

ARE CURRENT MODELS OF ENTREPRENEURIAL
DECISION-MAKING AND COGNITIVE COPING RELEVANT
TO NOVICE ENTREPRENEURS?

A thesis submitted to The University of Manchester for the degree of
Doctorate of Business Administration
in the Faculty of Manchester Business School

2015

LOUISE PINFOLD

SCHOOL OF HUMANITIES / Manchester Business School

TABLE OF CONTENTS

LIST OF TABLES	5
LIST OF FIGURES	6
ABSTRACT.....	7
DECLARATION.....	9
COPYRIGHT STATEMENT.....	9
1 CHAPTER 1: Introduction	10
1.1 Area of Research	10
1.2 Research Questions and Overview of the Study	10
1.3 Intended Contributions	11
1.4 Overview of the Chapters.....	11
2 CHAPTER 2: Literature Review	13
2.1 Introduction	13
2.2 Entrepreneurship	16
2.2.1 Entrepreneurship: the UK Context	17
2.3 Summarising the Literature for Entrepreneurs: Epistemological & Ontological Approaches..	19
2.3.1 Reviewing the Literature for Entrepreneurs: Affect – Emotions	21
2.3.2 Reviewing the Literature for Entrepreneurs: Behaviour.....	25
2.3.3 Reviewing the Literature for Entrepreneurs: Cognition	30
2.3.4 Reviewing the literature for Entrepreneurs: Cognitive Coping.....	38
2.3.5 Summarising the literature for Novice Entrepreneurs	40
2.4 Decision Making.....	41
2.4.1 Decision-making Context – Difference in Risk vs. Uncertainty	42
2.4.2 Summarising decision making for novice entrepreneurs	47
2.5 Research Questions and Potential Contribution	49
2.5.1 Appropriate research methodology	50
3 CHAPTER 3: Methodology	52
3.1 Introduction	52
3.1.1 Verbal Protocol Analysis.....	53
3.2 Research Process.....	55
3.2.1 Planning	55
3.2.1.1 Ethics	56
3.2.2 Protocol Development.....	56
3.2.2.1 Pilot and Review	57
3.2.2.2 Protocol Development.....	57
3.2.3 Sampling	60
3.2.3.1 Sample Selection.....	60
3.2.3.2 Sample Matrix.....	63
3.2.4 Study Population	65
3.3 Data	65
3.3.1 Collection	65
3.3.2 Coding	66
3.3.3 Relativist Design – Generalisability	68
3.4 Analysis of the sample	69
3.5 Conclusions	74
4 CHAPTER 4: Pilot Project.....	76
4.1 Introduction	76
4.2 Methodology of Pilot Phase	76

4.2.1	Sampling	78
4.2.2	Method – Protocol Analysis	79
4.2.2.1	Pilot Interviews	80
4.2.3	Coding	81
4.3	Analysis.....	82
4.3.1	Sample – Descriptive Statistics	82
4.3.2	Results.....	83
4.3.3	Discussion	85
4.4	Implications	87
4.5	Conclusion	90
5	CHAPTER 5: Experiences and Emotions	92
5.1	Introduction	92
5.1.1	Coding	92
5.2	Results	98
5.3	Experiences.....	98
5.3.1	Experiences Code – Total Codes	99
5.3.2	Experiences Code – Who is the focus?	100
5.3.3	Experiences Code – What is the Environment?	102
5.3.4	Experiences Code – What is the Sub-area of the Environment?	103
5.3.5	Experiences Code – What is the topic of enquiry?	104
5.3.6	Experiences Summary.....	105
5.4	Emotions.....	105
5.4.1	Emotions – Optimism?.....	105
5.4.2	Emotions - Consistency	107
5.4.3	Emotions - Overconfidence/Persistence?.....	110
5.5	Conclusions	113
6	CHAPTER 6: Decision-Making.....	115
6.1	Introduction	115
6.2	Research Questions.....	115
6.3	Data Analysis	116
6.3.1	Coding	117
6.3.2	Excluded data points.....	118
6.4	Results	119
6.4.1	Linear and Feedback Decision-making.....	119
6.4.2	Effectuation and Causal Decision-making.....	124
6.4.3	Analogical and Heuristic Sense-making	127
6.4.4	Salient Experiences	129
6.4.5	Knowledge from Negative Feedback	131
6.5	Conclusions	132
7	CHAPTER 7: Discussion and Conclusions.....	133
7.1	Introduction	133
7.2	Research summary	133
7.3	Discussion of key findings.....	134
7.3.1	Decision-making.....	134
7.3.1.1	Effectual and Causal Logic	135
7.3.1.2	Feedback and Linear Thinking	136
7.3.1.3	Adept at Switching – Coping with Flexibility	136
7.3.1.4	Salient Experiences & Coping with Negative Feedback.....	137
7.3.2	Experiences	137
7.3.3	Emotions	138
7.4	Contribution to Literature on Novice Entrepreneurs.....	139
7.4.1	Decision-making.....	139
7.4.2	Experiences and Emotions	140

7.5 Contribution to Practice	140
7.5.1 Entrepreneurs	141
7.5.2 Entrepreneurial Support Network	141
7.6 Strengths and Limitations.....	142
7.7 Summary Conclusion.....	144
REFERENCES	146
APPENDIX A: Pilot Phase Verbal Protocol Guide.....	158
APPENDIX B: Verbal Protocol Guide.....	161
APPENDIX B: PART 2	165
APPENDIX B: PART 3	166
APPENDIX B: Background Information	170
APPENDIX C: Email Invitation Document.....	171
APPENDIX D: Consent Form	172
APPENDIX E: Sample Analysis Spread Sheet.....	173

Word Count [58,414]

LIST OF TABLES

Table 3-1 Development differences between Pilot and Main Research	59
Table 3-2 Planned Sample Matrix	64
Table 3-3 Final sample of Randomised Participants	69
Table 3-4 Final Matrix Results	70
Table 3-5 Total Sample Background	71
Table 3-6 Research Sample and Population Comparison.....	73
Table 4-1 Pilot Coding Scheme	81
Table 4-2 Pilot Coding Results	84
Table 4-3 Results Comparison of Novices with Dew et al. (2009)	84
Table 5-1 Example of Interview Flow and Timing	93
Table 5-2 Codes for Experiences Categories.....	95
Table 5-3 Codes for Emotion Categories	97
Table 5-4 Descriptive Statistics Focus of the Experience	99
Table 5-5 Descriptive Statistics Focus of the Environment	102
Table 5-6 Descriptive Statistics Sub-area of the Environment.....	103
Table 5-7 Descriptive Statistics Focus of the Enquiry	104
Table 5-8 Descriptive Statistics of the Identified Emotions	108
Table 5-9 Weighted Confidence Scale Decision Items	110
Table 5-10 Descriptive Statistics Results of Weighted Confidence Scale per Question.....	111
Table 6-1 Protocol Questions	117
Table 6-2 Count of Decision-making Responses per Question.....	120
Table 6-3 Predominant Decision-making Style.....	121
Table 6-4 Participant Total Loops per Question.....	122
Table 6-5 Participant Total Feedback Loops.....	123
Table 6-6 Participant Requests for Information	124
Table 6-7 Comparison of Novice and Young Firm Results	125
Table 6-8 Cross Protocol Experiences & Decision-making	128
Table 6-9 Question Detail for Q6 & Q7	129
Table 6-10 Question 6 & 7 Experiences and Emotions Data	130

LIST OF FIGURES

Figure 2-1 Integrative Affect-Behaviour-Cognition Model	20
Figure 2-2 Integrative Cognitive Coping	40
Figure 3-1 Photo of Additional Available Information	58
Figure 5-1 Emotions Magnitude Coding	97
Figure 5-2 Distribution of Participants number of Total Experiences.....	99
Figure 5-3 Graph of number and source of Experiences	100
Figure 5-4 Participants with zero 'Own Business' Experiences in RED.....	102
Figure 5-5 Graph of Positive Affect to Protocol Positive Emotions	108
Figure 5-6 Graph of Negative Affect to Protocol Negative Emotions	109
Figure 5-7 Participant Confidence to Positive Affect.....	112

ABSTRACT

University of Manchester,

Doctorate of Business Administration in the Faculty of Manchester Business School,

September 2015, Louise Pinfold

ARE CURRENT MODELS OF ENTREPRENEURIAL DECISION-MAKING AND COGNITIVE COPING RELEVANT TO NOVICE ENTREPRENEURS?

The objective of this research is to explore the extent to which current models of decision-making and entrepreneurial cognition are relevant to a sample of true novice entrepreneurs, those who are in the process of founding their first business venture. Novice entrepreneurs are recognised as being essential to sustaining the entrepreneurial churn in economies (Disney, Haskel & Heden, 2003) especially as the young firm population requires new entrants. The need arises because of the high rates of churning observed in populations of young firms that require a constant inflow of new ventures to renew the stock of businesses (Ganguly, 1985). Whilst some studies of the behaviour of entrepreneurs do focus on relatively young firms (e.g. Chandler, DeTienne, McKelvie, & Mumford, 2011) studies of true novice entrepreneurs are rare. The thesis seeks to address this gap in the literature. A sample of true novice entrepreneurs, that founded businesses in 2013 and 2014, is interviewed to explore their decision-making and cognition regarding a realistic new business case study. The approach replicates that used by other authors who have studied expert entrepreneurs (Sarasvathy, 2001; Sarasvathy, 2008; Chandler et al., 2011; Dew, Read, Sarasvathy & Wiltbank, 2009) using a think-aloud protocol to identify causation and effectuation styles. However, by using a mixed methods approach of concurrent and retrospective think-aloud aspects it was possible to identify novice decision-making and to capture the prior experiences that they referred to (Banks, Stanton & Harvey, 2014). The sample of 32 true novices was a randomised sub-set of 1128 business founders in the UK. The experimental protocol enabled a comparison with alternative expertise theories of feedback and linear thinking in decision-making (Winch & Maytorena, 2009). The key findings were contrary to the hypotheses; the true novices were both more effectual and more casual than expected; and furthermore were frequently using feedback loops in their decision-making. In addition, as the novice entrepreneurs reflected upon their experiences that informed their decisions, the literature predicts that novice entrepreneurs

would have to adopt analytical approaches to decision making as they lack salient experiences to inform their decisions in the early years of trading. However, contrary to expectations, the novices used both analogical and heuristic sense-making approaches and were adept at switching between them (Jones & Casulli, 2014). The outcome of the experimental protocol offers insights into the extent to which the current literature captures the decision-making processes and entrepreneurial cognition of true novice entrepreneurs. The evidence is mixed, offering the opportunity for further refinement of existing theoretical constructs, and reinforcing the relevance of alternative theories of cognition and decision making for novice entrepreneurs, for government policies and the support networks and that provide resources to assist the creation and survival of new entrepreneurial ventures.

