that reflects their passion or interest.. I propose that hobby/passion context is a meaning context that allows participants to interpret their previously perceived things as potential opportunities.

a) Driving factor behind intention: self-employment career option

Prior studies have focused on understanding factors that affect entrepreneurial intention. These factors are creativity, entrepreneurship education, need for achievement, net perceived desirability, perceived feasibility, parental self-employment, personal attitude, self-confidence, self-efficacy, structural support, and tolerance of risk (Segal, Borgia, and Schoenfield 2005; Turker and Selcuk, 2009; Fitzsimmons and Douglas, 2011; Ferreira et al., 2012; Solesvik, 2013; Mohamad et al., 2015). These are generic driving factors of entrepreneurial intention. Scholars did not study how these factors are linked to opportunity recognition. Consequently, these studies do not offer insight into entrepreneurial intent. However, some of the above factors (i.e. tolerance for risk, self-confidence, net perceived desirability, and self-employment) emerge in my empirical analysis. Among these factors, self-employment career choice stands out as a dominant factor.

My study findings show self-employment career options drive entrepreneurial intent. This finding is in line with previous study findings that have shown net perceived

desirability (the difference between the desirability of self-employment compared to the desirability of working with others) predicts self-employment intention (Segal, Borgia and Schoenfeld, 2005; Fitzsimmons and Douglas, 2011). My empirical analysis further shows that employment uncertainty drives participants towards a self-employment career path as opposed to working for others. They emphasised that their employment uncertainty is caused by the following factors: lack of autonomy and creativity, low income, and job-search difficulty. These factors are not new findings; prior studies have already discussed these in literature (Gilad and Levine, 1986; Douglas and Shepherd, 2002). Gilad and Levine (ibid) proposed a push-and-pull theory to explain entrepreneurial intention. Their push theory depicted employment uncertainty as a negative force that pushes individuals into entrepreneurship. This suggests that study participants experienced high levels of entrepreneurial intention.

6.3 Opportunity search

Opportunity search is a critical factor for opportunity recognition. This is a common theme and has been extensively discussed in the literature (Baron, 2006; Baron and Ensley, 2006; Ucbasaran, Westhead and Wright, 2008; Westhead, Ucbasaran and Wright, 2009; Heinonen, Hytti and Stenholm, 2011; Gielnik et al., 2014). Regardless of the extensive study on this area, the current body of knowledge does not empirically confirm whether opportunity search is a key factor for first-time nascent entrepreneurs' opportunity recognition. My empirical findings address this knowledge gap. I empirically confirm that first-time nascent entrepreneurs not only test the veracity of their opportunity ideas from various sources but also actively search and interpret opportunity-related information as part of their opportunity-recognition process.

My findings further reveal that opportunity search is a reactive behavioural action. Study participants demonstrated strong information-seeking behaviour when they had opportunity awareness (aware of an unmet need or potential product). Their opportunity awareness initiated a subsequent need for information and evaluation of assumptions. They searched for information about unmet customer needs as well as relevant products or services. This finding confirms that nascent entrepreneurs' opportunity recognition involves the integration of opportunity awareness and opportunity search. Whether opportunity search is distinct from opportunity recognition, is an ongoing academic debate. Some scholars have differentiated recognition from search (Shane, 2000; Baron and Ensley, 2006; Heinonen, Hytti and Stenholm, 2011), while others have conceptually

integrated these constructs (Hsieh and Nickerson and Zenger, 2007). I empirically confirm that nascent entrepreneurs opportunity recognition involves the integration of opportunity awareness and opportunity search. It is opportunity awareness that manifests into opportunity-search behaviour. For example, when a musician perceives a music arrangement problem as a potential business opportunity, he becomes sensitive to understand how others (i.e. venue owners, promoters, and musicians) arrange music performances. As a result, he engages with relevant actors for additional information and/or feedback that not only reconfirms the veracity of his perceived problem (i.e. music arrangement problem) but also provides a possible solution (i.e. product) to the problem.

6.3.1 Social network as opportunity search source

The source of information is crucial for opportunity-related information search. Participants' social network reliance reveals it as a vital information source. They actively searched for information and evaluated their opportunity idea within their social networks. This finding is consistent with extant literature that has already recognised social networks as a key information source (Baron, 2006; Ozgen and Baron, 2007, Ucbasaran, Westhead, and Wright, 2008). My empirical analysis further reveals that social network reliance has an impact on opportunity recognition. Participants' social interaction led them to shape and reshape previously opportunity awareness into a *bona fide* opportunity. This finding supports prior studies that entrepreneurs' social network reliance positively influence opportunity recognition (Ozgen and Baron, 2007; Ramos-Rodríguez et al., 2010; Song et al., 2017).

Which social sources nascent entrepreneurs use is fairly unknown in extant literature (Baron, 2006). My study findings address this knowledge gap. I find that study participants sequentially relied on the following social networks: (1) personal network (families, friends, tutors, employers, and colleagues); (2) business support organisations (business incubator, solicitors, and firms); and (3) the broader public network (entrepreneurs, mentors, the general public, and market actors). It is apparent that participants prioritised their social network reliance according to their social relations. They have strong social ties with a personal network and weak social ties with business support organisations and the broader network, respectively. In extant literature, scholars have ignored the importance of personal network (Ozgen and Baron, 2006; Robinson and Stubberud, 2009). They claimed that personal network lack opportunity-

related information. My empirical analysis shows that this is not the case. Participants did not seek quality information from personal network, but tested the veracity of their opportunity ideas. I find that participants consider personal networks as reliable and a readily accessible source for the evaluation of their opportunity ideas. My findings empirically confirm Wood and McKinley's (2010) conceptual claim that peer networks are an important source for entrepreneurs' cognitive evaluation.

6.3.2 The influence of emotion on social network reliance

I find participants' emotion has an influence on their social-network reliance. Nascent entrepreneurs' emotional effect on opportunity recognition is an unstudied topic. Baron and Ensley (2006) noted that inexperienced entrepreneurs 'fall in love with their own ideas', which may interfere with their ability to engage in systematic thought. In my study, I find similar results – all participants developed an emotional bond with their opportunity idea during the recognition process. They perceived their opportunity ideas as their infant. This emotional bond is what I refer as opportunity attachment. Cardon et al. (2005) conceptually examined the entrepreneurial process by applying parenthood metaphor. Their study highlighted the importance of emotional attachment, but their findings remained broad, regarding entrepreneurial process. In this study, my empirical findings show that participants' opportunity attachment guides their opportunity-search behaviour.

My empirical analysis shows that participants' opportunity attachment regulates their behaviour, which influences specific social-network reliance. I find that opportunity-attachment comprises two dimensions: (1) insecure attachment; and (2) secure attachment. These two dimensions of attachment are called opportunity-attachment orientations. Opportunity-attachment orientations (insecure and secure attachment) led participants to ramify and extend their social network reliance during the search process. This is a new study finding. The opportunity-attachment concept is unknown in extant literature. Not only does it signify the role of emotion in opportunity-search behaviour, but it also highlights the relevance of established attachment theory to opportunity recognition research. The theory of attachment was pioneered by Bowlby (1969). The relevance of attachment theory is emerging in entrepreneurship study. To date, entrepreneurship scholars have studied place attachment, and attachment orientations' influence on entrepreneurial intent (Kibler et al., 2015; Zelekha, Yaakobi and Avnimelech, 2018).

Study participants prioritised and ramified their social networks because of their changes in opportunity-attachment orientations: insecure opportunity attachment and secure opportunity attachment. Zelekha, Yaakobi, and Avnimelech (2018) examined entrepreneurs' attachment orientations to explain entrepreneurial behaviour and characteristics. They focused on predicting a person's attitude by applying attachment theory. However, their study lacks an attachment agent, i.e. an object or thing to which an individual becomes attached. Because of that, their study became truly person-centric. In their attachment orientations model, entrepreneurs' behavioural attachment were fixed. In other words, entrepreneurial behaviours were categorised, explained, and predicted from either insecure or secure attachments. This is a major drawback of their study because they presumed a consistent behavioural attachment orientation. My empirical analysis reveals that participants' attachment orientations (insecure and secure) are linked to their opportunity idea, and their attachment orientations shift from an insecure dimension to a secure dimension. This finding is revelatory as it shows the behavioural change of nascent entrepreneurs.

Insecure attachment is a dimension of opportunity attachment. I find that participants demonstrated insecure opportunity attachment at the initial stage of opportunity search. At this stage, participants were concerned about losing their opportunity ideas to others. Because of such concern, they perceived outsiders as idea poachers (who steal others' ideas). They demonstrated a strong protective attitude by concealing their opportunity idea (unmet need or potential product) from outsiders. Cardon et al. (2005) highlighted this overprotective behaviour. My findings not only affirm their conceptual claim, but also further explain the effect of protective behaviour.

Because of protectiveness, participants developed a lack of trust in others with whom they had no social ties. As trust became an emergent issue, they relied on people with whom they have close social relations or whom they considered as experts. My empirical analysis shows that participants first relied on their personal network and then business support organisations to reveal their opportunity ideas. By revealing their opportunity ideas, they sought assurance and feedback. Personal networks (family members, friends, tutors, employers, and colleague) appear to be the first information source. Participants' close social relationships make this specific network the first and foremost trusted source. Based on this finding, I contradict Ozgen and Baron's (2007) claim that personal networks are less important than other networks. Participants relied

on personal network and business support organisations to deter the opportunistic behaviour of others. Trust in social networking is well studied in extant literature (Bøllingtoft and Ulhøi, 2005). The current body of knowledge has shown that trust promotes effective social networking. My empirical analysis shows that trust is an emergent temporal factor stemmed from participants' need to protect their business idea. The importance of trust subsides when attachment orientations shift from insecure to secure state. In other words, participants are no longer concerned about losing their ideas to outsiders once they develop a secure attachment.

Business support organisations, specifically business incubators, influence participants' opportunity-attachment orientation. Business incubators moderate participants' insecure opportunity attachments into secure attachment. This is a revelatory finding. This reveals that social network member (i.e. incubator) regulates participants' opportunity-attachment orientations. In business incubation literature, incubator's impact on firm level is well evident. Firm creation, survival, growth, and development are positive outcomes of incubation (Al-Mubarak and Busker, 2013; Schwartz, 2013). However, the incubator's impact on entrepreneurs level with regards to opportunity recognition is fairly unknown. My empirical findings advance our understanding of the role of incubator on nascent entrepreneurs' opportunity attachment. Participants have demonstrated behavioural changes during the incubation period.

My empirical analysis further reveals how incubators directly and/or indirectly moderate participants' insecure opportunity attachment into secure opportunity attachment. The business incubator offered training, events, and programmes to participatory entrepreneurs. These events engaged participants with the public: general people and other entrepreneurs. The public became part of the opportunity evaluation process. Through training, events, and programmes, the incubator exposed participants to the public (general people, experienced entrepreneurs as mentors). Incubators' public events act as an 'ice breaker' between participants and the outside world. Public responses, such as feedback and votes inspired participants to continue with their ideas. Because of these perceived benefits, participants became more interested in revealing their opportunity ideas to others. At this stage, trust was no longer an issue as participants consider outsiders as 'information helpers'. This shifts their insecure opportunity-attachment to secure attachment. This is a new study finding as it explains the impact of incubators' organised events on participants' opportunity attachment.

Secure opportunity attachment is another dimension of opportunity-attachment orientations. I find that participants' with secure attachment willingly revealed their opportunity idea to outsiders. In this emotional state, they perceived outsiders as potential helpers. This is a reverse behavioural response or action. Because of this change in behaviour, participants further ramified their social-network reliance to a broader network. They actively interacted with the general public, competitors, potential customers, and other entrepreneurs. In extant literature, scholars have taken for granted that entrepreneurs engage with market actors due to perceive benefits. Nascent entrepreneurs' readiness to engage with outsiders is largely ignored. My findings illuminate the role of secure opportunity attachment on nascent entrepreneurs' readiness.

6.3.3 The effect of social network reliance

My findings show that social-network reliance has an effect on opportunity recognition. I find that belief reinforcement mediates the relationship between social network reliance and opportunity recognition. This finding is line with prior studies that have found schemas, belief reinforcement (self-efficacy in their term), and knowledge acquisition as key mediators for opportunity recognition (Ozgen and Baron, 2007; Ramos-Rodríguez et al., 2010; Song et al., 2017). Scholars of these studies have claimed socially generated information: strengths schemas, reinforces beliefs, and facilitated knowledge accumulation. They have presented information as a sole input factor behind each of these mediators. My empirical analysis shows information is not the sole input factor; other factors, such as encouragement and advice, equally contribute to belief reinforcement. This is a new finding. It includes encouragement and advice as new input factors for belief reinforcement. This finding highlights the needs of nascent entrepreneurs – encouragement and advice.

Participants' social relationship with network actors reinforces their opportunity recognition belief. I find that reliance on all three social networks (personal, business, support organisations, and the broader public) results in belief reinforcement. Each network provides three different input factors: encouragement, advice, and information. Personal network's encouragement, business support organisation's advice and market actor's information reinforce participants' opportunity recognition beliefs. The nature of relational ties with network actors determines which factors reinforce beliefs. Participants strongly emphasised the value of encouragement from their personal

network. Encouragement acts as a motivational factor, enabling them to keep searching for opportunity-related information. This finding is consistent with Davidsson and Honig's (2003) findings. Their findings showed that encouragement by family and friends was quite strongly associated with the pace of gestation activity. Goss (2007) claimed that individuals' positive interaction with social actors increases their emotional energy on their attached symbols or objects. My findings not only support Goss's (2007) claim but also further explain the influence of emotional energy on opportunity search behaviour.