In addition, for novice entrepreneurs, this research examined the relevance and influence of their prior experiences and emotions on their entrepreneurial decision-making. In founding their first business, the prediction for novices is that they would struggle to draw on appropriate experiences (Mathias, Williams & Smith, 2015). However, the results showed novices referencing a wide variety of experiences, with the majority of these based on personal events that they had directly experienced either in their current start-up or previous work activity. Emotions are believed to influence entrepreneurs' abilities to cope with uncertainty in business decision making and to persist in their endeavours in the face of adverse experiences and entrepreneurs are predicted to be over optimistic (Koellinger, Minniti & Schade, 2007; Ucbasaran, Westhead, Wright & Flores, 2010). The research profiled the novices' emotions using the internationally externally validated PANAS (Positive and Negative Affect) scale (Watson, Clark & Tellegan, 1988) and the findings showed the novices engaged consistently with their underlying trait emotions however, interestingly, they were not statistically more optimistic than the UK population (Thompson, 2007). The findings make a contribution to both the theoretical explanations and practical aspects of novice entrepreneurship and show the appropriateness of relating current research to widely used measures from other fields of study, particularly as the impact of emotions is currently influencing the future of entrepreneurship research (Cardon, Foo, Shepherd & Wiklund, 2012; Shepherd, 2015).

DECLARATION

I declare that no portion of the work referred to in this thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

COPYRIGHT STATEMENT

- i. The author of this thesis (including any appendices and/or schedules to this thesis) owns certain copyright or related rights in it (the “Copyright”) and s/he has given The University of Manchester certain rights to use such Copyright, including for administrative purposes.
- ii. Copies of this thesis, either in full or in extracts and whether in hard or electronic copy, may be made only in accordance with the Copyright, Designs and Patents Act 1988 (as amended) and regulations issued under it or, where appropriate, in accordance with licensing agreements which the University has from time to time. This page must form part of any such copies made.
- iii. The ownership of certain Copyright, patents, designs, trade marks and other intellectual property (the “Intellectual Property”) and any reproductions of copyright works in the thesis, for example graphs and tables (“Reproductions”), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property and/or Reproductions.
- iv. Further information on the conditions under which disclosure, publication and commercialisation of this thesis, the Copyright and any Intellectual Property and/or Reproductions described in it may take place is available in the University IP Policy (see <http://documents.manchester.ac.uk/DocuInfo.aspx?DocID=487>), in any relevant Thesis restriction declarations deposited in the University Library, The University Library’s regulations (see <http://www.manchester.ac.uk/library/aboutus/regulations>) and in The University’s policy on Presentation of Theses

1 CHAPTER 1: Introduction

1.1 Area of Research

My thesis explores the current decision-making models to understand their relevance and applicability for novice entrepreneurs. Are there elements of prior experience that help novices in their decision making to support their cognitive coping, such that they novices may be coping better by connecting to their prior experiences or that they may be coping better by managing their emotions in their decision-making. The research has captured novice entrepreneur's decisions using a scenario-based method of think-aloud protocol for issues pertinent to business start-up and growth. Can we see elements of expert decision-making in the actions of the novice? (Winch & Maytorena, 2009; Sarasvathy, 2008; Kahneman, 2011) There are many different models of decision-making but they have similar concepts and have developed from similar underlying premises, therefore can these be integrated to provide useful results?

In the entrepreneurial literature there is growing importance in the consideration of emotions as an important aspect of decision-making. Therefore can an integrated view of cognitive coping provide clarity to the decisions required under the emotional stress of an uncertain or risky context, where the future is unknown but the potential losses are ever present. By definition of a novice, their experience is not in starting a prior business but in other activities that provide insights for relevance or success. For the novice, their decisions will draw upon their prior experiences, previous decision-making and their sense-making of the situation, which Winch argues are complementary theoretical approaches (2009). This has important implications for action, by Governments and business groups that aim to support increases in successful entrepreneurial activity.

1.2 Research Questions and Overview of the Study

The underpinning research question to be addressed in this thesis is; to what extent are current

models of entrepreneurship decision-making relevant to novice entrepreneurs? This is developed from the literature review and is an especially under researched area due to the difficulty of accessing novice entrepreneurs, particularly while they are actually a novice. Entrepreneurial research on novices is influenced by what entrepreneurs think they did during the early stages of their business development, however this is biased by retrospective recall of information or by survival bias. The proposed method of data collection is using an experimental design of a verbal think-aloud protocol. This overcomes to an extent the bias of memory recall, but is an intensive process for collecting data.

1.3 Intended Contributions

The intended contributions are to both the entrepreneurial decision-making literature, particularly because for a true novice population there are very limited published results. The contribution to practice is important as novices have limited evidence based guidance as most of the research is directed towards supporting experienced entrepreneurs and high growth industries. The aim is that these findings should inform the novices to understand the environment as well as the supporting organisations, such as government bodies, financiers and business support professionals.

1.4 Overview of the Chapters

The thesis starts with CHAPTER 2: Literature Review, which explores the current entrepreneurship literature concerning the interaction of emotions, behaviour and cognition of entrepreneurs. This area is complex and for emotions is a particularly developing area of interest for researchers. The chapter includes a focused review of the decision-making models to understand the applicability or relevance to novice entrepreneurs. The summary of this work is the key research question concerning decision-making for ‘de novo’ or first time novice entrepreneurs.

The CHAPTER 3: Methodology follows which details the rigorous approach that is required to obtain a representative sample of novice entrepreneurs. In addition, it details the development

of the think-aloud protocol to be suitable and applicable for novices. As the experimental work is complex it was initially piloted on 8 novices to understand the difficulties associated with the research. This is detailed in CHAPTER 4: Pilot Project which covers the preliminary findings as to the appropriateness of the protocol for novices.

As mentioned the research aims to understand the interaction of emotions and experiences in the novice entrepreneurs decision-making. The initial detail of the findings in CHAPTER 5: Experiences and Emotions focus of the experiences that the novice entrepreneurs draw upon for their decision-making and the connection to emotions.

Building on the work of the experiences and emotions, CHAPTER 6: Decision-Making explores the detail of the different decision-making models and the associated hypotheses. Where available, the results are tested against existing published scales and measures to connect the research to the existing literature and build on those structures.

To finish CHAPTER 7: Discussion and Conclusions brings together the key points that developed from the Pilot and main thesis research. This includes limitations of the research, areas for future research and the contributions that the work will make. This is followed by the Reference section and the Appendices; including the full think-aloud protocol instructions and some representative samples of the analysis.

2 CHAPTER 2: Literature Review

2.1 Introduction

The purpose of my literature review is to examine the skills and expertise of entrepreneurs, in particular, to understand the impact of these skills on the business prospects of novice entrepreneurs. It is argued by some scholars (Cassar, 2014; Uy, Foo & Song, 2013; Sarasvathy, 2008) that these skills may have important implications for the early-stages of new business development and, therefore, chances of longer-term success. My review explores the decision-making of the novice entrepreneur and their attitudes or approaches to decisions in the start-up stage. This research is based in the entrepreneurship literature and using the lens of psychology to explore the affective, behavioural, and cognitive components of attitude (Weiten, 2008). The concepts of affect-behaviour-cognition are referred to more simply as “thinking-feeling-doing connections” (Cardon, Foo, Shepherd, & Wiklund, 2012, p 7.). These three components of attitude are needed to contribute to an understanding of novice entrepreneurs’ decision-making approaches, actions, and coping that underlies the struggle for survival and development of early-stage ventures.

Following the economic collapse of 2008-09, unemployment increased in the UK to peak above 8%, it is currently at 6.6%, still, higher than the 2008 level of 6% (ONS, Nov. 2013, June 2014). Faced with poor job prospects or part-time options, some workers entering the job market decided to start their own businesses, with 2014 showing one of the biggest increases (BIS 2015a). This necessity-driven motive to start-up activity is not new and has attracted the attention of policy-makers looking for solutions to unemployment problems in their countries in the Global Entrepreneurship Monitor report, GEM, 2011 Global Report (Bosma, Wennekers & Amorós, 2012). In the UK there may be potential for government intervention by increasing total early-stage entrepreneurial activity, which is relatively low at 10.7 TEA, Total early-stage Entrepreneurial Activity, compared with the United States at 13.81 TEA, GEM, 2014 Global Report, (Singer, Amorós & Moska, 2015), and with necessity-driven element increasing to 1.4 in 2014 up from 0.7 in 2010 (necessity-driven is 12.9% of the total TEA which was 10.66 in 2014, UK).

The problem for policy-makers, regional government and banking institutions is to use scarce resources wisely and if the aim is to create successful new businesses, the support should be

targeted and, particularly for novices, the right kind of assistance needs to be directed to these novice entrepreneurs. The need is substantial, with 330,000 new business births in 2014, equivalent to 11% of all active businesses (BIS, 2015). There is an argument that with this high level of start-ups, no additional stimulus is required (De_Meza & Webb, 1999), although with publication of the Lord Young report in 2012 the UK government have reaffirmed continued support to SMEs (Small and Medium Enterprises) (Young, 2012). Since resources are finite more appropriate support requires selective targeting and this requires an understanding of what kinds of entrepreneurs and entrepreneurial activity are most likely to succeed. Since by definition novice entrepreneurs do not have a history of start-up activity, we cannot direct assistance to novices who have been successful in the past. It is suggested that early-stage novice entrepreneurs are disadvantaged in their initial attempts to start businesses by their lack of prior start-up experience (Storey, 1994). Sarasvathy (Sarasvathy, 2001; Sarasvathy, 2008) demonstrated that many expert entrepreneurs develop their approach to the early-stage of starting up through years of practice, which is supported by research that claims that serial entrepreneurs tend to be more successful in terms of outcomes (Parker, 2013).

The literature on this subject is incomplete, although there has been significant research on individual's traits. For example, entrepreneurial orientation (EO) aims to identify entrepreneurial traits that are likely to indicate innate abilities developed and refined by several authors (Covin & Wales, 2012; Miller, 2011; Covin & Lumpkin, 2011; Dess, Pinkham & Yang, 2011). There is consistent evidence for the innovation, risk-taking and proactive aspects of EO (Covin & Miller, 2014), however the results show high inter-correlation and have been poor at predicting success for an individual. Meek et al. (Meek, Pacheco & York, 2010) have gone as far as dismissing the influence of traits as drivers in entrepreneurship. It may be that these traits are too generic and need to be examined more closely in terms of what this means for individuals' decisions and behaviours. This review explores whether there are other 'markers' that can indicate improved chances of success in novice entrepreneurs that, if identified, would help policy-makers target assistance to that population.

The notion of 'markers' is not new. In the world of sports, the British Olympic Committee assembled what became a medal-winning rowing team by advertising for athletes who did not have rowing experience, but possessed certain attributes believed to correlate with competitive success in the sport (UK Sport Government, 2012). In the entrepreneurship literature Sarasvathy (2001, 2008) argues that skilled decision-making during start-up is a key marker for success in a population of expert entrepreneurs. This approach, whereby experts create their

business opportunities, is known as ‘effectuation’, combining five aspects of approach including; starting from their means; an affordable loss; creating alliances; driven by human action; and embracing surprises. These topics will be discussed further in the review, however the nature of effectuation is a key strand in current entrepreneurship debates. Effectuation focuses on the creation of opportunities and contrasts to the ‘causation’ approach, as an alternative strategy of entrepreneurial decision-making (Sarasvathy, 2001). With causal reasoning, entrepreneurs are skilled at identifying existing opportunities in the market, by “seeing” new means-ends relationships (Shane, 2000) as opposed to having to create those opportunities. However, few researchers have sought markers in the novice entrepreneur population, one exception being Cressy (Cressy, 1996) who found that earnings levels prior to start-up were a reasonable predictor of entrepreneur earnings in their own venture.

In a similar vein, the markers to which I refer relate to experiences outside of business start-up activity that may have shaped the individual’s decision-making skills in the presence of uncertainty. By the very definition of a complete novice entrepreneur, this experience would not be in starting a prior business but in other types of activities that might provide insights and lessons important for success. Are there elements of prior experience that matter, and can other life experiences be markers for predicting better entrepreneurial outcomes? Certain types of prior experiences may improve judgment about what opportunities to pursue, what resources and networks to muster from the environment and what cognitive processes may be applied to achieve greater success (Moroz & Hindle, 2012). In particular, the novice’s decisions must be drawn from their previous behavioural decision-making and sense-making of their new situation, which Winch et al. argue are complementary theoretical approaches (Winch & Maytorena, 2009) for decisions between known risks and unknown uncertainty (Knight, 1957). When launching a new venture, when everything is unknown, how can novices cope with making the ‘right’ judgements and decisions and how should they respond to both positive developments and potential losses?

In pursuing this question the focus will be on the decisions, cognitions and emotions of the novice entrepreneur, based in the entrepreneurial cognition research (Mitchell, Busenitz, Lant, Mcdougall, et al., 2004; Baron & Ward, 2004) and the emotional and cognitive aspects of decisions (Hayward, Forster, Sarasvathy & Fredrickson, 2010; Ucbasaran et al., 2010). In essence, can we see elements of an expert entrepreneur or trader, in the actions of the novice? (Sarasvathy, 2008; Kahneman, 2011) What prior experiences matter and could these act as markers for predicting better entrepreneurial outcomes?

These questions might have important implications for action, by Governments and business groups that aim to support the creation of successful entrepreneurial activities (Young, 2012). Government initiatives have sought to share serial entrepreneurs' experiences with novices or early-stage businesses, typically through mentoring schemes. To date evidence on the success of such initiatives is limited (Greene, Mole & Storey, 2008). But if previous experiences, not specific to start-up, are important there may be ways to develop and direct potential entrepreneurs to these types of activities in preparation for launching a venture, as well as for entrepreneurship education more generally? Next, I provide context for this literature review by discussing the nature of entrepreneurship and the environment in which entrepreneurial endeavours are pursued in the UK.

2.2 Entrepreneurship

In the current literature there is no single definition for entrepreneurship however one developed from the Austrian economic school states that entrepreneurship consists of the competitive behaviours that drive the market process (Kirzner in Davidsson 2005). This brings together the activities and decisions of the individual entrepreneur and the micro-foundations of economics in the wider market place, including the early stages of business development. Davidsson adds to this definition for the domain of entrepreneurship research, stating that it encompasses the study of processes of (real or induced, and completed as well as terminated) emergence of new business ventures, across organizational contexts (Davidsson, 2005). In essence Davidsson argues that, 'the macro structure of a region or country influences the type and quantity of entrepreneurship' as was stated in *Recent Developments in the Economics of Entrepreneurship* (Minniti & Levesque 2008, p603).

Entrepreneurship research has foundations from the fields of economics, sociology and psychology (Fayolle & Wright, 2014) and as the entrepreneurship literature developed, many frameworks were drawn from economics (Storey, 1994). This perspective can be observed from the emphasis on small firms rather than individual entrepreneurs and their measurements, with a focus on the impact of entrepreneurship as an element of economic policy. This economic perspective may have gained acceptance because the growth of interest in entrepreneurship arose from the potential for impact on economic growth and performance (Audretsch in Fayolle & Wright, 2014, p239). A rigorous analysis of the co-citation convergence of entrepreneurship literature from 1981 – 2004, based upon analysis of peer-

reviewed journals, summarises the areas of debate; definitions of entrepreneurship; consensus on theories; purpose of the field; methods & measures of performance and legitimacy (Grégoire, Noël, Déry & Béchar, 2006). The authors identified the progress of conceptual themes, with the majority being economic, such as emergence, strategic agendas and opportunities. They emphasised that there is no single paradigm and highlighted those from sociology, such as networks, and psychology such as cognition and personal characteristics. Although there has been a dominance of economic focus, this is not the whole picture and this review will concentrate on psychology as a main viewpoint.

So overall, in the literature the attention on new venture performance, is focused at firm level rather than taking the individual as the unit of analysis (there are of course exceptions, see for example the work of (Baron & Ward, 2004; Baron, 2008; Holland & Shepherd, 2011; Sarasvathy, 2008)). These authors have considered the importance of individual attitudes and behaviours. However, it has been argued that development of the psychological traits based on the individual has proved 'less successful in establishing clear differences between entrepreneurs and non-entrepreneurs' (Grégoire et al. 2006, p346). Shane & Venkataraman and others have developed models of economic disequilibrium in exploring opportunity recognition and entrepreneur alertness theories (Shane & Venkataraman, 2000).

Whilst acknowledging these important contributions from an economics perspective, my review will bring together developments related to the individual, particularly concerning their skills and behaviours in a psychology framework that considers issues such as attitude of the affect, behaviour and cognition (Weiten, 2008) and the impact on entrepreneurial outcomes.

Next, though, it is necessary to review the particular issues of the UK context, as this is the environment in which my research will be conducted.

2.2.1 Entrepreneurship: the UK Context

The Office of National Statistics provides the latest data for the UK economy, which in 2014 showed that of an estimated 5.2 million business in the UK, 99.3% of all private sector enterprises, were small [0-9 employees] by the Department for Business Innovation and Skills (BIS, 2015). These micro enterprises account for 47.8% of employment at 12.0 million people and 33.2% of total turnover. This is substantial and if we include small and medium sized enterprises in total SMEs account for 49.8% of employment and 49.0% of turnover (BIS,

2015).

The individual or lone entrepreneur represents a significant proportion of early stage entrepreneurs and in total sole traders account for about 3.2 million jobs (British Chamber of Commerce, 2013). However, a relatively small proportion of new businesses (around 10%) will go on to employ significant numbers of people (Hart, 2015).

This perspective compares with the more detailed Global Entrepreneurship Monitor (GEM), which has 'sought to explore the two-way link between entrepreneurship and economic development... as the economy's prosperity is highly dependent on a dynamic entrepreneurship sector' in the GEM 2011 Extended Report (Bosma et al. 2012 p10). Initiated by London Business School academics the aim was to provide global empirical evidence as part of the socio-economic development by providing annual measures in the form of adult population surveys for more than the past 10 years.