Business incubator's advice on participants' opportunity ideas also increases their confidence. Client-expert (i.e. participants-managers) relationships reinforce their opportunity recognition belief. Expert advice made them believe that they can operationalise their opportunity idea. Opportunity-related information from market actors (i.e. suppliers, competitors, or potential customers) also reinforce participants belief. With information about product features, target customers contribute to participants' opportunity awareness. As a consequence, they strongly believe in the existence of opportunities. My study findings advance our understanding of the effect of social-network reliance on opportunity recognition belief reinforcement. The significance of the findings is that it illuminates the relational aspects of social networking and its subsequent effect on opportunity recognition. It confirms that encouragement and advice are equally as important as information, in terms of belief reinforcement.

6.3.4 The influence of confirmation bias on belief reinforcement

Encouragement, advice, and information from network members alone cannot reinforce participants' beliefs. My findings show that confirmation bias, a type of cognitive bias, reinforces opportunity-recognition beliefs. I found that participants searched and interpreted encouragement, advice, and information in a way that aligned with their existing belief (opportunity awareness). This is confirmation bias – a specific type of cognitive bias. It refers to the the tendency to search for, interpret, and recall information in a way that confirms one's own beliefs or hypothesis (Oswald and Grosjean, 2004). I further find that confirmation bias has one specific benefit in opportunity recognition. It preserves participants' emotional energy by reinforcing pre-existing beliefs. Without emotional energy, participants would have abandoned the opportunity search at the initial stage. Previous studies have shown that advice and

information reinforce entrepreneurs' opportunity recognition beliefs (Ozgen and Baron, 2007; Robinson and Stubberud, 2009). These studies have overlooked how entrepreneurs seek and interpret advice and information. Certainly, scholars have predominantly focused on hypothesis testing without understanding the world of entrepreneurs. My finding illuminates the influence of cognitive bias on opportunity recognition belief reinforcement.

The study of cognitive bias is an understudied subject in entrepreneurship research (Zhang and Cueto, 2017). To date, entrepreneurship literature has introduced 11 cognitive biases to explain entrepreneurship phenomena (ibid). These cognitive biases are over-confidence, over-optimism, self-serving attribution, illusion of control, the law of small numbers, similarity, availability, representativeness, status quo, planning fallacy, escalation of commitment. Despite the focus on bias studies, only few studies have investigated bias with regards to opportunity recognition. Busenitz and Barney's (1997) studies confirmed that over-confidence bias and representativeness bias do not directly influence opportunity recognition, but motivate entrepreneurs in pursuing opportunities. Dyer, Gregersen, and Christensen's (2008) study showed the status quo bias relevance to opportunity recognition. However, like many other cognitive biases, confirmation bias has not been studied until now (Zhang and Cueto, 2017). My study findings show that confirmation bias directly influences opportunity recognition by reinforcing opportunity recognition belief. This finding is significant. It reveals nascent entrepreneurs specific opportunity search behaviour in terms of how they search and interpret socially generated information.

(a) The role of emotion and the pre-incubator on confirmation bias

I find that confirmation bias is influenced by participants' emotions (opportunity attachment) and pre-incubator's activities (selection process, advice, and public events). This finding is consistent among all participants. Prior studies have acknowledged that entrepreneurs' emotion and social-network position may influence their cognitive functions, especially biases (Dimov, 2007b; Zang and Cueto, 2017). My study findings confirm this.

I find that participants' opportunity attachment (emotional bond between an entrepreneur and opportunity) influences their confirmation bias. This finding is consistent among all study participants. Participants searched opportunity-related

information and tested their assumptions among like-minded people within their personal network. Their opportunity-attachment led them to avoid sceptical people who would challenge rather than encourage them. Here, the consequence of such search is predetermined – participants exposed themselves to sheer encouragement; encouragement enthused opportunity commitment. Participants selected like-minded people to make their social interaction successful. In other words, they were not looking for opportunity-related information, but emotional energy from their social circle. This is a new empirical study finding. The significance of this finding is that it reveals nascent entrepreneurs' manipulative opportunity-search behaviour. Goss (2007) claimed that emotional energy is the result of successful social interaction, without explaining how entrepreneurs engage in such interaction. My findings not only empirically confirm Goss's conceptual claim, but further explain how nascent entrepreneurs create successful social interactions. I reveal that the success of social interaction depends on the motives of entrepreneurs.

My findings show that pre-incubator's activities (i.e. selection process, advice, and organised public events) influence participants' confirmation biases. The selection process is an important component of pre-incubation. My analysis shows that incubator managers selected a handful of entrepreneurs from large numbers of applicants. The selection was based on entrepreneurial commitment and the quality of the idea. This had an effect on selected participants. All selected participants favourably interpreted their selection success as the validation of their opportunity ideas. Mainstream business incubation literature have identified the incubator selection process as an important part of the incubation process (Aerts et al., 2007; Hackett and Dilts, 2004; Lumpkin and Ireland, 1988; Merrifield, 1987; Mian, 1994; Vanderstraeten and Matthyssens, 2012). These studies have related the selection process to successful venture creation and the incubator's internal functioning. In entrepreneurship literature, there is no empirical evidence or conceptual claim on how the incubator selection process affects nascent entrepreneurs cognition. In this regard, my findings add new knowledge to both entrepreneurship and incubation literature. I empirically confirm that incubator's selection process influences nascent entrepreneurs' confirmation bias.

My findings show that incubator managers' advice influences participants' confirmation bias. Prior to joining the incubator, participants who sought the incubator managers' advice reported that their opportunity ideas were interesting to them (managers). My

analysis reveals the nature of advice that influenced participants' bias interpretation. All given advice was orientated toward idea enactment (i.e. developing product prototype/making a pre-sale). Participants interpreted given advice as the confirmation of their pre-existing opportunity ideas. This is a new study finding. In the extant literature, there is no evidence found on the effect of managers' advice on entrepreneurs' opportunity recognition.

My finding shows that pre-incubator's organised public events (i.e. the business idea competition) influences confirmation bias. Pre-incubator managers organised a public competition event in such a way that facilitates only positive feedback to participants. Prizes, recognition, and feedback reconfirm participants' pre-existing beliefs in opportunities. Participants used these public events' responses as evidence to justify the veracity of their opportunity ideas. Our knowledge on the incubator's public event impacts on participatory nascent entrepreneurs is absent in the extant literature. For the first time, my findings show that the pre-incubator's organised public event influenced participants' opportunity-meaning interpretation.

6.4 Summary

The above discussion of the findings have shown that nascent entrepreneurs' opportunity recognition involves the integration of two distinct components: opportunity awareness and opportunity search. Opportunity awareness involves being aware of customer needs or potential products and perceiving them as potential opportunities. Nascent entrepreneurs become aware of customer needs or potential products through experiential problems or perceived gaps. Experiential problems and perceived gaps become significant when nascent entrepreneurs find a relational connection with their social group, culture, market, and education. Later, their entrepreneurial intention translates their awareness of customer needs and potential product into opportunities. Opportunity awareness component addresses my first research objective that I set out earlier: to explore the process by which nascent entrepreneurs come up with opportunity ideas.

Opportunity awareness leads to opportunity search behaviour. Opportunity search refers to nascent entrepreneurs' conscious behavioural action through which they recognise or make sense of opportunities from multiple social networks. Making sense of opportunities involves testing the veracity of opportunity ideas as well as extrapolating,

searching, and interpreting related information. Nascent entrepreneurs' emotional attachment to opportunities guides their opportunity-search behaviour (i.e. social network reliance). Over-protective nascent entrepreneurs rely on those social networks with whom they have either strong informal or formal social ties. However, it is also clear that specific social network members and pre-incubators, influence the dimension of emotional attachment. Nascent entrepreneurs gradually overcome their protectiveness and become more open. This, in turn, brings changes to opportunity-search behaviour. Since nascent entrepreneurs are more open to reveal their opportunity ideas, they further extend their social network beyond their informal and formal social ties. The input factors provided by the social network members create confirmation bias within nascent entrepreneurs, which leads to opportunity recognition belief reinforcement. The opportunity-search component addresses my second and third research objectives: to understand nascent entrepreneurs behavioural action that shape opportunity ideas into opportunities, and to understand the role of the pre-incubator on nascent entrepreneurs' cognitive and behavioural process.

Chapter 7 Conclusion

In this study, I have investigated ongoing entrepreneurial opportunity recognition of nascent entrepreneurs. In the extant literature, scholars have shown their interest in the study of opportunity recognition in a prospective sense (Grégoire, Shepherd, and Lambert, 2009; Grégoire, Barr, and Shepherd, 2010). They have speculated that opportunities that are being recognised or in the process of being recognised can provide new insights into nascent entrepreneurs' cognitive and behavioural process. Despite growing interest from scholars, the study of on-going opportunity recognition has been largely ignored (Grégoire, Barr, and Shepherd, 2010). Two main methodological challenges have impeded the progress of research in this area of interest: access to study site, participants and data, and the lack of a reliable and valid opportunity recognition scale (Grégoire, Shepherd, and Schurer, 2009). Because of these methodological challenges, scholars have focused their attention on the study of experienced and successful entrepreneurs. As a result, particular type of entrepreneurs, such as nascent entrepreneurs, have remained an under-studied subject.

I have responded to this startling knowledge gap by addressing the following research question: how do nascent entrepreneurs recognise entrepreneurial opportunities? Central to this research question, I have accomplished the following four research objectives: (1) to explore the process by which nascent entrepreneurs come up with opportunity ideas; (2) to understand nascent entrepreneurs' behavioural action that shape opportunity ideas into entrepreneurial opportunities; (3) to understand the role of the pre-incubator on nascent entrepreneurs' cognitive and behavioural process in relation to opportunity recognition; and (4) to improve opportunity recognition practice by providing recommendations. By addressing the knowledge gap, I have extended our understanding of the nascent entrepreneurs' opportunity recognition process. In this chapter, I conclude my thesis by claiming my study contribution to the following areas: knowledge, practice, and methodology. Based on my findings, I provide recommendations for practitioners and entrepreneurs to help them improve their practice. I also acknowledge my study limitations and suggest future research avenues. Furthermore, I include my reflective account of my doctoral study.

I structure this chapter in sections as follows. In section 7.1, I claim my study contribution in three areas: knowledge, practice and methodology. In section 7.2, I

provide some recommendations to key stakeholders: entrepreneurship practitioners and nascent entrepreneurs. In section 7.3, I discuss my study limitations. I highlight study limitations in several areas: participant selection, sample size, and interview location. In section 7.4, I provide some avenues for future research. In section 7.5, I include my reflective account of this study. Through this reflective account, I reveal how developmental changes took place during my doctoral journey. This also includes the influence of my research positionality on my knowledge production process.

7.1 Contributions

This thesis provides contribution to knowledge practice, and methodology. These are further discussed in the respective sections below:

7.1.1 Contribution to knowledge

My study makes several noteworthy contributions to entrepreneurship literature. In this section, I outline the most significant contributions.

Extant literature suggests two alternative theories of opportunity discovery: (a) opportunity recognition, and (b) opportunity search (Shane, 2000). The recognition theory suggests that, due to natural alertness, individuals recognise opportunities (Ardichvili and Cardozo, 2000). On the other hand, the search theory explains that individuals pro-actively search for entrepreneurial opportunities (Heinonen, Hytti, and Stenholm, 2011). Whether opportunity recognition is distinct from opportunity search is a contemporary academic debate. Some scholars have integrated them into the same theoretical framework (Hsieh, Nickerson, and Zenger, 2007), whereas others have retained a distinction between the two theories (Shane, 2000; Baron and Ensley, 2006; Heinonen, Hytti, and Stenholm, 2011). None of the authors explicitly mention the applicability of these two alternative theories to different type of entrepreneurs. My empirical study findings show that the opportunity recognition process involves: (a) opportunity awareness; and (b) opportunity search. I empirically confirm that opportunity awareness and opportunity search co-exist in the same theoretical framework. This theoretical framework is applicable to nascent entrepreneurs' opportunity recognition process. This knowledge is significant. It trims existing academic debate over the two alternative theories, at least from the side of nascent entrepreneurs. Due to a lack of experience in recognising opportunities, nascent

entrepreneurs engage in the opportunity search/exploration process to test the veracity of their opportunity ideas and seek opportunity related information.

Extant literature has shown that customer problems and the market gap are the major dimensions of opportunities (Hsieh, Nickerson, and Zenger, 2007; Santos et al., 2015). My study findings show that the awareness of customer problems or market gap has no immediate effect on opportunity awareness without entrepreneurial intention. Nascent entrepreneurs become conscious of unmet need or products, but do not consider them entrepreneurial opportunities. Without entrepreneurial intent, problems and gaps are considered as experienced phenomena rather than opportunities. This finding is significant, as it provides new insights into how nascent entrepreneurs perceive customer problems or market gap at the early stage of recognition. The process of translating customer problems or market gap into opportunities signifies the role of perception. In other words, opportunities are constructed out of perceptions that are shaped by experience and intention. This finding is significant as it offers a plausible alternative rival explanation of the most sought-after academic question: why do some individuals, but not others, recognise entrepreneurial opportunities? Therefore, I claim that some individuals, but not others, recognise opportunities due to differences in perception.