In the UK the Total early-stage Entrepreneurial Activity (TEA) was 11% of working age adults, which includes nascent pre-start and new business rates, in the GEM United Kingdom results for 2014 (Singer et al., 2015). The TEA cut off for early-stage ventures is 42 months (3.5 years). Globally GEM research shows TEA activity declines in line with increasing levels of GDP per capita. The theoretical basis for GEM is 'between entrepreneurial attitudes & perceptions, intentions, and actual involvement in entrepreneurial activity at the macro level' which includes the individual drivers contrasting between necessity-driven and opportunity-driven motives, in the GEM 2011 Extended Report (Bosma et al. 2012, p25). The GEM framework links attitudes and activity, providing a standardized longitudinally developed measure for the nascent or novice entrepreneur.

At a relevant local Manchester level a number of other sources have been used. The ethnic minority groups for Greater Manchester at mid-year population estimates 2009 were 22.7% of the 483.8k people (Office of National Statistics, May 2011). Over 9 years the percentage growth had increased from 19.1% to the 22.7%. This was made up from 15.8k mixed race groups, 54.2k all-Asian groups (with 46% of these from Pakistan), 23.4k all-Black groups and Chinese and other ethnic groups making up the remainder totalling 109.8k people. This breakdown to sub-groups is needed for analysis of my sample group and if they are a representative sample.

The North West Labour Force Survey of 2009 showed higher rates of self-employment for BME men at 8.4% compared to 7.7% for white males (NWDA, 2010) which links with the GEM necessity-driven entrepreneurship, however in stark contrast the self-employment rates for BME women at 1.2% were considerably lower than for White women at 3.2%. The report stated that key barriers were the ‘perceived and actual inequalities and stereotyping’. However this reasoning was gained from a small focus group, which also suggested lack of confidence and role models. Whilst the North West of England is not the most enterprising region of the UK, statistics show that with 507,000 enterprises and a 15% start-up rate it has a broad based economy and is roughly in the middle of the list of the regions when ranked by new business activity (Rhodes, 2015).

The more recent funding initiative followed the recession in 2008 and has been driven by the report by Lord Young (Young, 2012). This report proposed that a significant difficulty for new businesses was access to bank finance, therefore requiring a government subsidised intervention programme. The policy response, a pilot for the Start-Up Loan Scheme was trialled in late 2012, with the launch across the UK in 2013 (Young, 2013). Business Finance Solutions was the largest contract provider in the North West and were also the administration programme for smaller regional providers (StartUpLoans LTD, 2015).

In summary, the North West of England is an appropriate regional context for investigating a representative economic environment and the new Start-Up Loan Scheme could be broadly representative of the population of new small businesses.

2.3 Summarising the Literature for Entrepreneurs: Epistemological & Ontological Approaches

It may be argued that there is an underlying premise in the entrepreneurship literature that valid knowledge can only be generated from a positivist approach, this perspective is highlighted by the popularity of research into “opportunity recognition” work (Shane, 2000; Shane & Venkataraman, 2000). These developments helped to create a distinct strand of entrepreneurship research based around the logic of business strategy. However, a counter view is that logical positivism can only lead to partial explanations in a field that is simultaneous, messy and iterative (Brush, Manolova & Edelman, 2008a). A more interpretive framework allowed for the emergence of Sarasvathy’s work (2001,2008) as a counter-view to what

happens “in the field”. Sarasvathy, herself, states that she takes a pragmatic approach; this can be seen in the changes over time to her effectuation model, which emerged only from a small part of her full experimental research protocol. None the less, the effectuation literature has grown and continues to be dominated by a positivist approach, even within Sarasvathy’s own work (Dew et al., 2009; Dew & Sarasvathy, 2011). As a consequence there is, perhaps, room for more qualitative work, which could provide knowledge about how fine-grained markers of entrepreneurial orientation impact on the whole. This approach could be based within the pragmatist approach, combining methods, and seeking to link back to the dominant economic perspective (Dew et al., 2009).

In the field of entrepreneurship there is an underlying assumption that skills and experience can be measured and also that they change over time (Covin & Miller, 2014). These changes are the development and learning elements that experiences may have on an individual. One measureable aspect of this could be individual’s decisions. As mentioned, this review will approach the entrepreneurship literature through the psychology lens and this includes affect (emotions), behaviour and cognition, as three interacting aspects of a person’s attitude (Weiten, 2008). Each of these three will be taken as a focus for reviewing the literature and also to consider their interaction, as can be observed in the diagram Figure 2-1 Integrative Affect-Behaviour-Cognition Model below.

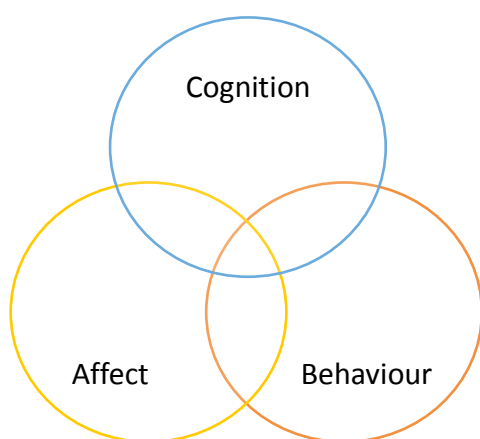


Figure 2-1 Integrative Affect-Behaviour-Cognition Model

To start with I review emotion or ‘affect’ in entrepreneurship and in particular any evidence on the ingredients of success for expert, serial and novice entrepreneurs.

2.3.1 Reviewing the Literature for Entrepreneurs: Affect – Emotions

Affect, or feelings and emotion, is an important aspect in the psychological concept of attitude (Weiten, 2008). So how does the current entrepreneurship literature include emotions?

Entrepreneurial emotion has been a developing “hot topic” with an increasing interest to understand the impact of emotion in entrepreneurship theory (Baron, 2008; Cardon et al., 2012). Entrepreneurship is perceived as an “emotional journey” with uncertainty and risk often creating an extreme emotional context. These authors are drawing on theories from psychology and review the importance of ‘affect’ on stages of the entrepreneurial process. This review will encompass perspectives that show how emotions influence entrepreneurship and how entrepreneurship influences emotions.

Baron provides a comprehensive review of the role of affect in the entrepreneurial process mainly from the psychology literature (Baron, 2008). In exploring both state affect and trait affect, Baron argues that these produce parallel outcomes. State affect is the mood or feeling from events; and trait affect is an individual’s dispositional or longer lasting mood. There is evidence of the probable impact of affect in areas of entrepreneurship, such as; creativity, persuasion, decision-making/judgements, and working relationships. Entrepreneurs regularly make decisions in a context of high uncertainty and change, with varied tasks, and tend to use heuristics or learned shortcuts, as compared to analytical thinking, as well as knowledge acquired through past experience. In particular, the interface between affect and cognition is continuous, pervasive, and reciprocal, so affect influences cognition and cognition influences affect. The emphasis of Baron’s review is on the positive aspects of affect, such as optimism, extraversion, self-efficacy, passion and coping, however he also mentions there are some downsides of positive affect such as cognitive errors. These errors are that the entrepreneur may not do systematic feasibility analysis, and may also suffer optimism bias, planning fallacy and mainly recall favourable reactions. Overall, although this is a comprehensive review, affect has two sides of both the positive and the negative (Watson et al., 1988). However, Baron’s (2008) paper only examines the downsides of positive affect without exploring negative affect in any detail. Consequently, I will explore some of the existing literature on failure as an aspect of negative affect later.

Emotions are shown to influence entrepreneurial motivations when evaluating business opportunities (Foo, 2011). Foo’s research measured risk appraisal perceptions and preferences in the two separate parts to this study. The research used existing scales and measures so that

the work could be comparable to larger studies. In the first study student participants were randomly induced to state emotions and then assessed for their risk perceptions. The results found that the states of happiness and anger, reported lower risk perception estimates for new ventures, which the author associated with feelings of certainty and control. In contrast, for the induced emotions of hope and fear, these reported higher risk perception estimates, which was associated with uncertainty and lack of control. The second study examined entrepreneur participants and their underlying trait emotions of happiness and anger. The participants selecting riskier investment choices related positively to both the trait of happiness and the trait of anger. Trait happiness was a more significant predictor than anger, however both were significant at $p < .05$. This study shows that the impact of the emotional aspects on entrepreneurial judgements are complex.

In a different study, mixed and conflicting emotions were assessed as a predictor of entrepreneurs' risk perception as a determinant of entrepreneurial decision making (Podoyntsyna, Van der Bij & Song, 2012). If the entrepreneurs felt conflicting emotions in terms of risk appraisal then this would be interpreted as indecisiveness, which then predicted a greater level of risk perception. Happiness was strongly positively associated with entrepreneurial risk perception for experienced serial entrepreneurs, unlike novices in that the emotion of anger was a significant emotion in the risk judgement. This suggested that the control of emotions changed as entrepreneurs gained more experience. This study used entrepreneurs $n = 253$ and their brief survey showed that familiarity with the strategic issue was insignificant and being a female entrepreneur had a negative significant relationship with risk perception. They defined serial entrepreneurs as those that had launched 3 or more ventures before their experience became effective.

Another example of using existing tested measures is the work to understand the links between positive affect, creativity and environmental dynamism (Baron & Tang, 2011). Here the authors state they are assessing the longer lasting positive mood, rather than the shorter lived happiness emotion, using the PANAS scale for positive affect. Their work shows that moods have an impact on the behaviour of entrepreneurs. They find that positive affect is positively associated with creativity, and creativity is associated with firm-level innovation, which they argue is a key ingredient in new venture success. In addition, recent research shows similar impact of affect as being beneficial for creativity and hence innovation (Jennings, Edwards, DevereauxJennings & Delbridge, 2014). The authors discuss the impact of both positive and negative affect on emotional arousal, and that affect can also influence cognitions and

behaviour. This research used a variety of qualitative methodological approaches to focus on the inter-personal interactions of individuals in the entrepreneurship process.