In the extant literature, nascent entrepreneurs' opportunity search process is fairly unknown (Baron, 2006). There is a growing academic interest in understanding their opportunity search behaviour pattern that might contribute disproportionately to opportunity recognition (Dyer, Gregersen, and Christensen, 2008). My study findings address this knowledge gap. The findings show that nascent entrepreneurs rely on various social networks for opportunity-related information, and they prioritise their reliance according to their social relationships. In other words, social network reliance starts with strong social ties, which then extends to weak, or no, social ties. This finding is significant. It reveals the social relational aspect of network reliance rather than the quality of information that network members possess.

My findings further provide an explanation of nascent entrepreneurs' relational social-network reliance. The findings show that entrepreneurs' emotional attachment to opportunities drives their relational social-network reliance. Emotional attachment to opportunities (opportunity attachment in my term) regulates emotion, which, in turn,

guides their choice of social-network reliance. Opportunity-attachment takes two forms: (a) protectiveness over opportunities; and (b) openness over opportunities. These two forms of emotional attachment result in two distinct, but subsequent, behavioural actions: (a) concealing opportunities from outsiders; and (b) revealing opportunities to outsiders. The former behavioural action results in the reliance on reliable and trustworthy social networks, i.e. personal network and business support organisation. In this context, deep informal and formal relational ties become important. On the other hand, the latter behavioural action results in the extension of networks beyond formal or informal social ties.

The revelation of opportunity-attachment and its influence on the opportunity search process makes several contributions. First of all, despite the acknowledgement of emotional entanglement to opportunities (Baron and Ensley, 2006; Cardon et al., 2005), scholars did not provide empirical evidence of its existence and influence on opportunity search behaviour. My findings illuminate nascent entrepreneurs' emotions and their irrational opportunity search behaviour. These findings help us to understand the interaction effect between emotion and irrational behaviour. Entrepreneurs' irrational behaviour is largely dwarfed and overlooked by rational theories of opportunity search process in the extant literature. The significance of my findings is that it illuminates many peculiarities in the behaviour of entrepreneurs. Overprotectiveness, dedication, and perseverance are a few examples.

Extant literature has demonstrated that entrepreneurs recognise opportunities when they experience higher self-efficacy (Ozgen and Baron, 2007). Self-efficacy refers to 'individuals' belief that they can successfully accomplish specific tasks that they undertake (ibid)'. Scholars present socially generated information as a key input factor for belief reinforcement. My study findings not only affirm the findings of prior studies but also further contribute to existing knowledge by providing other equally important input factors: encouragement and advice. The findings show that encouragement and advice equally reinforce the belief in opportunity recognition. This finding is significant. It empirically confirms that the input factors of belief reinforcement vary according to social relationships with network members. For example, expert advice becomes a key input factor for belief reinforcement when client-expert relationship is perceived.

My findings further reveal that the process of searching and interpreting encouragement, advice, and information result in belief reinforcement. Searching and interpreting information to confirm pre-existing beliefs is a confirmation bias (Oswald and Grosjean, 2004). Specific cognitive bias, i.e. confirmation bias, is an unstudied concept in the field of entrepreneurship (Zhang and Cueto, 2017). My findings show that nascent entrepreneurs search and interpret social networks' encouragement, advice, and information in a way that confirms their pre-existing beliefs. For the first time, my study illuminates the relevance of confirmation bias to the study of entrepreneurial opportunity recognition. This finding is significant. It highlights the role of confirmation bias on opportunity recognition. Attachment theory and confirmation bias are well studied concepts in the domain of psychology. Introduction of opportunity-attachment and confirmation bias opens up a new window for interdisciplinary investigation.

I utilised mind-mapping as a data collection method. The main reason of utilising this technique is that it allowed the reconstruction of individuals' subjective beliefs in relation to the study phenomenon (Eden, 1992). Despite the recognition of mind-mapping as a qualitative management research tool (Swan, 1997), entrepreneurship scholars have overlooked its applicability as a data collection method. In my study, I found mind-mapping to be an effective data collection method. During my field study, participants consciously concealed information because of their protectiveness over their opportunity ideas. The mind-mapping technique allowed me to overcome such difficulty. I have noted that protective participants more spontaneously engaged in the mind-mapping activity than the interviews. Data that emerged using this technique added significant value to my interview data set. It revealed new insightful data into their cognitive processes that were not captured in the interviews and observations. Based on these revelatory findings, I claim that mind-mapping is a powerful data collection method for the study of uncooperative, protective research participants. This is new contribution to knowledge. The appropriate use of the mind-mapping technique can tell us an unheard story of opportunity recognition that may not be accessible through a conventional qualitative data collection method.

In the above sub-section, I have claimed my study findings' contributions to entrepreneurship literature. In the following sub-section, I claim the contributions of my study's findings to practice.

7.1.2 Contributions to practice

My study findings make several noteworthy contributions to entrepreneurship practice. The findings presented here are not guidance on how to recognise opportunities, but they shed light on certain factors that could lead to effective opportunity recognition practice. The implications of the findings are relevant for the following stakeholders: incubator managers and nascent/would-be entrepreneurs.

The theme ‘opportunity-awareness’ (demand- and supply-driven) is significant to practice. Practitioners have overlooked the opportunity awareness process whilst they have paid more attention to the opportunity search process. In practice, opportunity awareness is labelled as a hunch, intuition, or assumptions. Little attention has been paid to knowledge acquired through the process of awareness. My findings show that entrepreneurs accumulate knowledge of customer (or market) problems and products’ commercial potentiality. Customer needs and products represent demand- and supply-driven opportunities respectively. This finding is important for practitioners because effective opportunity search/exploration depends on the type of opportunity awareness: demand- or supply-driven awareness. For example, the knowledge of customers’ problems provides target customers and their needs with a starting point for an opportunity related information search. On the other hand, the knowledge of products requires exploration of market need.

Nascent entrepreneurs’ social group representation is an important finding for practice. Despite nascent entrepreneurs becoming active proponents of their social group’s problem, practitioners do not consider their social group context. My findings show that nascent entrepreneurs who are belonged to a social group relate their experiential problems to their respective group. This finding suggests that insider knowledge gained from a social group is difficult to acquire through simple market research.

The theme ‘opportunity-attachment’ highlights nascent entrepreneurs’ emotional attachment to their opportunities. Emotional attachment is noticeable to particular aspects of opportunity: customers groups and/or products. My findings show that nascent entrepreneurs’ opportunity attachment drives their opportunity search behaviour and subsequent opportunity recognition. In practice, nascent entrepreneurs’ emotion and its influence on opportunity search behaviour are overshadowed by practitioners’ rationale and managerial approach. Such practice results in conflict and

misunderstanding between incubator managers and nascent entrepreneurs. During my field study, I have witnessed conflicts between these two parties. Opportunity attachment finding is significant to both practitioners and nascent entrepreneurs. Practitioners would be able to understand nascent entrepreneurs' irrational behaviour. The understanding of opportunity-attachment could mitigate conflict between entrepreneurship practitioners and their supported nascent entrepreneurs, at least from the side of practitioners. Practitioners could come up with innovative training ideas that would not only respect and support nascent entrepreneurs' emotional attachments, but also lead behavioural actions with regards to opportunity recognition. On the other hand, nascent entrepreneurs can decide whether their extreme emotional behaviours preclude themselves from opportunity development.

In practice, opportunity recognition is an evidence-based, action-orientated activity. Nascent entrepreneurs are required to back up their opportunity ideas with supporting information; i.e. existence and size of the market and customer interests in terms of willingly to pay for and use the offered product. The consideration of bias in information search, interpretation, and presentation is non-existent in practice. My findings, for the first-time, reveal the role of confirmation bias in opportunity recognition. Nascent entrepreneurs make confirmation bias in information search, interpretation, and presentation. In other words, they search, interpret, and recall information in a way that confirms their pre-existing opportunity awareness. This, in turn, reinforces their pre-existing belief in opportunity. This finding is important for both practitioners and nascent entrepreneurs. For practitioners, it informs how nascent entrepreneurs favourably search, interpret, and present information to introduce opportunities. For nascent entrepreneurs, it warns those sceptics who look for objective existence of opportunities through a rigorous interpretation of information.

My findings further reveal that nascent entrepreneurs' bias information interpretation is influenced by incubation components: selection process, business advice, and network support through public events. Practitioners interact with nascent entrepreneurs through these incubation components. Our knowledge on the incubation model component, related to opportunity recognition, is unknown to both academic literature and practice. My findings for the first time reveal that confirmation bias is an unintended effect of the incubation model. This finding is significant. It informs how practice in different

incubation component models enable specific cognitive bias (i.e. confirmation bias) within nascent entrepreneurs.

In the above sub-section, I have claimed the contribution to entrepreneurship practice that my study findings provide. In the following sub-section, I claim my methodological contributions.

7.1.3 Methodological Contribution

The methodological contribution of this thesis is the use of mind mapping as data collection method. I have employed this method as it allows to reconstruct individuals' subjective beliefs with regard to study phenomenon (Eden, 1992). Despite mind-mapping is recognised as qualitative management research tool (Swan, 1997), yet entrepreneurship scholars overlooked its applicability as a data collection method. In my study, I have found mind-mapping as an effective data collection method. During my field study, participants consciously concealed information because of their protectiveness over business idea. The mind mapping technique has allowed me to overcome such difficulty. I have noted that protective participants spontaneously engage in the mind-mapping activity rather than an interview. The data emerged from this technique have added significant value to my interview data set. It has helped reveal new insightful data that were not captured in the interviews and observations. Based on this revelatory findings, I claimed that mind-mapping is a powerful data collection method for the study of uncooperative research participants. The appropriate use of mind-mapping technique can tell us unheard stories of opportunity recognition that may not be possible to access through conventional qualitative data collection methods.

In the above sub-section, I have claimed my contribution to methodology. The following section recommends some course of actions for effective opportunity recognition.

7.2 Recommendations

I provide some recommendations based on my research findings. These recommendations are for the main stakeholders in the field: business incubator managers and current and prospective entrepreneurs. My recommendations are as follows:

Matching opportunity recognition support with the types of opportunities. In current practice, pre-incubator managers support nascent entrepreneurs to recognise demand-driven opportunities without considering the nature of their (nascent entrepreneurs) opportunity ideas. My findings show that the pre-incubator supported nascent entrepreneurs who had already conceived demand- and supply-driven opportunity ideas before taking part in its business start-up programme. The application of opportunity related information, i.e. customer needs, is contrasting to both types of opportunities. Demand-driven opportunities require customer needs as information to conceive product ideas. Conversely, supply-driven opportunities require the customer's needs as information to match or adjust to pre-conceived product ideas. Since managers provide hands-on support for demand-driven opportunity recognition, the recognition of supply-driven opportunities is appeared to be less effective.

Based on my findings, I recommend that pre-incubator managers two alternative courses of action. First, if they intend to practice demand-driven opportunity recognition, then they should recruit nascent entrepreneurs based on demand-driven opportunities. This first course of action would make their support service more effective. Second and alternatively, if pre-incubator managers recruit nascent entrepreneurs, based on both demand-driven and supply-driven opportunities, they should train participatory nascent entrepreneurs about the application of opportunity related information to both types of opportunities. Pre-incubator managers can align these courses of action with the aforementioned choices for their desired outcomes.

Considering the role of lead nascent entrepreneurs. In current practice, pre-incubator managers actively encourage nascent entrepreneurs to act in teams to recognise single opportunity. They believe that nascent entrepreneurs who act in teams are more successful than those who act alone during the opportunity recognition process. My study findings are based on single-lead nascent entrepreneurs (individuals who first conceived opportunity ideas). Whether acting in teams or alone, these lead nascent entrepreneurs are key decision makers in the opportunity recognition process. The opportunity recognition process is derived from their cognition, behaviour, and emotion. Based on these findings, I recommend that the pre-incubator manager should pay attention to lead nascent entrepreneurs.

Considering the impact of managers' own interventions. In current practice, pre-incubator managers are not aware of the impact of their interventions on nascent entrepreneurs' cognitive functioning and behaviour related to opportunity recognition. My findings show that pre-incubator managers' interventions through the pre-incubation model component (selection process, business advice, and public event) generate confirmation bias regarding nascent entrepreneurs. Confirmation bias cements participants' pre-existing belief on opportunity ideas. Although it is helpful in recognising opportunities, it makes participatory nascent entrepreneurs inflexible when managers intend to shape the specific aspect of opportunity-ideas; i.e. target customers or products. Based on my findings, I recommend pre-incubator managers to consider the impact of their current action before expecting the desired changes in participatory nascent entrepreneurs' behaviour.

Considering nascent entrepreneurs' social representativeness for recruitment. My findings show that nascent entrepreneurs' social representativeness heightens their social group's needs awareness. When a nascent entrepreneur experiences a problem, s/he becomes the proponents of his/her social groups problems or needs. Based on this finding, I recommend that pre-incubator managers should recruit those potential entrepreneurs whose opportunity ideas are based on their social group's needs. This is important, as individuals from a specific social group possess an intimate knowledge of their group. The knowledge of the social group may become an advantage for targeting potential customers before conducting market research. Understanding target customers through qualitative experiences ensures the success of products or services. Also, would-be entrepreneurs (individuals who are yet to conceive opportunity ideas) should be aware of whether their emerging opportunity ideas are connected to their social group.

Building a social network with like-minded individuals. My findings show that nascent entrepreneurs rely on like-minded people within their personal network for emotional energy rather than opportunity related information. Like-minded people are essential for successful social interaction. Based on this finding, I recommend that pre-incubator managers build a network of like-minded people within the incubator for nascent entrepreneurs. The network of like-minded people may generate emotional energy among nascent entrepreneurs.

Considering the use of Venn diagram as an opportunity recognition tool. During my data analysis, I realised that a Venn diagram is a useful tool for cross-cultural opportunity recognition. Nascent entrepreneurs who are aware of cross-cultural opportunities should use this diagram to clarify their perceived gaps. Here, I provide an illustration of how this diagram can be used. The two circles in the diagram could represent the two different countries/cultures. The overlapping part of the diagram should represent commonalities between two different countries/cultures. The commonalities could be particular market or customers. Nascent entrepreneurs need to find variation within the identified commonalities. The perceived variation can be perceived as a gap. Pre-incubator managers can adopt Venn diagrams as an opportunity recognition training tool.

Having provided recommendations for pre-incubator managers and nascent entrepreneurs, the next section is concerned with study limitations.

7.3 Limitations of the study

No study is without its limitations. Although my study has several strengths, it has certain limitations in terms of participant selection, sample size, and interview location. Below, I acknowledge these limitations.

Selection of participants: For this study, I selected nascent entrepreneurs who qualified a placement at the pre-incubator's business start-up programme. I excluded those who did not qualify for this programme. I made this choice because nascent entrepreneurs' on-going opportunity recognition was difficult to study without context, and the pre-incubator's business start-up programme provided the study context. However, the inclusion of only pre-incubator supported nascent entrepreneurs, restricts the general applicability of some of my findings to non-supported nascent entrepreneurs, who did not participate or qualify for a pre-incubator business start-up programme. Findings such as "changes in opportunity-attachment orientation because of incubator's influence" is only limited to pre-incubator supported nascent entrepreneurs, not others.

In addition, all my selected participants have a minimum of a first degree. Due to the accessibility to these particular participants, it was not possible to investigate nascent entrepreneurs who did not hold a higher education qualification. Because of such

selection criteria, my findings are limited to those pre-incubator supported nascent entrepreneurs who are graduates.

Sample size: Throughout my field study, I interacted with more than 100 nascent entrepreneurs, who applied for the incubators' support services. However, my original sample size was 13 individual lead participants, representative of 13 opportunity ideas. I matched the number of participants with the number of opportunities because my unit of analysis was individuals, not a group. The findings of this study represent the opportunity recognition of pre-incubator's supported of all 13 opportunity-ideas, but I speculate that a large sample size may further strengthen my findings. However, a larger sample size will require the study of two subsequent annual business start-up programmes of pre-incubator.

Interview location: The location for my interviews was not private. Interviews were mainly carried out in communal spaces such as the balcony and reception areas. Because of that, some interview sessions were interrupted by the surrounding people. I could not secure a private room for interviews as most of the rooms were pre-occupied. Since participants were protective over their ideas, a private interview room would have facilitated a secure environment for naturally occurring conversation.

Having discussed the study limitations, the next section is concerned with future research avenues.

7.4 Future research

In the previous section, I highlighted my study limitations in several areas: participant selection, sample size, and interview location. In this section, based on my study findings as well as study limitations, I offer several avenues for future research. The future research avenues are discussed below.

First, a future study could investigate those entrepreneurs who suffer a lack of consciousness. My study's findings show that conscious awareness is an important factor of opportunity recognition. Opportunity recognition requires the integration of meaningful past, present, and future experiences. This suggests that individuals who suffer a lack of consciousness and/or struggle to remember and reproduce experienced things, may not recognise opportunity. People with certain life-styles, such as 'living for a day', are included in this category. This category of people only live with the present.

To them, the past and future always seem to be insignificant as their memory drifts away with time. Extant literature has shown a growing interest in this area (Kasperova and Kitching, 2014). A future study could investigate the opportunity recognition of those entrepreneurs who lack general cognitive ability. This may lead to a different avenue of findings.

Second, my study findings show that nascent entrepreneurs' emotion, especially opportunity attachment, play a critical role in opportunity recognition. Recently, scholars have recognised the importance of attachment theory in entrepreneurship research (Kibler et al., 2015; Zelekha, Yaakobi and Avnimelech, 2018). A future study could adopt the attachment theory as a theoretical lens for the study of opportunity recognition. The study could also investigate the formation of attachment during opportunity recognition stage. There are many nascent entrepreneurs who discontinue recognised opportunity exploitation. The study could also examine the opportunity detachment process.

Third, the future study could investigate the role of confirmation bias in the opportunity recognition process. Extant literature not only recognises the importance of confirmation bias in entrepreneurship, but also acknowledges the paucity of study in this area (Zhang and Cueto, 2017). For the first-time, my study's findings illuminate the relevance of confirmation bias to the nascent entrepreneurs' opportunity recognition process. The findings reveal the antecedents and impact of confirmation bias on opportunity recognition. Future study could examine the positive and negative effects of confirmation bias on opportunity recognition.

Fourth, my current study's findings are based on the case study research design. Future study could adopt a mixed-methods design, integrating the case study with grounded theory principles. Integrating the case study design with grounded theory principles may provide rich data and stronger evidence that could either reaffirm my current study's findings or provide new insights into the nascent entrepreneurs' opportunity recognition process.

Fifth, a future study could undertake a comparative study of the pre-incubator supported and non-supported nascent entrepreneurs. Such a study could illuminate new insight into their emotions and behaviour related to opportunity search activities.

Finally, a future study could take a qualitative study with a large sample size in the context of an incubator. This may require the researcher to consider two consecutive years' business start-up programmes for larger participants base. Research should also consider the privacy of conducting interviews. My findings suggest that protective participants may require a private interview place. This could help strengthen my current study findings.

In the following section I provide my reflective account.

7.5 Reflective account

This is my reflective account. During the course of study, I reflected upon many aspects of my study. In this account, I reflected upon two areas: (a) the influence of my insider-outsider research positionalities on knowledge-production process; and (b) my learning and development.

7.5.1 Research Positionality

Research positionality refers to the dynamic status of the researcher in relation to the study context – study participants, study organisation, gate keepers, and other relevant actors (Chavez, 2008). It takes one of two forms or both: (a) insider positionality; and (b) outsider positionality. Insider positionality refers to the status of the researcher's self or identity that has some degree of commonality with the study participants (ibid). On the other hand, outsider positionality refers to the status of the researcher's self or identity that appears to be uncommon or unknown to the study participants (ibid). Researchers with insider status tend to hold the intimate knowledge of participants and their context (Wegener, 2014). On the other hand, research with outsider status do not have access to the intimate knowledge of study participants (ibid). However, extant literature demonstrates that research positionality is not static; it can be influenced and shifted by actors involved in the field of study (Chavez, 2008). In this section, I reflected upon my insider-outsider research positionalities that affected different phases of this research and subsequent knowledge production.

Prior to the field study, I was aware of my research positionality and how it might affect knowledge production. It was well-provided research training and my consultation with relevant literature helped me build my knowledge on this aspect (Merton, 1972; Chavez, 2008; Wegener, 2014). I documented my research positionality throughout the

research phase – from the access to the study site to the thesis write up stage. At the beginning of the field study, I considered my positionality as an outsider because I was neither an employee of a research organisation nor a participatory nascent entrepreneur. However, as the field study progressed, my positionality emerged, fluctuated, and changed from outsider-to-insider-to-outsider. This was due to my shifting activities and the perception of the gatekeeper and participants towards my identity. Such reflexive positionalities had a notable influence on the following areas: access to research organisation, data collection, and data interpretation. Below, I discuss the influence of my positionalities on these areas.

(a) The influence of insider-outsider positionality on the access to a research organisation. There are two types of access to a research organisation: primary access and secondary access (Brannick and Coghlan, 2007). Primary access is concerned with gaining access into an organisation system and being allowed to undertake research (ibid). Secondary access relates to gaining access to documentation, data, and meetings within an organisation (ibid). Since I intended to conduct a qualitative study, I sought primary access. The main reason for this was to gain a qualitative experience of the participants' world. However, gaining primary access was challenging. Whilst the majority of research organisations denied access, one organisation agreed to secondary access. The agreeable organisation's gate keeper questioned the suitability of a qualitative study. He felt that qualitative data collection may expose entrepreneurs' business ideas and put them at risk. In other words, he perceived me as an idea poacher rather than a researcher. Below, I provide my reflective journal excerpt in relation to this:

The gate keeper denied access to the research organisation. He conditioned me secondary access if I changed my method of data collection and designed the questionnaires as per his instruction. As an early stage doctoral student, I felt like the gate keeper's puppet. The gate keeper wanted to be the controller of knowledge production. I consider myself to be an authentic researcher. I must remember his comments as a critical incident of my research:

"I would potentially be prepared to circulate this as a questionnaire to our supported businesses, but only as an optional request and if you wanted me to do this, I would require a number of changes/amendments to be made. I could not facilitate face-to-face interviews. Please can you let me know if you

would like to **take this approach?** If so, we can then review the questions **which would need to be altered**".

(Journal entry: 02-02-2016)

Having reflected upon the outcome of my access request, I realised that my outsider position made my research topic sensitive for study. This led me to seek an access request for circumstances in which my insider position may provide an advantage. I was given exclusive primary access to my current research organisation because the gate keeper viewed me as a university student who needed academic support to finish doctorate. In terms of access, my insider-outsider position was situated by gate keepers. Throughout the process of access negotiation, I learned that the study topic's sensitivity varies according to the researcher's insider-outsider position. However, my insider-outsider position affected not only access to the research organisation but also to the data collection process.

(b) The influence of insider-outsider positionality on data collection. During the data collection process, my insider-outsider position was situated by research participants. At one point, they considered me to be an outsider. As an outsider, I was given the following identities: member of the research organisation, non-entrepreneur, and researcher. At another time, participants perceived me as one of their members. Because of my shifting positions, I felt like a pendulum. Figure 7.1 below illustrates my shifting insider-outsider position in a pendulum view. These insider and outsider positions influenced my data collection. I discuss this below.

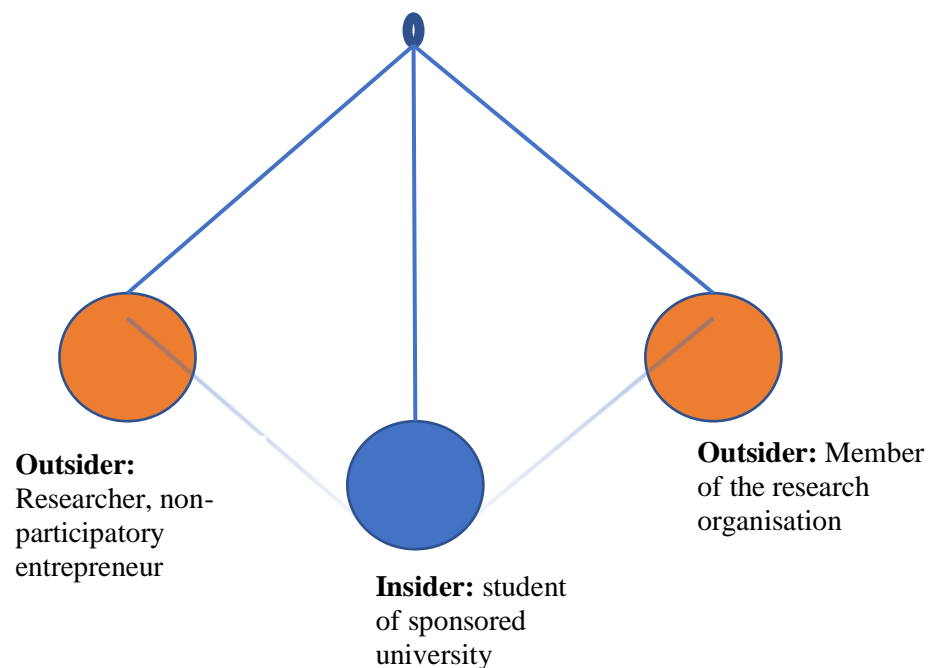


Figure 7.1 A pendulum view of my research positionality

(i) *Outsider as an incubator member.* During the field study, research participants situated my position as an outsider. They perceived me as an undercover employee of a research organisation. This became clear when they queried my employment status with research organisation. My participation in the business start-up programme's selection board and the nature of interview questions led participants to believe that I am an employee of my research organisation. I participated as a panel member of the incubator selection board to understand the business start-up programme, nascent entrepreneurs selection, and the pre-incubator managers' opinion. In addition, some of my interview questions appeared to represent managers' curiosity about nascent entrepreneurs' intentions to change opportunity-ideas.