There are a number of other studies that include the influence that emotions have on entrepreneurship, for example, in the development of a scale to measure entrepreneurial passion (Cardon, Gregoire, Stevens & Patel, 2013). These authors are especially interested in the passion involved in the stages of inventing, founding and developing new ventures as aspects of entrepreneurial passion. Their main aim is to develop a measure that can be useful to understand the affective aspects of entrepreneurial action, but they also re-tested their measure to show that the degree of passion felt by business founders can influence endurance in pursuing business goals.

There are several studies reviewing impacts in the opposite direction, that of the influence of entrepreneurial experiences back onto an individual's emotions. An interesting starting point is the conundrum raised that entrepreneurs earn on average less than employees (Åstebro & Chen, 2014). Although the authors discuss difficulties in the measurements and effects, they do raise the issue of significantly higher job satisfaction and "(strangely) greater job security" of entrepreneurs (the authors' emphasis). Perhaps these positive entrepreneur's feelings about job security correspond to the finding that happiness is associated with certainty and control (Foo, 2011). It appears that the entrepreneurship context is an influencer of emotions and entrepreneurial actions may also be influenced by emotions.

There is no implied causality in the research, similarly with other research on emotions, where it is stated as an interwoven process of affect impacting cognition and cognition impacting affect (Cardon et al., 2012). The inclusion of affect is a recent development in entrepreneurship and so the relevance and relative impact are still work in progress, let alone the boundaries of when a term ends and another starts. The difficulty is highlighted by the example of intuition, where this is attributed to affective responses, or gut feelings (Blume & Covin, 2011). In this case the authors label intuition as a boundary condition of the underlying judgement, or cognition, which they say is part of a learnt skill or perceived response.

However, some of the literature does have directionality, in that entrepreneurship experiences may influence the emotions, particularly relating to failure, which has been argued to be a salient event (Ucbasaran et al., 2010). The authors start from the basis that "Entrepreneurs have a greater tendency to be over-optimistic than non-entrepreneurs" which they label as

comparative optimism. Portfolio entrepreneurs, those individuals involved in multiple ventures, experiencing business failure are less likely to report comparative optimism in contrast with novices. Perhaps unsurprisingly their more realistic expectations are also in contrast with repeat entrepreneurs who do not experience business failure.

Business failure in this research includes closure due to not meeting economic expectations, as well as the smaller sub-set of financial insolvency. This comparative optimism results in being more likely to report positive events and these authors connect their work to cognitive theory. Their view is that failure can be an opportunity for learning, however they argue that portfolio entrepreneurs can minimize the emotional costs of failure. Ability to manage the emotions involved in decisions is also seen as part of the explanation of how entrepreneurs decide to persist in the face of adversity (Holland & Shepherd, 2011), as the authors inferred that desirability influenced entrepreneurs decision-making approach.

Persistence can also be viewed as overconfidence and explored as a potentially damaging error of judgement (Hayward et al., 2010) or as a necessary element to resilience and starting again. Overconfidence produces a positive affect (emotion), so these positive emotions become reserves with which to persevere with future actions. Confidence in ability is a robust predictor of the decision to start-up (Townsend, Busenitz & Arthurs, 2010). It could be argued that individuals would be unlikely to start-up in a venture that they had little or no confidence in, perhaps waiting until they did have sufficient confidence.

In similar research results, entrepreneurs need to have coping mechanisms and remain excited with their venture to get through the start-up stage (Uy et al., 2013). These authors used an existing tested psychological well-being measure in their study and explored entrepreneurs' coping strategies, identifying that using both avoidance and active coping mechanisms provided the most benefit over the longer-term. This research showed that those with prior start-up experience used avoidance coping mechanisms better, whereas novice entrepreneurs were not as effective at deploying these.

There has been recent work on entrepreneurial failure and in particular the learning aspects of recovery and re-emergence from failed ventures (Cope, 2010; Singh, Corner & Pavlovich, 2015). Both works evidence that individuals have higher-level learning or epiphanies, whereby these extreme negative emotional experiences can transform to a future positive transformed state. A paper focused on entrepreneurs that experienced recent bankruptcy analysed their grief

as an emotional response to firm failure (Jenkins, Wiklund & Brundin, 2014). The authors showed that higher grief was part of the entrepreneur's appraisal of the personal loss of self-esteem, financial strain and loss of independence. Portfolio entrepreneurs reduced the impact of harm and loss by their appraisals of grief. The key finding was that the loss of self-esteem is the major driver of emotional grief and that entrepreneurs can benefit most by re-building their self-esteem, which for habitual entrepreneurs benefits their resilience and psychological capital.

Although business failure and especially bankruptcy is, perhaps, the ultimate negative context, it is interesting that there has not been more research on coping with failure and loss, particularly as business failure is a common outcome for new ventures (Hart, 2015; Storey, 1994). In addition, within the process of growing any business there are likely to be numerous non-catastrophic but salient loss experiences in the process of gaining new customers, for example during the start-up stage there are many failed sales, unhappy customer experiences, product problems etc. (Sarasvathy, 2008).

There is some work examining the individuals responses to the emotion of regret, which the authors describe as counterfactual thinking (Arora, Haynie & Laurence, 2013). These counterfactual thoughts were salient experiences to the entrepreneur and the research measured the influence of affect and self-esteem on the resultant entrepreneurial self-efficacy. They used standardised psychology instruments such as the PANAS scale for affect (Watson et al., 1988), mentioned previously in this section. The entrepreneurs were drawn from incubator facilities and these results are detailed further in Reviewing the Literature for Entrepreneurs: Cognition.

I have examined some of the key research on affect and these emotional responses should not be viewed in isolation. Emotions tend to operate in combination with behaviour, or with cognition, or both. These two related aspects, behaviour and cognition are reviewed in the next two sections.

2.3.2 Reviewing the Literature for Entrepreneurs: Behaviour

Behaviour refers to the actions and activities of the individual and can reveal their underlying attitudes or beliefs. I will review the existing known aspects of entrepreneurial behaviour and areas of agreement between researchers, as to how entrepreneurs differ from the general population, as these differences may be useful indicators of entrepreneurial behaviour. An interesting recent approach is the linking of entrepreneurial intention as a predictor for

behaviour. This started from the perspective that an individual's attitude to independence and risk will result in a stronger intention to be an entrepreneur (Douglas & Shepherd, 2002). A further development confirmed that "intentions" are good predictors of subsequent behaviour and that entrepreneurial intention only needs one of two components, feasibility or desirability, to be a good predictor (Fitzsimmons & Douglas, 2011). Entrepreneurial intention can be further deconstructed to identify the aspects relating to growth and how this can be reflected in entrepreneurial action (Douglas, 2013; Schlaegel & Koenig, 2014). These two papers are different studies of separate populations but using similar populations of MBA students, as proxies for nascent entrepreneurs. It has been questioned whether using proxy entrepreneurs is really appropriate, however there is a consistency in the results, showing that intentions reflect the actions of an individual's behaviour. The Schlaegel & Koenig (2014) research includes some non-student results which shows the entrepreneurial intention to action had strongest effect sizes from their attitude towards behaviour and the variance explained by entrepreneurial intent (EI) was in actual entrepreneurial behaviour (37%) as the meta-analytic review.

Some researchers take an alternative approach and define entrepreneurs by their activities, such as their involvement in the daily operations, their decision-making and how they perform key boundary spanning roles (Stam, Arzlanian & Elfring, 2014). This study is a meta-analysis of social capital as a resource of the entrepreneur and the impact on the performance of their respective small firm. The paper summarises useful growth, profit and non-financial indicators of performance over many studies, looking at variations between a bridging view and bonding view of social capital. The authors explore the evidence for these two views, where the bridging view of social capital represents a wide, weakly connected network and alternatively the bonding view is a small, cohesive network. There is a positive and significant link between the entrepreneurs' behaviour in the development of social capital, which is important for the performance of the small firm. The study measured social capital at the individual level and performance at firm level; importantly these measures of performance show similar results whether self-reported or based on archival results.

There is a persistent call in the literature encouraging the use of consistent measures, so that entrepreneurship research will benefit from comparable results. Most recently this request focuses on evidence based entrepreneurship research to improve knowledge in how the heterogeneity of entrepreneurship can also highlight unique aspects of behaviours and decisions (Frese, Rousseau & Wiklund, 2014). The call for evidence based entrepreneurship research aims to identify effective entrepreneurial actions and how the impact of certain

entrepreneurial actions are perceived to be more salient, more impactful than in general management. This could be because the entrepreneur can understand the impact of their actions by the direct feedback on their firm performance. In addition, it could be that some actions will have an immediate impact on the survival of the firm, creating a direct feedback loop. The evidence-based results are compared to management research, which by contrast has a more standardised context, however the underlying implication is that the learning of individuals comes from feedback between their entrepreneurial actions and the business results.

There is consistency in the research about the actions that are examined and these are classified as activities, processes and decisions (Frese et al., 2014) however what are these activities, processes and actions? An observational study emphasized the highly fragmented nature of entrepreneurs' actions when the authors examined what entrepreneurs actually "do" (Mueller, Volery & von Siemens, 2012), including both discrete behaviours and broader actions. The activities observed were captured as viewed, without interpretation of the purpose to the business, and were dominated by two main activities; exchanging information & opinions, and working analytically and conceptually. The actions performed were fragmented, in a fast pace and open ended environment. This research examined two phases, start-up and growth, with the emphasis of the entrepreneur's activity shifting more strongly towards the "exchanging activity" in the growth phase. Mueller et al.'s qualitative research used a small sample comprising six entrepreneurs examined in each phase, but many actions were observed, to draw distinct results between the phases of activity, as well as the areas of commonality. The findings show the complexity of the entrepreneurial activities and the majority of the activity in both stages was focused on exploitation of opportunities, as compared to exploration. However, this could be due to the nature of needing to ensure the survival of the firm, which as mentioned previously, is an overarching salient feature of the entrepreneurial environment. Salient moments are also described as points of criticality, not crisis, where the perceived criticality makes it easier to recall, so that research using the critical incident technique shows how entrepreneurs learn new behaviours, adapt and change (Cope & Watts, 2000).