However, I noted that this outsider position provided two benefits in data collection: (a) participants' active participation in my research; and (b) providing insightful data about their emotional attachment to opportunities. All participants agreed to take part in the research. They felt an obligation to participate despite my clarification that it was voluntary. In addition to their participation, they provided further data to clarify their position regarding opportunity ideas. For example, when I queried participants' intentions to give up their idea at the end of the business start-up programme, they provided further clarification for not doing so. This clarification was a message intended

for the pre-incubator managers. Since the participation in business start-up programmes, pre-incubator managers have encouraged participants to change their opportunity ideas based on market research. The nature of my query made participants feel that I was a representative of the research organisation.

(ii) An insider as one of their members. All research participants were recent graduates of my university. Because of their connection to the university, they perceived me as one of their members. This insider status provided me with an advantage in terms of recording interview sessions. Prior to the interviews, I explained that recording the interview session was essential for my thesis preparation. Since they were students, they understood my requirements. However, my relationship with participants further developed as I spent more time with them throughout the business start-up programme. At one point of time, many of them perceived me as a friend and a potential customer for market research. These identities provided me with revelatory data.

(iii) An outsider as a researcher and non-entrepreneur. Participants' lack of trust revealed that they perceived me as an outsider. During the initial stage of data collection, participants intentionally kept their distance from me. Whenever I attempted to get closer, they seemed to be engaged in activities: tapping phones or talking with other participants. I was viewed as a person who had an interest in their ideas. Such perceptions affected my data collection. All participants attempted to spend as little time as possible for interviews. Some participants talked in a broad and generic way about their opportunity ideas during the interviews.

In the above, I have demonstrated how my insider-outsider position emerged and changed during the data collection periods, and how they enabled and restricted the process of data collection. However, my insider-outsider positionality also influenced data interpretation. Below I explain this.

(c) The influence of insider-outsider positionality on data interpretation. During the data analysis phase, I reflected upon my own insider-outsider status. I mentioned earlier that, at the beginning of this study, I considered myself as an outsider to both the research organisation and participants. I was not an employee nor supported entrepreneurs in the organisation. My outsider status changed over the course of my field study. I became familiar with research participants and practitioners. I lived through their journey of opportunity recognition. My intimate knowledge of the

participants' world led me to realise my insider status during the latter phase of research. This insider-outsider status had an influence on data analysis. I employed an inductive thematic data analysis to interpret the meaning of participants' talk, text, and action in relation to opportunity recognition. Meaning interpretation is subjective, and it is the subjective interpretation of the researcher (myself). My own awareness of the insider-outsider status enabled me to better interpret participants' accounts. Below, I discuss the influence of my outsider and insider status on data interpretation.

(i) *Outsider status.* Since I was not an entrepreneurship development practitioner, I was able to bracket off the managerial perspective when interpreting participants' accounts. Bracketing off the managerial perspective was essential because my unit of analysis comprised of nascent entrepreneurs, not managers. Pre-incubator managers as insiders have a distinct managerial framework for interpreting, defining, and recognising opportunities. An example of this is that opportunity equates to the problem-solution approach. This approach suggests that customers' needs are the genesis of opportunity, and recognition starts from the discovery of customers' needs to the conception of the product. Opportunity recognition based on the product rather than customer needs is non-existent in practice. Certainly, such managerial practice is influenced by the dominant entrepreneurship practice adopted by managers and the norm of the entrepreneurial habitat. Because of my outsider status, I could distinguish between the managerial perspective and my perspective. This understanding provided me with confidence in data interpretation. For example, what I interpreted as 'opportunity-awareness', pre-incubator managers interpreted as a 'hunch', a 'guess', or an 'assumption'. Such divergence in interpretation exists because of the different foci of interest between the insider (practitioner) and outsider (myself). Managers were only interested in the evidence-based objective existence of opportunities, whereas I was interested in understanding the nascent entrepreneurs' cognitive and behavioural process that leads to the recognition of opportunities. The example of the objective existence of opportunities was the evidence of market and customer existence. On the other hand, the process of bringing opportunities into existence would imply a thorough investigation of individuals' accounts and their social world context.

(ii) *Insider status.* My 'outsider' position shifted to 'insider' when participants allowed me to be part of their journey. During their entrepreneurial journey, I not only witnessed, but experienced, their behavioural and emotional upheaval in relation to their

opportunity ideas. I was regarded as a friend and a market research participant for testing products. Some participants persuaded me to be their future customer. Being so close to participants and experiencing their world enabled me to grasp an understanding of their action. This insider knowledge helped me to interpret data from the vantage point of participants. Talk or text has many meanings. One way of establishing this meaning is to have the knowledge of participants (Schutz, 1972; Merton, 1972). My insider knowledge was developed through the involvement with participants during the data collection. This knowledge contributed to my data interpretation.

In the above, I have shown that my insider-outsider positionality was influenced by three actors: (a) gate keepers; (b) research participants; and (c) myself. These actors influenced my research positionalities during the following research phases: (a) access to the study site; (b) data collection; and (c) data interpretation. During the study site access phase, gate keepers considered my insider-outsider status based on my relationship with the research organisation. The gate keeper who perceived me as an insider provided me with primary access for my qualitative study. On the other hand, the gate keeper who perceived me as an outsider rejected my primary access for the same nature of study. Throughout the process of access negotiation, I learned that a study topic's sensitivity varies according to the researcher's insider-outsider position. During the data collection phase, research participants situated my positionality from outsider-to-insider-to-outsider. They perceived me as an employee of the study organisation (outsider), university student (insider), and non-participatory entrepreneur (outsider). These three identities shifted between insider and outsider positions. The advantage of such insider and outsider positions was that these positions exposed me to different perspectives for the investigation of nascent entrepreneurs' opportunity recognition. During the data interpretation phase, my own awareness of the insider-outsider position contributed to the data interpretation. Overall, my awareness of research positionalities was revelatory. A practitioner with insider knowledge of the pre-incubator may have a different conclusion.

7.5.2 Learning and development

Throughout the phase of research, my learning led to several developments; critical thinking skills, language skills, research skills, and professional development related to

practice are a few notable developments. Below, I explain how the developmental changes took place.

(a) Critical thinking skills. During my doctoral journey, I developed critical thinking skills in the field of entrepreneurship. The development of my critical thinking is reflected throughout the research project. The process of formulating research questions, developing academic arguments, gathering, analysing and evaluating data, and providing conclusions reflects my critical thinking skills. Due to thesis word limitations, it is not possible to demonstrate my development of critical thinking skills in every aspect of research. Below, I reflect upon developing an academic argument.

(i) Developing an academic argument. At the initial stage of my study, I struggled to establish a sound academic argument with regard to the research topic. I was inclined to accept a scholars opinion without being critical about them. I assumed that a knowledge gap can be found in literature, just by reading. Such an assumption led me to face a number of challenges. Finding the knowledge gap was one of the challenges. The knowledge gap in opportunity recognition became elusive in the extant literature. I emerged in incessant reading, writing and drawing to identify knowledge gap. Despite all this effort, the knowledge gap remained elusive. To tackle this problem, I attended seminars, workshops, and conferences where I presented my work to other academics. Everybody appreciated my hard work and effort, but my work was criticised for not demonstrating the knowledge gap. According to them, I was supporting the scholars' opinion in my work without being critical of them.

Feedback from others made me aware of my weakness. Having known my weakness, I took a pause from my incessant reading and writing. I created an introspective view of myself, and questioned my suitability for doctoral study. I realised that it is my way of thinking that affects how I evaluate and criticise others' work. Since childhood, I have been inclined to accept others' opinion when I considered them to be intellectually superior to me. I noticed the same thinking pattern in my academic work. Because of this, I failed to notice the nuances of scholars' work. My awareness of my own limitation helped me to overcome my earlier struggle. I successfully developed an academic argument for the study of opportunity recognition. By attending training and workshops, I learned techniques of evaluation and assessment of others' work. Over the

course of my study, I supported many early stage doctoral students who experienced the same problem.

(b) Language. I found great difficulty in familiarising myself with the language of research and the study topic. Reading research books was very laborious. Terms such as epistemology, ontology, meta-theory, and paradigm all appeared to be an alien language. I faced a similar difficulty with my study topic language. My self-reflection on the language issue led me to create my own glossary of terms. In my glossary of terms, I recorded those terms that have conceptual meaning and are most commonly used by scholars in a similar field. I accompanied meaning with examples from the literature. Managing my own glossary of terms helped me manage the complexity associated with language use. As I progressed through the research phase, I noted that each study domain had its own unique set of languages. However, I gradually grasped the practical benefit of domain-specific language in a broader context. Below, my reflective journal excerpt demonstrates my language skill development:

Writing the literature review led me realise that learning-domain-specific language is essential. It saves both time and space. As I progressed in writing thesis chapters: methodology, finding and discussion, following domain-specific language became essential. I realised that if I did not follow the standard language, the reader from the same scholarly field may find inconsistency in my work. Such a realisation emerged when I was writing the discussion chapter. This chapter requires a comparison of my work to prior studies. As I was not following appropriate vocabulary, my findings became less comparable with others. Throughout the process, I realised that language not only saves time and space, but also increases the clarity of my scholarly work.

(Journal entry:17-07-2018)

(c) Research skills. My research skills have improved significantly since I embarked on the doctoral degree programme. During my studies, I attended both online and face-to-face research training workshops. My attended training workshops covered the following topic: data analysis, data management, the use of qualitative data analysis software-NVivo, research ethics, note taking, writing for publications, and literature reviews. Because of my exposure to training workshops, I developed a good understanding of both theoretical knowledge and practical application of research

methods. As I progressed through research phases, I recognised the need to learn new research skills. My most notable research skills are data management, data transcription (orthographic), software assisted data analysis, mind-mapping techniques, interviews, and note taking.

(d) Professional development. My doctoral study has made several contributions to my own entrepreneurial practice. Below, I discuss contributions that I have already put into practice.

(i) Application of cross-cultural knowledge to own businesses. My research findings show that cross-cultural knowledge plays a critical role in perceiving market gaps in the adoptive country. This finding illuminates the importance of immigrants in the economy; I find this very relevant. As a national of Bangladesh and a resident of the UK, I possess cultural knowledge of both countries. In Bangladesh, we have been running a jute business for more than 15 years. Our business specialises in supplying jute fibre-related products to state-owned jute mills in Bangladesh. Since I have been living in the UK for more than 10 years, I know the commonality between the UK and Bangladesh; an anti-plastic product campaign. The UK anti-plastic campaign has triggered my related knowledge of jute. In Bangladesh, we recognise jute as a popular alternative material to plastic because of its biodegradable properties. The shortage of jute-related products in the UK market appears to be a gap. I can successfully apply my cross-cultural knowledge due to my study findings.

(ii) Opportunity recognition project in Third Sector. I work on various business development projects at a renowned British charity organisation. I assist the business development manager to identify new business opportunities. In practice, managers follow a rigid managerial framework to search for business opportunities in information. Because of my understanding of the opportunity recognition process, I provide my own recommendations on how opportunities may be explored in information. Despite my study findings being limited to nascent entrepreneurs, I recognise some commonalities between individual and corporate opportunity recognition. One such commonality is that opportunities are socially constructed. Because of my social constructionist perspective, I use information as guidance so it could lead to successful social interaction with potential partners.

(iii) Data management service for small businesses. During my doctoral journey, I realised the value of research skills for practitioners. Data management is one of my strongest research skills. Since I gained the knowledge, skills, and experience of working with data, I offered my practice to micro businesses to improve their organisational efficiency. Real-time data file backups and database creation are just some of my consultancy services.

The reflective account above has demonstrated how my insider-outsider position has influenced the different phases of research. The account has also highlighted my learning and development in the following areas: critical thinking, language, research skills, and professional practice. Overall, the reflective account has enabled me to reflect upon my research and identify key areas of understanding related to the pre-incubator supported nascent entrepreneurs' opportunity recognition phenomenon.

References

- Aernaud, G. (2012) 'The Contribution of Psychoanalysis to Organization Studies and Management: An Overview,' *Organization studies*, 33(9), pp. 1121-1135
- Aerts, K., Matthyssens, K. and Vandenbempt, K. (2007) 'Critical role and screening practices of European business incubators' *Technovation*, 27 (5), pp.254-267
- Al-Mubarak, H and Busler, M. (2013) 'Business Incubation as an Economic Development Strategy: A Literature Review' *International Journal of Management*, 30 (1), pp.362-372
- Alvarez, S. and Barney, J. (2007) 'Discovery and creation: alternative theories of entrepreneurial action', *Strategic Entrepreneurship Journal*, 1 (1/2), pp.11-26
- Alvarez, S. and Barney, J. (2010) 'Entrepreneurship and Epistemology', *The Academy of Management Annals*, 4 (1), pp. 557-583.
- Alvarez, S. and Barney, J. and Anderson, P. (2013) 'Forming and Exploiting Opportunities: The Implications of Discovery and Creation Processes for Entrepreneurial and Organizational Research', *Organization Science*, 24 (1), pp. 301-317.
- Alvarez, S. and Barney, J. (2014) 'Entrepreneurial Opportunities and Poverty Alleviation', *Entrepreneurship Theory and Practice*, 38(1), pp.159-184
- Alvarez, S., Barney, J., McBride, R. and Wuebker, R. (2017) 'On Opportunities: Philosophical and Empirical Implications', *Academy of Management Review*, 42(4), pp.726-730
- Ardichvili, A. and Cardozo, R. (2000) 'A Model of the entrepreneurial opportunity recognition process', *Journal of Enterprising Culture*, *Journal of Enterprising Culture*, 8 (3), pp. 103-119
- Ardichvili, A. and Cardozo, R. and Ray, S. (2003) 'A theory of entrepreneurial opportunity identification and development', *Journal of Business Venturing*, 18(1), pp.105-123

- Arentz, J. Sautet, F., Storr, V. (2009) 'Prior-knowledge and opportunity identification', *Small Business Economics*, 41 (1), pp.461-478
- Aviram, A. (2009) 'Entrepreneurial alertness and entrepreneurial alertness – Are they the same?' *Academy of Entrepreneurship Journal*, 6(1), pp.111-124.
- Bandura, A (1997) *Self-efficacy: the exercise of control*. New York: W.JH. Freeman
- Baron, R. (2006) 'Opportunity Recognition as pattern', *Academy of Management Perspectives*, 20 (1), pp. 104-120
- Baron, R.A. and Ensley, M.D. (2006) 'Opportunity recognition as the detection of meaningful patterns: evidence from comparisons of novice and experienced entrepreneurs', *Management Science*, 52 (9), pp. 1331-1344.
- Baron R. (2007) 'Behaviour and cognitive factors in entrepreneurship: Entrepreneurs as the active element in new venture creation', *Strategic Entrepreneurship Journal*, 1 (1/2), pp.167-182
- Bartlett, D. and Payne, S. (1997). 'Grounded Theory- Its Basis, Rationale and Procedures', in Mckenzie, G., Powell, J. and Usher, R (eds). *Understanding Social Research: Perspectives on Methodology and Practice*. London: Routledge, pp.173-195
- Bazeley, P. and Jackson, K. (2013) *Qualitative Data Analysis with NVIVO*, 2nd edn. London: SAGE
- Bernard, H.R. and Ryan, G.W. (2010) *Analyzing qualitative data: systematic approaches*. Thousand Oaks, CA: SAGE
- Biraglia, A. and Kadile, V. (2017) 'The Role of Entrepreneurial Passion and Creativity in Developing Entrepreneurial Intentions: Insights from American Homebrewers', *Journal of Small Business Management*, 55 (1), pp.170-188.
- Bird, B. (1988) 'Implementing entrepreneurial ideas: the case for intention', *The Academy of Management Review*, 13 (3), pp. 442-53.
- Bird, C.M. (2005) 'How I stopped dreading and learned to love transcription', *Qualitative Inquiry* 11 (1), pp.226-248.

- Bluhm, D., Herman, W., Lee, T. and Mitchell, T. (2011) 'Qualitative Research in Management: A Decade of Progress', *Journal of Management Studies*, 48(8), pp.1866-1891
- Bowlby J (1969) *Attachment and Loss: Attachment*. New York: Basic Books
- Bøllingtoft, A. and Ulhøi, J. (2005) 'The networked business incubator—leveraging entrepreneurial agency?', *Journal of Business Venturing*, 20 (2), pp.265-290.
- Bourke, J. and Wessely, S. (2008) 'Confidentiality', *British Medical Journal*, 336:888
- Boyatzis, R.E. (1998) *Transforming Qualitative Information*. London: SAGE
- Brannick, T. and Coghlan, D. (2006) 'Reflexivity in Management and Business Research: What Do We Mean?', *The Irish Journal of Management*, 27 (2), pp. 143-160
- Braun, V. and Clarke, V. (2006) 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, 3(2), pp.77-101
- Bryman, A. and Bell, E. (2011) *Business Research Methods*, 3rd edn. New York: Oxford University Press
- Burrell, G. and Morgan, G. (1979) *Sociological Paradigms and Organisational Analysis*. London: Heinemann.
- Busenitz, L.W. (1996) 'Research on Entrepreneurial Alertness: Sampling, Measurement, and Theoretical Issues', *Journal of Small Business Management*, 34(4), pp.35-44.
- Busenitz, L.W. & Barney, J.B. (1997) 'Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making', *Journal of Business Venturing*, 12(1), pp.9–30.
- Cardon, M., Zietsma, C., Saporito, P., Matherne, P. and Davis, C. (2005) 'A tale of passion: New insights into entrepreneurship from a parenthood metaphor', *Journal of Business Venturing*, 20(1), 23-45.
- Carolis, D. and Saporito, P. (2006) 'Social capital, cognition, and entrepreneurial opportunities: A theoretical framework', *Entrepreneurship Theory and Practice*, 30(1), pp.41-56

- Carter, N., Gartner, W. and Reynolds, P. (1996) 'Exploring start-up event sequences', *Journal of Business Venturing*, 11(3), pp.151-166.
- Casson, M. (1982) *The Entrepreneur: An Economic Theory*, 2nd ed. Oxford: Edward Elgar.
- Charmaz, K. (2006) *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*. London: Sage
- Chavez, C. (2008) 'Conceptualising from the Inside: Advantages, Complications, and Demands on Insider Positionality,' *The Qualitative Report*, 13 (3), pp. 474-494.
- Choi, Y., Lévesque, M., and Shepherd, D. (2008) 'When should entrepreneurs expedite or delay opportunity exploitation?', *Journal of Business Venturing*, 23(3), pp.333-355.
- Cohen, W. and Leventhal, D. (1990) 'Absorptive Capacity: A New Perspective on Learning and Innovation', *Administrative Science Quarterly*, 35 (1), pp.128-152.
- Cooper, A., Folta, T. and Woo, C. (1995) 'Entrepreneurial Information Search', *Journal of Business Venturing*, 10(2), pp.107-120.
- Cooper, S. and Park, J. (2008) 'The impact of 'incubator' organizations on opportunity recognition and technology innovation in new, entrepreneurial high-technology ventures', *International Small Business Journal*, 26(1), pp.27-56
- Creswell, J. W. (2013). *Qualitative Inquiry & Research Design: Choosing Among Five Approaches*. 3rd ed. London: SAGE
- Davidsson, P. and Honig, B. (2003) 'The role of social and human capital among nascent entrepreneurs', *Journal of Business Venturing*, 18(3), pp.301-331
- Davies, M. (2011) 'Concept mapping, mind mapping and argument mapping: What are the differences, and do they matter?', *Higher Education*, 62(3), pp.279-301
- DCC. (2013). Checklist for a Data Management Plan. v.4.0. Edinburgh: Digital Curation Centre. Available online: <http://www.dcc.ac.uk/resources/data-management-plans> (2nd February 2017)

- Dimov, D. (2007a) 'From Opportunity Insight to Opportunity Intention: The Importance of Person-Situation Learning Match', *Entrepreneurship: Theory and Practice*, 31 (4), pp. 561-583.
- Dimov, D. (2007b) 'Beyond the Single-Person, Single-Insight Attribution in Understanding Entrepreneurial Opportunities', *Entrepreneurship and Regional Development*, 31 (5), pp. pp.713-731.
- Dimov, D. (2010) 'Nascent Entrepreneurs and Venture Emergence: Opportunity Confidence, Human Capital and Early Planning'. *Journal of Management Studies*, 47 (6), pp.1123-1153.
- Dimov, D. (2011) 'Grappling with the unbearable elusiveness of opportunity recognition', *Entrepreneurship Theory and Practice*, 35 (1), pp. 57-81.
- Douglas, E.J., Shepherd, D.A. (2002) 'Self-employment as a career choice: attitudes, entrepreneurial intentions and utility maximisation', *Entrepreneurial Theory and Practice*, 26 (3), 81–90.
- Douglas, D. (2003) Inductive theory generation: A grounded approach to business inquiry, *Electronic Journal of Business Research Methods*, 2 (1), pp. 47-55.
- Dyer, J., Gregersen, H. and Christensen, C. (2008) 'Entrepreneur behavior, opportunity recognition, and the origins of innovative ventures', *Strategic Entrepreneurship Journal*, 2 (4), pp. 317-338.
- Easterby-Smith, M., Thorpe, R. and Jackson, P. (2012) *Management Research*, 4th edn. London: SAGE
- Eckhardt, J. and Shane, S. (2003) 'Opportunities and entrepreneurship', *Journal of Management*, 29(3), pp.333-349
- EBN (2017) *EU/BIC Impact Report 2017 - Incubating Innovation (Trends 2014 – 2016)*. Available at:
<https://ebn.eu/index.php?lnk=KzF0aDVES1I3bG9TYXFGeEhLL2dQeWw2bk1xaU1ZR3BXNDBySUdGSWwrYz0=> (Accessed 19 March 2019)
- Eden, C. (1992) 'On the nature of cognitive maps' *Journal of Management Studies*, 29(3), pp.261-265

- EDINA and Data Library, University of Edinburgh (2014). *Research Data MANTRA* [online course]. Available at: <http://datalib.edina.ac.uk/mantra/> (Accessed: 30 June 2017)
- Eisenhardt, K.M. and Graebner, M.E. (2007) 'Theory building from cases: opportunities and challenges', *Academy of Management Journal*, 50(1), pp.25-32
- ESRC (2015) *ESRC Framework for research ethics*. Available at: <https://esrc.ukri.org/files/funding/guidance-for-applicants/esrc-framework-for-research-ethics-2015/> (Accessed 24 Nov 2016)
- Ferreira, J., Raposo, M., Rodrigues, R., Dinis, A. and Paço, A. (2012) 'A model of entrepreneurial intention: An application of the psychological and behavioral approaches', *Journal of Small Business and Enterprise Development*, 19 (6), pp. 424-440.
- Fiet, J., Piskounov, A. and Patel, P. (2005) 'Still Searching (Systematically) for Entrepreneurial Discoveries', *Small Business Economics*, 25(5), pp.489-504.
- Fitzsimmons, J. and Douglas, E. (2011) 'Interaction between feasibility and desirability in the formation of entrepreneurial intentions', *Journal of Business Venturing*, 26 (4), pp.431-440.
- Fletcher, D. (2006) 'Entrepreneurial processes and the social construction of opportunity', *Entrepreneurship and Regional Development*, 18(5), pp.421-440.
- Gaglio, C. and Katz, J. (2001) 'The Psychological Basis of Opportunity Identification: Entrepreneurial Alertness', *Small Business Economics*, 16 (1), pp.95-111.
- Gielnik, M; Krämer, C; Kappel, B. and Frese, M. (2014) 'Antecedents of Business Opportunity Identification and Innovation: Investigating the Interplay of Information Processing and Information Acquisition', *Applied Psychology*, 63 (2), pp.344-381.
- Gilad, B. and Levine, P. (1986) 'A Behavioral Model of Entrepreneurial Supply', *Journal of Small Business Management*, 24 (4), pp.45-53.
- Gill, J. and Johnson, P. (2010) *Research Methods for Managers*, 4th edn. London: SAGE.

- Gioia, D. A., Corley, K. G and Hamilton, A. L. (2012) 'Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology,' *Organizational Research Methods*, 16(1), pp.15-31.
- Goss, D. (2007) 'Reconsidering Schumpeterian opportunities: the contribution of interaction ritual chain theory', *International Journal of Entrepreneurial Behavior & Research*, 13 (1), pp.3-18.
- Gov.UK, (2016) *Strengthening Entrepreneurship Education*. London: Gov.UK. Available at: <https://www.gov.uk/government/publications/improving-entrepreneurship-education> (Accessed: 30 June 2017)
- Grégoire, D. A., Shepherd, D.A. and Lambert, L. S. (2009) 'Measuring Opportunity-Recognition Beliefs Illustrating and Validating an Experimental Approach' *Organizational Behavior and Human Decision Processes*, 13 (1), pp. 114-145
- Grégoire, D. A., Bar, P.S. and Shepherd, D. A. (2010) 'Cognitive Processes of Opportunity Recognition: The Role of Structural Alignment', *Organization Science*, 21 (2), pp. 413-431.
- Grégoire, D. A. and Shepherd, D.A. (2012) 'Technology-market combinations and the identification of entrepreneurial opportunities: An investigation of the opportunity-individual nexus', *Academy of Management Journal*, 55 (4), pp. 753-785.
- Gruber, M., McMillan, I. and Thompson, J. (2013) 'Escaping the Prior Knowledge Corridor: What Shapes the Number and Variety of Market Opportunities Identified Before Market Entry of Technology Start-ups?', *Organization Science*, 24 (1), pp.280-300.
- Hackett, S. and Dilts, D. (2004) 'A Systematic Review of Business Incubation Research', *Journal of Technology Transfer*, 29 (1), pp.55-82
- Hajizadeh, A. and Zali, M. (2016) 'Prior knowledge, cognitive characteristics and opportunity recognition', *International Journal of Entrepreneurial Behavior & Research*, 22 (2), pp.63-83

- Hamidi, D., Wennberg, K. and Berglund, H. (2008) 'Creativity in entrepreneurship education', *Journal of Small Business and Enterprise Development*, 15 (2), pp.304-320.
- Hannon, P. (2004) 'A qualitative sense-making classification of business incubation environments', *Qualitative Market Research: An International Journal*, 7(4), pp.274-283
- Hayek, F. (1945) 'The use of knowledge in society', *American Economic Review*, 35(4), pp.519-530
- Heinonen, J., Hytti, U. and Stenholm, P. (2011) 'The role of creativity in opportunity search and business idea creation', *Education + Training*, 53 (8/9), pp.659-672.
- HESA (2017) 3,890 new graduate start-ups in 2015/16. London: HESA. Available at: <https://www.hesa.ac.uk/news/06-04-2017/HEBCI-graduate-start-ups-201516> (Accessed: 30 June 2017)
- Hopp, C. and Sonderegger, R. (2015) 'Understanding the Dynamics of Nascent Entrepreneurship-Prestart-Up Experience, Intentions, and Entrepreneurial Success', *Journal of Small Business Management*, 53(4), pp.1076-1096
- Hsieh, C. Nickerson, J. and Zenger, T. (2007) 'Opportunity Discovery, Problem Solving and a Theory of the Entrepreneurial Firm', *Journal of Management Studies*, 44 (7), pp.1252-1277
- Jansen, S., van de Zande, T., Brinkkemper, S., Stam, E. and Varma, V. (2015) 'How education, stimulation, and incubation encourage student entrepreneurship: Observations from MIT, IIT, and Utrecht University', *The International Journal of Management Education*, 13 (2), pp. 170-181
- Jarvis, L. (2016) 'Identification, intentions and entrepreneurial opportunities: an integrative process model', *International Journal of Entrepreneurial Behaviour & Research*, 22(2), pp.63-83
- Johnston, L.H. (2006) 'Software and Method: Reflections on teaching and using QSR NVivo in doctoral research', *International Journal of Social Research Methodology*, 9(5), pp.379-391.