An alternative explanation of salient experiences during the start-up phase identifies that these experiences provide an on-going important "imprinting" on the entrepreneurs on-going decision-making and action (Mathias et al., 2015). These authors argue that entrepreneurs identify with salient experiences, both emotionally and cognitively, that influences the entrepreneurial processes. However, it could be argued that the results suffered from retrospective bias and the authors themselves acknowledged survivorship bias in their sample.

According to Suddaby et al., “imprinting” is connected to the discovery of entrepreneurial opportunities as compared to the “reflexivity” of creation of entrepreneurial opportunities (Suddaby, Bruton & Si, 2015), because of different epistemological perspectives. It appears that differences in the entrepreneurship literature are sometimes assigned to differences in the ontological basis, as a way of simplifying the complexity.

Recent qualitative research examined the fine-grained level of behaviours of a sample of 23 not-for-profit social entrepreneurs (Katre & Salipante, 2012). This study compares the detailed behaviours of successful and struggling entrepreneurs to understand the distinctive aspects of their behaviours during start-up. There are three activities that stand out for survivors as areas where selective behaviours differ and they are; conceptualization of the social and economic opportunity; exploration of the product/service; and launching of the social venture. The authors note that successful businesses are those that are able to acquire new knowledge by diversifying their knowledge and networks, particularly from feedback, especially negative or unfavourable feedback. This is an interesting point, however, their analysis is set in a somewhat different environmental context where social outcomes are a priority. Also, as not for profit entrepreneurs their definition of success could be argued as more likely to be focused on survival, as opposed to seeking profit. However in the early stage of business venturing any practical difference in objectives may be modest (Churchill & Lewis, 1987).

An on-going tension in the entrepreneurship literature is that the concept of success and/or failure is complex (Moroz & Hindle, 2012) and that there are competing entrepreneurship process models. These authors point to entrepreneurship as an action-based phenomenon, being drawn from creative, strategic and organising processes and make an important point that timing, context and action matter. Moroz & Hindle highlight four models, however the two main ones of focus were the Shane, 2003 model and the Sarasvathy, 2008 model, which have become known as the discovery/causation and creation/effectuation models, respectively. Moroz & Hindle conclude that in the causation model actions are focused in the execution element between the individual and the opportunity. Whereas in the Sarasvathy model, the authors argue that the creativity of the process is not so clearly grounded in the action of planning. It could be argued that Moroz & Hindle’s view contrasts with Sarasvathy’s own focus on human driven action (Sarasvathy, 2008), however the problem highlights the challenge in reconciling the different ontological approaches and different definitions of what is being measured. Moroz and Hindle also highlight the focus on outcome-based research rather than event-based research, suggesting that bringing these approaches together could

provide insight, which could be interpreted as examining the behaviours and actions of the events rather than simply the outcomes.

The focus on bringing together the competing models of entrepreneurship is further explored in a behavioural comparison of emerging entrepreneurship theories (Fisher, 2012), particularly between causation, effectuation and bricolage. Bricolage developed from a constructivist approach to entrepreneurial behaviour by resource constrained firms (Baker & Nelson, 2005). It developed through ‘creating something from nothing’ or ‘making do’ and is sometimes thought to be a similar method to effectuation, although I will highlight where there are differences. The Fisher analysis highlights that entrepreneurial behaviours are the observable manifestations of the individual’s actions and emphasizes the importance of action in the entrepreneurial process (Fisher, 2012). The results provide a recommendation that the traditional causation model of entrepreneurship “may not effectively capture and reflect the actual behaviour of entrepreneurs launching new ventures in a dynamic environment” (p1047).

In a separate qualitative study bringing together entrepreneurial behaviour and entrepreneurial success, Stinchfield et al. (Stinchfield, Nelson & Wood, 2013) showed that entrepreneurs engage in a wide range of behaviours and define their own success in both financial and non-financial rewards. The behaviour categories most associated with financial success were ‘brokerage’ and ‘engineering’ as compared to ‘bricolage’, ‘art’ and ‘craft’, although some of these other behaviours in the “less successful” categories have created long lasting success through resource constrained environments. The authors argue that the entrepreneurs face choices that drive the entrepreneurial behaviours, through their self-perceived identity. Suggestions for future research include the importance of identifying relationships between behaviours and venture outcome variables.

To summarise the research on entrepreneurial behaviour in the literature, an important aspect is that behaviour can be both a measure of entrepreneurship and an indicator for entrepreneurial activity. This aspect was mentioned as differing approaches, so in the detailed activity of the behaviour and also as the aggregate of behaviours. Therefore, in some cases the behaviour is a reflection of the entrepreneurial attitude and in other cases the activity predicts the behaviour; in either case understanding activity is important to understanding the underlying behaviours of the entrepreneur.

2.3.3 Reviewing the Literature for Entrepreneurs: Cognition

The entrepreneurial context has been a relevant facet in the individual's approach for both affect and behaviour, however I would argue that context is even more important for understanding the processes of entrepreneurial cognition. As stated previously, the process of new venture creation is central to entrepreneurship (Brush et al., 2008a) and the entrepreneurial context has high uncertainty, risks and many unknown aspects, within an environment which is inevitably resource poor, messy and confusingly vague. So how do entrepreneurs perceive this different context and how do they make progress through a virtual maze? Brush et al. (op cit) recommend conducting future longitudinal research that follows nascent entrepreneurs over time. The authors recommend seeking to understand cognitive knowledge as an intangible resource as the venture emerges. As discussed previously, Frese et al. encouraged evidence based research for new knowledge within the detail of decisions, processes and activities (Frese et al., 2014) and these authors emphasised that entrepreneurship deals with resolving differences, by relying on improvisation.

This improvisation in a novel context requires decisions using fast heuristics (Frese et al., 2014), where heuristics are short-cuts to logical thinking (Townsend et al., 2010) or "sub-optimal reasoning". Therefore a key part of the entrepreneurial approach view of cognition is not just about perceptions of the context but also the decisions that are then made by the entrepreneur. Townsend et al. examined the first decision of entrepreneurs, to start or not to start, following nascent entrepreneurs longitudinally, from a larger US panel study. The authors' results showed that entrepreneur's opinions about their abilities in an entrepreneurial setting are a robust predictor of the decision to start, whereas the expected outcome of the venture itself only played a marginal role. Confidence by the entrepreneur, in their own ability to perform the tasks relevant to entrepreneurship, is a more important logic of appropriate decision-making rather than the apparent "irrationality" of the start-up decision that, for novice entrepreneurs, is inevitably "fraught with uncertainty" (2010).

Although I have previously described the entrepreneurial learning, in particular of salient moments, or events of criticality but not crisis, (Cope & Watts, 2000) the focus of this review is not through the lens of learning, but on the intersection of affect, behaviour and cognition. Learning is closely connected, however, and by examining the finer detail of each of the affect-behaviour-cognition aspects and how they interact, I expect to uncover new areas of research. The area of entrepreneurial learning is an important aspect of the entrepreneurship literature,

with many authors looking at the experiential aspects of the learning process (Politis, 2005; Unger, Rauch, Frese & Rosenbusch, 2011; Corbett, 2005). Corbett's 2005 paper brings together experiential learning to opportunity recognition theory, and highlights the possible importance of knowledge, cognition and creativity. Similarly, Politis (2005) provides an alternative theoretical synthesis which links entrepreneurial learning as an experiential process. However, the Unger et al. paper (2011) is a meta-analysis of human capital, defined as the entrepreneurs' knowledge, skills and competencies that are experientially acquired. The results showed that investment in human capital correlated to a small but positive effect, $r=.098$, on success, as measured by size, growth and profitability.

In further exploring the dichotomy of the opportunity recognition/construction argument, Vaghely and Julien examine the issue using a human information processing perspective (Vaghely & Julien, 2010). This approach uses the positivist/constructionist approach to propose a different duality of cognitive algorithms and heuristic sense-making. Their sample is small ($n=10$) and focused on the firm as the unit of analysis, with the authors concluding that entrepreneurs can both discover and construct opportunities. They found that the successful entrepreneurs were more adept at switching between both algorithmic and heuristic modes of thought, where they define the heuristic as trial and error processing and algorithmic as pattern matching.

Vaghely and Julien (2010) use an approach that is underpinned by the cognitive aspects of the information processing they assess within the firms. However, there has been a growing shift towards the inclusion of cognitive processes of the individual to understand the cognitive explanations to the entrepreneurial phenomenon (Mitchell et al., 2004), in particular how entrepreneurs' cognition is distinct. To understand these differences of entrepreneurial cognitions, earlier research predicted that successful professional entrepreneurs possess a unique form of expertise compared with business people who were not entrepreneurs (Mitchell, Smith, Morse, Peredo, et al., 2002). Mitchell et al.'s (2002) analysis predicts a cross-cultural universal entrepreneurial cognition, an "entrepreneurial way of thinking", with similarities and differences in different parts of the world.

The approach by Baron and Ward was to develop entrepreneurial cognition as a significant sub-field, by drawing from the principles of cognitive psychology (Baron & Ward, 2004). The authors suggest several aspects; that the issue of using the two modes of thought, systematic and heuristic thinking, has not been considered in detail in entrepreneurial cognition; the

entrepreneur's use of existing experiences and knowledge; the cognitive base of creativity; and importantly, entrepreneur's decision-making and reasoning. Baron and Ward encourage the use of new methods and measures from cognitive science to produce insight for the field of entrepreneurship. As seen previously in *Reviewing the Literature for Entrepreneurs: Affect – Emotions*, Baron has also called for the development of new research into “affect” for the emotional aspects of entrepreneurship.