- Kaish, S. and Gilad, B. (1991) 'Characteristics of opportunities search of entrepreneurs versus executives: sources, interests, general alertness', *Journal of Business Venturing*, 6(1), pp.45-61.
- Kašperová, E. and Kitching, J. (2014) 'Embodying entrepreneurial identity,' *International Journal of Entrepreneurial Behavior & Research*, 20 (1), pp. 438-452.
- Kibler, E., Fink, M., Lang, R. and Muñoz, P. (2015) 'Place attachment and social legitimacy: Revisiting the sustainable entrepreneurship journey', *Journal of Business Venturing Insights*, 3, 24-29.
- Kirzner, I. (1997) 'Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach', *Journal of Economic Literature*, XXXV (1), pp.60-85.
- Klein, P. (2008) 'Opportunity discovery, entrepreneurial action, and economic organization', *Strategic Entrepreneurship Journal*, 2(3): 175–190.
- Kolb, D.A. (1984) *Experiential Learning: Experience as the Source of Learning and Development*, Englewood Cliffs, NJ: Prentice Hall
- Krueger, N., Reilly, M., and Carsrud, A. (2000) 'Competing models of entrepreneurial intentions', *Journal of Business Venturing*, 15(5), pp.411-432.
- Kuckertz, A., Kollman, T., Krell, P. and Stockmann, C. (2017) 'Understanding, differentiating and measuring opportunity recognition and opportunity exploitation', *International Journal of Entrepreneurial Behaviour and Research*, 23 (1), pp.78-97.
- Kvale, S. (1996) *Interviews: an introduction to qualitative interviewing*. Thousand Oaks, CA: SAGE.
- Lapadat, J.C. and Lindsay, A.C. (1999) 'Transcription in research and practice: from standardization of technique to interpretive positioning', *Qualitative Inquiry* 5 (1), pp.64-86
- Lee, T. W., Mitchell, T. R. and Sablinski, C. J. (1999). 'Qualitative research in organizational and vocational psychology', *Journal of Vocational Behavior*, 55, 161–87

- Levine, H. G., Borko, H., Gallimore, R., Turner, J. and Weisner, T. (1985) 'Principles of Data Storage and Retrieval for Use in Qualitative Evaluations', *Educational Evaluation and Policy Analysis Summer*, 7(2), pp. 169–186.
- Liao, J. and Welsch, H. (2008) 'Patterns of venture gestation process: Exploring the differences between tech and non-tech nascent entrepreneurs', *Journal of High Technology Management Research*, 19(2), pp.103-113
- Lichtenstein, B., Carter, N., Dooley, K. and Gartner, W. (2007) 'Complexity dynamics of nascent entrepreneurship', *Journal of Business Venturing*, 22(2), pp.236-261.
- Li, Y., Wang, P. and Liang, Y. (2015) 'Influence of entrepreneurial experience, alertness, and prior knowledge on opportunity recognition', *Social Behaviour and Personality*, 43(9), pp.1575-1584
- Lincoln, S. and Guba, E. (1985) *Naturalistic Inquiry*. Beverly Hills, CA: Sage
- Lin, A. C. (1998) 'Bridging positivist and interpretivist approaches to qualitative methods'. *Policy Studies Journal*, 26, pp.162–80.
- Lumpkin, J. and Ireland, R. (1988) 'Screening Practices of New Business Incubators :The Evaluation of Critical Success Factors', *American Journal of Small Business*, 12(4), pp.59-81.
- Ma, R., Huang, Y.C. and Shenkar, O. (2011) 'Social networks and opportunity recognition: a cultural comparison between Taiwan and the United States', *Strategic Management Journal*, 32 (11), pp.1183–1205
- Marshall, C. and Rossman, G. (2011) *Designing Qualitative Research*, 5th edn. London: SAGE
- Marvel, M.R. and Lumpkin, G.T. (2007) 'Technology entrepreneurs' human capital and its effects on innovation radicalness', *Entrepreneurship Theory and Practice*, 31 (6), pp. 807-828.
- Malt, B.C. (1990) 'Features and beliefs in the mental representation of categories', *Journal of Memory and Language*, 29(3), pp.280-315
- Mason, J. (2002) *Qualitative Researching*, 2nd edn. London: Sage.

- McMullen, J. and Shepherd, D. (2006) 'Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur', *Academy of Management Review*, 31(1), pp.132-152.
- Merrifield, D. (1987) 'New business incubators', *Journal of Business Venturing*, 2(4), pp.277-284.
- Merton, R. (1972) 'Insiders and Outsiders: A Chapter in the Sociology of Knowledge', *American Journal of Sociology*, 78 (1), pp. 9-47.
- Mian, S. (1994) 'US university-sponsored technology incubators: an overview of management, policies and performance', *Technovation*, 14(8), pp.515-528.
- Miller, K. (2007) 'Risk and Rationality in Entrepreneurial Process Rationality', *Strategic Entrepreneurship Journal*, 1 (1/2), pp. 57-74
- Miles, M. and Huberman, A. (1994) *An Expanded Sourcebook: Qualitative Data Analysis*. London: SAGE.
- Mohamad, N., Lim, H., Yusof, N. and Soon, J. (2015) 'Estimating the effect of entrepreneur education on graduates' intention to be entrepreneurs', *Education + Training*, 57 (8), pp.874-890.
- Moroz, P. W. and Hindle, K. (2012) 'Entrepreneurship as a Process: Toward Harmonizing Multiple Perspective', *Entrepreneurship Theory and Practice*, 36 (4), pp.781-818.
- O'Connor, G. and Rice, M. (2001) 'Opportunity Recognition and Breakthrough Innovation in Large Established Firms', *California Management Review*, 43 (2), pp. 95-116.
- Office for National Statistics (2017) *Business Demography, 2016*. London: Office for National Statistics. Available at:
<https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/bulletins/businessdemography/2016> (Accessed 30 June 2017)
- Oswald, M. and Grosjean, S. (2004). Confirmation bias. In R. Pohl (Ed.), *Cognitive illusions: A handbook on fallacies and biases in thinking, judgement and memory* (pp. 79–96). New York: Psychology Press.

- Ozgen, E. and Baron, R. (2007) 'Social sources of information in opportunity recognition: Effects of mentors, industry networks, and professional forums', *Journal of Business Venturing*, 22 (2), pp.174-192.
- Parker, S. and Belghitar, Y. (2006) 'What happens to nascent entrepreneurs? An Econometric Analysis of the PSED', *Small Business Economics*, 27(1), pp.81-100.
- Patton, M.Q. (2002) *Qualitative evaluation and research methods*, 3rd edn. Thousand Oaks, CA: SAGE
- Patton, D. (2013) 'Realising potential: The impact of business incubation on the absorptive capacity of new technology-based firms', *International Small Business Journal*, 33(8), pp.897-917.
- Pirnay, E., Surlemont, B. and Nlemvo, F. (2003) 'Toward a Typology of University Spin-offs', *Small Business Economics*, 21(4), pp.335-369
- Ramos-Rodríguez, A.R., Medina-Garrido, J.A., Lorenzo-Gómez, J.D. and Ruiz-Navarro, J., (2010) 'What you know or who you know? The role of intellectual and social capital in opportunity recognition', *International Small Business Journal*, 28 (6), 566–582.
- Reed, S.K. (2013) *Cognition: Theories and Applications*, 9th edn. CENGAGE Learning
- Reynolds, P., Carter, N., Gartner, W. and Greene, P. (2004) 'The Prevalence of Nascent Entrepreneurs in the United States: Evidence from the Panel Study of Entrepreneurial Dynamics', *Small Business Economics*, 23 (4), pp.263-284
- Robinson, S. and Stubberud, H. (2009) 'Sources of Advice in Entrepreneurship: Gender Differences in Business Owners' Social Networks', *International Journal of Entrepreneurship*, 13(1), pp.83-101.
- Rotefoss, B. and Kolvereid, L. (2005) 'Aspiring, nascent and fledgling entrepreneurs: an investigation of the business start-up process', *Entrepreneurship & Regional Development*, 17(2), pp.109-127
- Rotger, G. P., Gørtz, M., & Storey, D. J. (2012) 'Assessing the effectiveness of guided preparation for new venture creation and performance: theory and practice', *Journal of Business Venturing*, 27, pp.506-521

- Santiago-Delefosse, M., Bruchez, C., Gavin, A., Stephen, L., Roux, P. (2015) 'Complexity of the Paradigms Present in Quality Criteria of Qualitative Research Grids', *SAGE Open*, 5(4), pp.1-13
- Santos, S., Caetano, A., Baron, R. and Curren, L. (2015) 'Prototypes models of opportunity recognition and the decision to launch a new venture', *International Journal of Entrepreneurial Behaviour and Research*, 21(4), pp.510-538.
- Schutz, A. (1972) *The phenomenology of the Social World*. London: Heinemann.
- Schwartz, M. (2013) 'A control group study of incubators' impact to promote firm survival, *Journal of Technology Transfer*, 38(3), pp.302-331
- Segal, G., Borgia, D. and Schoenfeld, J. (2005) 'The motivation to become an entrepreneur', *International Journal of Entrepreneurial Behavior & Research*, 11 (18), pp.42-57.
- Shane, S. (2000) 'Prior knowledge and the Discovery of Entrepreneurial Opportunities', *Organization Science*, 11 (4), pp.448-469.
- Shane, S and Venkataraman, S. (2000) 'The Promise of Entrepreneurship as a Field of Study', *Academy of Management Review*, 25 (1), pp. 217-226.
- Shane, S. (2003) *'A general theory of entrepreneurship: The individual-opportunity nexus'*. Cheltenham: Edward Elgar Publishing.
- Shane, S. (2012) 'Reflections on the 2010 AMR decade award: Delivering on the promise of entrepreneurship as a field of research', *Academy of Management Review*, 37(1), pp.10-20.
- Shepherd, D. A., and DeTienne, D. R. (2005) 'Prior knowledge, potential financial reward, and opportunity identification', *Entrepreneurship Theory & Practice*, 29(1), 113–144.
- Solesvik, M. (2013) 'Entrepreneurial motivations and intentions: investigating the role of education major', *Education + Training*, 55 (3), pp.253-271.
- Song, G., Min, S., Lee, S., and Seo, Y. (2017) 'The effects of network reliance on opportunity recognition: A moderated mediation model of knowledge

acquisition and entrepreneurial orientation', *Technological Forecasting & Social Change*, 117 (4), pp.98-107.

- Spencer, L., Ritchie, J. and O'Connor, W. (2003). 'Analysis: Practices, Principles and Processes' in Ritchie, J. and Lewis, J. (eds). *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: SAGE, pp. 199-218.
- Stephan, U. and Uhlaner, L. (2010), 'Performance-based vs socially supportive culture: a cross-national study of descriptive norms and entrepreneurship', *Journal of International Business Studies*, 41 (8), pp. 1347-64
- Steyaert, C. (2007) 'Entrepreneuring' as a concept attractor? A review of process theories in 20 years of entrepreneurship studies', *Entrepreneurship and Regional Development*, 19(6), pp. 453-477.
- Swan, J. (1997) 'Using Cognitive Mapping in Management Research: Decisions about Technical Innovation,' *British Journal of Management*, 8, pp. 183-198.
- Tang, J., Kacmar, K., and Busenitz, L. (2012) 'Entrepreneurial alertness in the pursuit of new opportunities', *Journal of Business Venturing*, 27 (1), pp. 77-94
- Turker, D. and Selcuk, S. (2009) 'Which factors affect entrepreneurial intention of university students?', *Journal of European Industrial Training*, 33 (1), pp.142-159.
- Ucbasaran, D., Westhead, P. and Wright, M. (2008) 'Opportunity Identification and Pursuit: Does an Entrepreneurs Human Capital Matter?', *Small Business Economics*, 30 (2), pp.153-173
- Valliere, D. (2013) 'Towards a schematic theory of entrepreneurial alertness', *Journal of Business Venturing*, 28(3), pp.430-442.
- Vanderstraeten, J. and Matthyssens, P. (2012) 'Service-based differentiation strategies for business incubators: Exploring external and internal alignment', *Technovation*, 32(12), pp.656-670
- Vandor, P. and Franke, N. (2016) 'See Paris and... found a business? The impact of cross-cultural experience on opportunity recognition capabilities', *Journal of Business Venturing*, 31 (4), pp.388-407

- Van Praag, C. M., and Versloot, P. H. (2007) 'What is the value of entrepreneurship? a review of recent research', *Small Business Economics*, 29, pp.351-382.
- Venkataraman, S. (1997) The distinctive domain of entrepreneurship research: An editor's perspective. In J. Katz & R. Brockhaus (Eds.), *Advances in entrepreneurship, firm emergence and growth*: Vol. 3, 119–138. Greenwich, CT: JAI Press
- Wegener, C. (2014) 'Would you like a cup of coffee?' Using the researcher's insider and outsider positions as a sensitising concept,' *Ethnography and Education*, 9 (2), pp. 153-166.
- Westhead, P., Ucbasaran, D. and Wright, M. (2003) 'Debates and Surveys Differences Between Private Firms Owned by Novice, Serial and Portfolio Entrepreneurs: Implications for Policy Makers and Practitioners', *Regional Studies*, 37(2), pp.187-200.
- Westhead, P., Ucbasaran, D., Wright, M. and Binks, M. (2005) 'Novice, Serial and Portfolio Entrepreneur Behaviour and Contributions', *Small Business Economics*, 25(2), pp.109-132
- Westhead, P., Ucbasaran, D. and Wright, M. (2009) 'Information Search and Opportunity Identification: The Importance of Prior Business Ownership Experience', *International Small Business Journal*, 27 (6), pp. 659-680.
- Wood, M. and McKinley, W. (2010) 'The production of entrepreneurial opportunity: A constructivist perspective', *Strategic Entrepreneurship Journal*, 4(1), pp.66-84.
- Wirsing, B., Traude, A., Steffens, J., Sheen, M; Löffler, B.; De Lapparent, D; Broadfoot, C. and Alonso-Gonzalez, J. (2002) 'Becoming an entrepreneur for a trial period: the pre-incubation experience', *The International Journal of Entrepreneurship and Innovation*, 3(4), pp. 265-277.
- Yin, R. (2014) *Case Study Research: Design and Methods*, 5th edn. London: SAGE
- Zelekha, Y., Yaakobi, E., & Avnimelech, G. (2018) 'Attachment orientations and entrepreneurship', *Journal of Evolutionary Economics*, 1-28.

Zhang, S.X. and Cueto, J., (2017) 'The Study of Bias in Entrepreneurship', *Entrepreneurship Theory and Practice*, 41(3), pp.419–454.

Appendix A

INTERVIEW PROTOCOL- LAUNCH PAD PARTICIPANTS	
Researcher	Mohammad Saiful Islam
Research Topic	The aim of the study is to understand: how do nascent entrepreneurs recognise entrepreneurial opportunities?
Terms	During the interview, you have the right to skip some of the interview questions if they are inappropriate for you. Data from this interview will only be used for the preparation of my doctoral thesis.
Questions	<ol style="list-style-type: none"> 1. Can you introduce yourself (academic background, work experience or any other information related to opportunities)? 2. Is this the first time that you are going to start a business? 3. Can you describe your business idea? (product or services) 4. How did you come up with this idea? 5. When did you first recognise this and where? 6. Did you discuss it with anyone? 7. How did you capture the idea? 8. What happened after you thought of it? 9. How has it changed between now and then? 10. What do you think your participation in the incubator will achieve? 11. Are you expecting your ideas to change? In what ways? 12. What makes you conclude this is a business idea? 13. Why do think this is a good idea to be converted into a business? 14. Can you explain your expectations from your idea? 15. How important is the idea to you?

	<p>16. What are you prepared to invest in and how much of it on pursuing ideas?</p> <p>17. When would you know that your idea has succeeded or failed?</p>
End	Is there anything else that you would like to add to my research?

Appendix B

INTERVIEW PROTOCOL FOR STUDENT ENTERPRISE MANAGER	
Researcher	Mohammad Saiful Islam
Research Topic	The aim of the study is to understand: how do entrepreneurs recognise entrepreneurial opportunities?
Terms of the Interview	During the interview you have the right to skip some of the interview questions if they are inappropriate for you. Data from this interview will only be used for the preparation of my doctoral thesis and will be only be examined by internal and external examiners.
Interview Questions	<ol style="list-style-type: none"> 1. Can you introduce yourself? 2. Can you describe the selection process of student entrepreneurs for the Launch Pad programme? 3. Why is there is a selection process or screening criteria for the Launch Pad programme recruitment? 4. What do you assess from students and their ideas? 5. Why are these important for the Launch Pad programme? (based on the answer of question 3) 6. What should they achieve from the Launch Pad programme?
End	Is there anything else that you would like to add to my research?

Appendix C

Consent Request Form for the Incubator

This document is to inform you about my doctoral research and gain your consent to be a voluntarily participant in my research. I am undertaking research that currently investigates how student entrepreneurs develop their business ideas with the help of student enterprise centres within university business incubators. Your participation in this research is important as the outcome of the research has the potential to improve our understanding of student entrepreneurs' idea development processes. This will also help me to complete my doctoral thesis.

Therefore, may I ask you to participate in my research? Your participation is completely voluntary. Your participation means that you will participate in a face-to-face interview with me, and you will allow me to observe some of your events i.e. the Launch Pad programme. You may wish to skip some of the interview questions if you deem them inappropriate for you and/or you may wish to withdraw yourself at any point during the research.

I promise I will give priority to your time and I also promise the following:

- The interviews and observations will only be used for writing my thesis
- Your name will remain anonymous
- The interviews and observations will remain confidential and will only be examined by supervisors and external examiners (assessors of the doctoral thesis)

Should you require any further information, please do not hesitate to contact me. My contact details: Mohammad Saiful Islam, Mobile no: 07740262795, email address: im_saiful@yahoo.com. This research project is supervised by Dr Theodora Asimakou (t.asimakou@londonmet.ac.uk) and Professor Dean Bartlett (d.bartlett@londonmet.ac.uk) at London Metropolitan University.

Signed..... & Date.....

Print Name.....

Appendix D

Consent Request Form for Participants

This document is to inform you about my doctoral research and gain your consent to be a voluntarily participant in my research. I am undertaking research that currently investigates how student entrepreneurs develop their business ideas with the help of the student enterprise centres within the university business incubator. Your participation in this research is important as the outcome of the research has the potential to improve our understanding of student entrepreneurs' idea development process. This will also help me to complete my doctoral thesis.

Therefore, may I ask you to participate in my research? Your participation is completely voluntary. Your participation means that you will participate in a face-to-face interview with me. You may wish to skip some of the interview questions if you deem them inappropriate for you and/or you may wish to withdraw yourself at any point during the research.

I promise I will give priority to your time and I also promise the following:

- The interviews and observations will only be used for writing my thesis
- Your name will remain anonymous
- The interviews and observations will remain confidential and will only be examined by supervisors and external examiners (assessors of the doctoral thesis)

Should you require any further information, please do not hesitate to contact me. My contact details: Mohammad Saiful Islam, Mobile no: 07740262795, email address: im_saiful@yahoo.com. This research project is supervised by Dr Theodora Asimakou (t.asimakou@londonmet.ac.uk) and Professor Dean Bartlett (d.bartlett@londonmet.ac.uk) at London Metropolitan University.

Signed..... & Date.....

Print Name.....

Appendix E

Data collection log

EVENT 1: BIG IDEA CHALLENGE 2016					
Date & Time	Place & Location	Activity	Data Collection	Who	What
17-03-2016 (9:30- 15:00)	Incubator, Shoreditch	Bootcamp session (Day-1)	Participant observation	Participants	Activities
21-03-2016 (9:30am-15:00)	Incubator, Shoreditch	Bootcamp session (Day-2)	Absent
04-04-2016 (13:45-17:00)	Incubator, Shoreditch	1st Pitch (Day- 1)	Participant observation	Participants	Activities
05-04-2016 (10:30-17:00)	Incubator, Shoreditch	1st Pitch (Day- 2)	Participant observation	Participants	Activities
21-04-2016 (13:00-17:00)	Incubator, Shoreditch	2nd Pitch Day	Absent
28-04-2016 (18:30-20:30)	The Trampery, Old Street	Award Night	Participant observation	Participants	Activities
EVENT 2: SUMMER LAUNCH PAD PROGRAMME 2016					
Date & Time	Place & Location	Activity	Data Collection	Who	What
16-06-2016 (11:50-12:50)	Incubator, Shoreditch	Launch Pad candidate selection	Participant observation	Applicants applying for Launch pad	Documenting selection activities
17-06-2016 (11:00-13:30)	Incubator, Shoreditch	Launch Pad candidate selection	a) Participant observation b) Interview with Simon Boot (Face-	a) Applicants applying for Launch Pad b) Student	Documenting selection activities

			to-Face)	Enterprise Manager interview	
28-06-2016 (9:30-16:30)	Incubator, Shoreditch	Week 1 (BOOTCAMP Training Day-1)	a) Participant observation b) Interview – Byron, Marco & Oscur (Face-to-Face) c) Mind mapping	Participants	Activities
29-06-2016 (10:00-17:00)	Incubator, Shoreditch	Week 1 (Bootcamp Training Day-2)	a) Participant observation b) Interview – Sophie, Isatou & Haddy, Aida (Face-to-Face) c) Mind mapping	Participants	Activities
30-06-2016	Home		a) Interview-Martin (Skype video interview) b) Mind mapping	Participants	Activities
05-07-2016	Incubator, Shoreditch		a) Interview-Dan (Face-to-face) b) Mind	Participants	Activities

			mapping		
06-07-2016 (9:30-16:30)	Incubator, Shoreditch	a) Weekly report presentation b) Start-up stage, customer discovery c) Incubated company director presentation	a) Participant observation b) Interview – Almudena, Andrew, Ivan, Vera, Nicole & Whitney (Face-to- Face) c) Mind mapping	Participants	Activities
13/07/2016 (9.30-16:15)	Incubator, Shoreditch	a) Weekly report presentation b) Case study on equity share, business idea testing, Product testing c) Incubated company director presentation	a) Participant observation b) Interview – Tom (Face-to- Face) c) Mind mapping	Participants	Activities
20/07/2016	Incubator, Shoreditch	a) Weekly report presentation b) Branding, Marshmallow challenge c) Business Idea testing	Participant observation	Participants	Activities
27/07/2016 (9:30-16:00)	Incubator, Shoreditch	a) Weekly report presentation	Participant observation	Participants	Activities

		b) Sales c) Google AdWords training			
03/08/2016 (9:30-16:00)	Incubator, Shoreditch	Week 6	Absent		
10/08/2016 (9:30-16:00)	Incubator, Shoreditch	a) Weekly report presentation b) Finance, pitch c) Group discussion	Participant Observation	Participants	Activities
17/08/2016 (9:30-16:00)	Incubator, Shoreditch	a) Weekly report presentation b) Pitch practice c) Visit to nearest incubator	Participant Observation	Participants	Activities
24/08/2016 (9:30-16:00)	Incubator, Shoreditch	a) Weekly report presentation b) Pitch training session	Participant Observation	Participants	Activities
31/08/2016 (9:30-16:00)	Incubator, Shoreditch	Assessment day	Participant Observation	Participants	Activities

Appendix F

Attendance sheet for Launchpad participants

Name	Date (28/06/2016 to 31/08/216)										
	28/06	29/06	06/07	13/07	20/07	27/07	03/08	10/08	17/08	24/08	31/08
Aida	P	P	P	P	P	P	P	P	P	P	A
Alessandro	A	A	A	A	P	P	A	A	A	A	A
Almudena	P	P	P	P	P	P	P	A	A	A	P
Andrew	A	A	P	P	P	P	P	P	A	P	P
Bryon	P	P	P	P	P	P	P	P	P	P	P
Daniel	P	P	P	P	P	P	P	P	A	A	P
Elise	P	P	W	W	W	W	W	W	W	W	A
Emma	P	P	P	P	P	P	P	P	A	P	P
Haddy	A	P	A	P	P	A	P	P	A	P	P
Isatou	P	P	A	P	A	A	P	A	A	P	P
Ivan	P	P	P	P	P	P	P	P	P	P	P
Lisa	P	P	P	P	P	P	A	A	P	A	P
Marco	P	P	P	P	A	A	A	P	P	P	P
Mohammad	P	P	P	P	P	P	A	P	P	P	P
Nathneil	A	P	A	A	A	A	P	P	P	P	P
Nian	A	A	P	P	P	P	A	A	A	A	P
Nicole	P	P	P	P	P	P	A	A	P	P	P
Oscur	P	P	P	P	P	P	A	P	A	A	P

Salvomir	P	P	A	P	P	A	P	A	A	A	P
Simas	A	A	P	P	A	P	P	P	P	A	A
Simon	P	P	A	P	P	P	P	P	P	P	P
Sophie	P	P	P	W	W	W	W	W	W	W	A
Tom	A	A	P	P	P	P	P	A	P	P	P
Toby	P	P	P	A	P	P	P	P	P	P	P
Vera	A	A	P	P	P	P	P	P	P	P	P
Whitney	P	P	P	P	P	P	P	P	P	P	P