A consistent topic in the cognition literature is that decision-making is a key area of entrepreneurial cognition, particularly providing measurable outcomes. In this case decision-making includes the knowledge structures involved in making assessments and judgements prior to the decisions. As mentioned previously, the effectuation model proposed by Sarasvathy is a key construct in the current entrepreneurial debate (Sarasvathy, 2001; Sarasvathy, 2008). Effectuation is an emergent approach developed from the experiences of expert entrepreneurs, with their decision-making being the prime aspect of their expertise. There are five elements of this method, the first element being that (1) the individual starts with their means, these means being the current resources of ‘who they are’, ‘what they know’ and ‘who they know’. Further elements are that (2) the expert entrepreneur expends energy on “creating” their future rather than attempting to predict it and (3) in order to do this expert entrepreneurs leverage on strategic alliances, (4) they have an approach of working within affordable losses and finally that (5) expert entrepreneurs exploit surprises. These elements work together to create new goals, firms and markets, or new means (resources), and are known as an effectual approach (Sarasvathy, 2001; Sarasvathy, 2008). Sarasvathy contended that the effectuation approach is as a counter-argument to the predictive approach of causation (Shane, 2000; Shane & Venkataraman, 2000).

The focus of the Shane theoretical model is on the sources of opportunities; the processes through which these opportunities are discovered, evaluated and exploited; and the individuals involved. In the literature this approach is often referred to as the ‘opportunity-entrepreneur nexus’ framework as well as being known as the ‘causation’ approach, as the counterpoint to effectuation (Schindehutte & Morris, 2009; Baron & Tang, 2011). In causation terms it is consistent with planned strategy approaches, intending to predict the future, and exemplified by the use of business planning techniques to exploit opportunities (Chandler et al., 2011).

Effectuation research continued to develop particularly in evaluating the uniqueness of the experts' decision-making by comparing their outcomes with those of a population of novice

entrepreneurs (Dew et al., 2009). This study showed significant evidence, on a number of measures, of expert-novice differences in logical framing, with experts using effectual logic and novices adopting a predictive causal logic. However, a key limitation is that the novices were MBA students, so they were younger and had limited expertise, with the authors suggesting a series of future studies using entrepreneurs with different levels of experience. The authors emphasise the existence of a cognitive basis for entrepreneurial skills. In addition, a study focused on angel investors as the decision-makers in an uncertain entrepreneurial environment found that those emphasising control/effectuation, experienced fewer failures (Wiltbank, Read, Dew & Sarasvathy, 2009) as compared to the “angels” emphasising prediction/causation.

In a different study of business angels’ decisions at early-stage of business development the results showed that the angel investors used a short-cut or heuristic for their decisions by rejecting fatal flaws (Maxwell, Jeffrey & Lévesque, 2011). This approach to investment opportunities is an elimination-by-aspects heuristic, to control the number of options like the Wiltbank et al. results (2009), above. However, this research was based on the Dragon’s Den TV series, so it could be that the entertainment environment could have influenced the observed decision-making process.

In Reviewing the Literature for Entrepreneurs: Behaviour above, I considered work on the behavioural comparison of effectuation, causation and bricolage (Fisher, 2012). However there has also been a stream of effectuation based research focussing on the cognition aspects, I now discuss several of the most relevant of these studies. Read et al. conducted a meta-analytical review of the underlying constructs of effectuation against various performance measures, including growth, profit, sales etc. (Read, Song & Smit, 2009). The analysis could only identify four of the effectuation measures, those of; means; strategic partnerships; affordable loss and contingency (or surprise), and there was a correlation between measures and the venture performance. These authors could not identify measures for the construct of ‘design’ or ‘overall approach of design’, as they provided a different interpretation compared to Sarasvathy’s aspect of ‘human driven action’. Nevertheless from the other measures, the authors showed the strongest mean correlations were significant for the sub-constructs of the means aspect of the effectuation approach; ‘Who I am’ with effect size=0.230, $p=0.000$, ‘What I know’ with effect size=0.115, $p=0.003$ and, ‘Whom I know’ with effect size=0.112, $p=0.001$. Overall they found significant results of positive impact by means, partnerships and contingency on the new venture performance with distinctiveness in the decision-making in uncertain environments

(Read et al., 2009), however there were insignificant results for affordable loss. However, the Read et al. meta-analysis does not predict all of the elements and the authors suggest future experimental scenario-based research.

This difficulty in identifying the constructs of effectuation led to a validation study for a measurement tool for the new venture creation processes of causation and effectuation (Chandler et al., 2011). This structured survey is developed through stages and then tested, n=196, to provide a validated tool. The authors' research shows that measures of uncertainty are negatively correlated with the causation approach and positively correlated with the effectuation approach, providing some predictive validity. A review of current effectuation research has suggested that it is both appropriate and necessary to collect both qualitative and quantitative data (Perry, Chandler & Markova, 2012) and that it is important to "sample subjects who are more representative of the individuals who are in the process of starting businesses..." (Perry et al., 2012). Perry et al. compare the results of expertise from other fields, such as expert pianists and physicists etc., suggesting that the 'experts' came from an environment that provides more encouragement and support, including potential learning experiences (2012, p850). These authors propose that future research should consider how effectuation is related to established entrepreneurship and managements theories, using both quantitative and qualitative methods.

There are alternative aspects of cognitions and decision making in the entrepreneurial environment that are not focused on the causation/effectuation debate, such as influencing factors. One of these is the focus on the "overconfidence" or "comparative optimism" on the likelihood of business failure, as an aspect of heuristics and biases by the entrepreneur. The underlying reasoning of this approach is to understand the logic of why, with high expectations of failure, entrepreneurial cognitions differ from more standard rational decisions. Start-ups are positively associated with overconfidence (Koellinger et al., 2007) and high business failure rates. So it could be argued that this comparative optimism is not a rational cognition for decisions (Ucbasaran et al., 2010).

In a cross-national study, it was observed that overconfidence can contribute to failure as biases and heuristics in the decision to start a business (Koellinger et al., 2007). As noted earlier, Townsend et al. also show that an entrepreneur's confidence in their ability is a robust predictor of their decision to start, with the expected outcome of success only providing a marginal role (Townsend et al., 2010). Thus the entrepreneur's focus appears to be on their self-perceived

skills and abilities and not their expectations of future success.

In contrast, Cassar argues that most businesses fail to meet performance expectations, and general start-up experience does not appear to improve the entrepreneur's performance. However, experience within the same industry may be a possible predictor (Cassar, 2014). The difficulties highlighted in relating start-up experiences to future performance, are possibly a result of the high heterogeneity of the task, the lack of timely and regular feedback, as well as cognitive biases that limit effective learning. This links with the ideas of entrepreneur overconfidence mentioned previously, so their experience does not seem to improve actual performance, but positive experiences can strengthen entrepreneurs' confidence in their abilities.

Renko states that for new businesses there were benefits to taking an imitative approach rather than a more innovative approach to meet key milestones (Renko, 2013). Whilst serial entrepreneurs may take decisions intuitively, based upon their experiences, novices must necessarily use an analytical approach (Jones & Casulli, 2014; Blume & Covin, 2011; Baldacchino, 2013). The novice population may also be more likely to adopt a planned approach in contrast to the emergent approach of experts (Dew et al., 2009). This contrast in decision-making styles is further emphasised by research that demonstrates that the rational decision approach of business planning is quite useful to novice entrepreneurs, although there are also many critics to the true (as opposed to ritualistic or signalling) value of business planning (Chwolka & Raith, 2012).

Thus a strand of literature argues that experts generally take an intuitive, emergent approach, whilst novices may tend to take an analytic, planned approach. However, recent work questions the label of intuition, as analytic reasoning may appear like an intuition of the expert, because learning is a complex process (Jones et al., 2014, Blume & Covin, 2011). Experts are, perhaps, more likely to use both approaches (Vaghely & Julien, 2010; Sarasvathy, 2008). The process of start-up is not patterned or linear but is simultaneously messy and iterative (Brush et al., 2008a). With a messy context, perhaps the use of different approaches is part of the expertise?

In addition, the levels of uncertainty and personal risk in the start-up phase may have an impact from an emotional perspective (Cardon et al., 2012; Foo, 2011). This may operate not only at a general level of affect, or emotion, but also at the level of judgements in decisions under uncertainty. Positive feelings or emotions can provide important advantages during the start-up

phase (Baron & Tang, 2011) to provide the persistence required for success (Hayward et al., 2010).

These authors show that confidence reinforces a sense of control, which helps entrepreneurs to persevere with their actions. This strand of research into emotions (affect) has led to the development of an entrepreneurial passion scale, as a way of measuring the intensity of positive feelings about the start-up process. The opposite of the positive feelings are the negative feelings, already mentioned in *Reviewing the Literature for Entrepreneurs: Affect – Emotions*, that decision makers need to overcome or cope with losses (Kahneman & Tversky, 1979; Kahneman, 2011; Holland & Shepherd, 2011). The experiences of traders helps them to frame any potential losses as one of many decisions (Kahneman, 2011). In addition, learning from failure can have a constructive impact on entrepreneurial experiences, perhaps leading to improved future decision-making? (Jones & Casulli, 2014; Parker, 2013)

In a different approach, the tendency for bias in decision making is proposed as a possible useful heuristic (Shepherd, Haynie & McMullen, 2012). The proposal is that there is a tendency to seek out information that is consistent with what we know, known as confirmatory search, and that this leads to poorer decision-making. However, these authors propose that entrepreneurs could use a positive test strategy for conjectures as a useful heuristic rather than a bias. This could provide direction in the information search because overcoming doubt is a more demanding process and confidence (the opposite of doubt) is essential to the decision to launch (Townsend et al., 2010).

These proposals connect emotions to the decision-making process, however Shepherd et al. (2012) only propose a research framework, there are no supporting empirical results. Their proposals build on previous frameworks bringing together social and cognitive psychology with a ‘situated metacognitive model of the entrepreneurial mind-set’ (Haynie, Shepherd, Mosakowski & Earley, 2010). In this area the authors are trying to look at higher-order cognitive processes, not just what entrepreneurs think but their mind-set, including motivations, environment, previous cognitive responses and how feedback changes their cognitive strategy. Whilst this research as yet has no data or results, it is argued that the entrepreneurial metacognitive mind-set provides a model for entrepreneurial action and subsequent outcomes. Kickul et al. also develop the different models of cognitive styles where they bring cognition and intentionality as higher-order heuristics (Kickul, Gundry, Barbosa & Whitcanack, 2009). Haynie et al. suggest that future research should include entrepreneurial cognition and

performance aspects, using qualitative in-depth interviews and ‘think-aloud’ protocols (2010).

Counterfactual thinking is also a current area of research, which builds on the view that entrepreneurs think differently, by using what might have been or what may be possible as alternative biased thinking (Arora et al., 2013). The authors’ aspect of counterfactual thinking argues that the psychology of the person doing the thinking influences the outcomes associated with their counterfactual thoughts. Arora et al. consider that experience and prior knowledge are important prior resources of the individual, as consistent with other researchers (Shane, 2000; Ucbasaran et al., 2010).

This study brings together the emotional aspects of affect and self-esteem as moderators in the entrepreneurs thinking, as previously mentioned in section Reviewing the Literature for Entrepreneurs: Affect – Emotions. The results are from entrepreneurs associated with incubators, n=136, and show that higher levels of counterfactual thinking increase entrepreneurial self-efficacy, particularly when associated with high self-esteem, high positive affect and low negative affect. The authors acknowledge that there, necessarily, exists retrospective bias in counterfactual thinking, however they interpret the results in the context that the impactful events change in subsequent remembering, as these counterfactual events tend to be associated with regrets specifically related to the individual’s role as an entrepreneur.

Perceptions of uncertainty could perhaps be an area of future research in respect of the expertise of the entrepreneurs, particularly as some research shows that entrepreneurs tend to be relatively risk avoidant (McKelvie, Haynie & Gustavsson, 2011). In contrast, Douglas and Shepherd contend that someone with a higher tolerance for risk also has less aversion to risk and so has a stronger intention to be an entrepreneur (Douglas & Shepherd, 2002). This finding is supported by extensive Entrepreneurial Orientation (EO) research that shows that willingness to take risks is a key aspect in the decision to found new ventures (Wiklund & Shepherd, 2011; Covin & Wales, 2012; Slevin & Terjesen, 2011).

An important issue is novice entrepreneurs’ judgments of what they can do with whatever skills they possess, as subsequently, their cognitive style and intentions should evolve with experience (Kickul et al., 2009). So for serial entrepreneurs that run successive start-ups, they learn from experiences, gaining knowledge and skills, and can perform better more of the time (Parker, 2013). Where does this leave the novice entrepreneur, who by definition has none of these start-up experiences or intuitions? Individuals who begin their first business will not have

any experience of the start-up stage and will, by definition, have to make their judgements drawing upon other experiences.

2.3.4 Reviewing the literature for Entrepreneurs: Cognitive Coping

In a review of the entrepreneurship literature from a psychology lens of affect-behaviour-cognition it appears that there are many interactions and that a more integrative model might bring these links together. Taking emotion (affect) into consideration, section Reviewing the Literature for Entrepreneurs: Affect – Emotions details the links relating to affect. There are multiple links of which some are significant such as, the finding that positive affect will have a reciprocal impact on creativity, persuasion, decision-making and working relationships (Baron, 2008). In addition, positive affect leads to creativity which is an important aspect of innovation that is a key ingredient to new venture success (Baron & Tang, 2011). Also, positive emotions can provide a perception of job security, possibly because the feeling of independence associated with entrepreneurship could be linked with notions of certainty of control or individual self-confidence (Åstebro & Chen, 2014). In addition, affect interacts with behaviour and cognition, so there is a tendency in entrepreneurs to overconfidence, or over optimism, or entrepreneurial passion, and these are useful predictors for the likelihood to start-up or to start-up again after failure (Ucbasaran et al., 2010; Hayward et al., 2010; Townsend et al., 2010; Cardon et al., 2013). Entrepreneurial happiness or positive emotion may lead to feelings of certainty and control, such that there is a greater likelihood of selecting a riskier investment (Foo, 2011; Podoynitsyna et al., 2012). Positive emotions may also enable entrepreneurs to cope better with the inevitable setbacks, thereby increasing resilience, particularly during the early stage of business (Uy et al., 2013).

However this research is less focussed on behaviour, more on the intent or impact of behaviour. So, behaviour is often blurred into experiences or decision-making behaviour, however decision-making is cognition in the integrative model. However, there are a number of results about intent being a useful predictor of entrepreneurial behaviour (Douglas & Shepherd, 2002; Fitzsimmons & Douglas, 2011; Schlaegel & Koenig, 2014; Douglas, 2013) and that the impact of behaviour is more direct feedback in the entrepreneurial context compared with management (Frese et al., 2014). These behavioural experiences provide feedback as salient experiences that impact behaviour and actions (Cope & Watts, 2000; Mathias et al., 2015). In particular, feedback from negative experiences creates new knowledge which is useful (Katre & Salipante, 2012; Cope, 2010).

Summarising cognition is difficult, not least because it changes over time (Brush et al., 2008a), although entrepreneurial cognition is proposed as unique (Mitchell et al., 2004). There is mention of higher orders of cognition and intentionality (Haynie et al., 2010; Kickul et al., 2009). However, the majority of the cognitive literature is focussed on decision-making and in particular the dichotomy between two extremes of thinking (Sarasvathy, 2008; Shane, 2000) which is sometimes called algorithmic and heuristic (Vaghely & Julien, 2010; Townsend et al., 2010; Baron & Ward, 2004). The expert entrepreneur's skills are from a cognitive basis (Sarasvathy, 2008) and the successful entrepreneurs can be more adept at switching between these types of thinking (Vaghely & Julien, 2010). The experiences and prior knowledge are important prior resources (Shane, 2000; Ucbasaran, Westhead & Wright, 2009) and experience in the same industry can be a possible predictor of success (Cassar, 2014). The biases of decision-making, such as overconfidence (Koellinger et al., 2007), and, as a counterpoint, experiences of failure can improve future decision-making success (Jones & Casulli, 2014; Parker, 2013).

Attempting to summarise affect, behaviour and cognition individually, reinforces an idea that these three, affect-behaviour-cognition, may be considered as complementary elements, forming a balanced synthesis. Although complex, an integrative model could be more reflective of reality and provide a clearer picture of how the different aspects interact. This evaluation through the affect-behaviour-cognition lens seeks to understand the influence of psychology on entrepreneurship. However, as noted earlier the debates around entrepreneurship debate developed from a strategic approach. Entrepreneurial strategy focuses on behaviours and tactics through decision-making. This is emphasised by the causation/effectuation debate that has focused on the uniqueness or expertise of the decision-makers. In seeking to refine this view, I will focus on exploring the interlinked boundaries between cognition, cognition-affect, cognition-behaviour and cognition-affect-behaviour as shown in Figure 2-2 Integrative Cognitive Coping. I have suggested this shaded zone as 'cognitive coping' to imply both emotional coping and the coping behaviours that support the cognitions of the entrepreneur. The literature discussed covers a breadth of cognitions, however the decisions made are a general common indicator of these, and of the decision-maker.

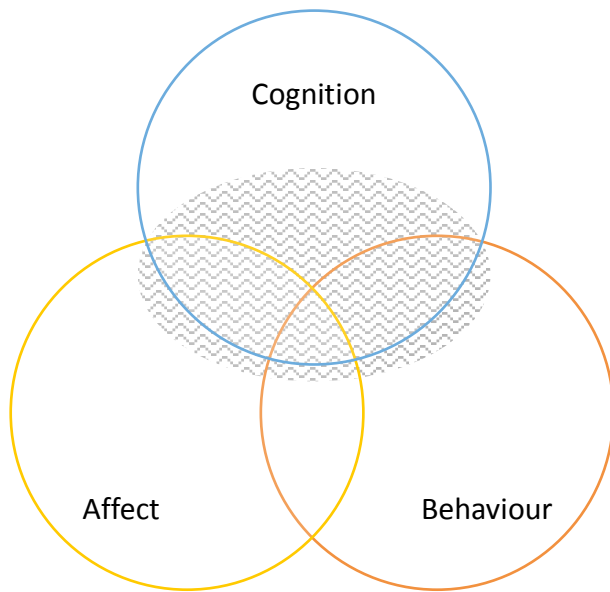


Figure 2-2 Integrative Cognitive Coping

In addition, the existing literature calls for qualitative and experimental research with entrepreneurs, rather than proxies, such as MBA students (Perry et al., 2012) and for greater levels of consistency through the use of existing and tested scales (Foo, 2011; Baron & Tang, 2011; Arora et al., 2013). In particular, with continued interest in debates around notions of effectuation, that developed from the different decision making practices of expert entrepreneurs, there is a need for research on both early-stage businesses, and novice entrepreneurs at the early-stage of developing their business. I review the specific existing literature for novices to clarify the areas for new research, building upon the current frameworks.

2.3.5 Summarising the literature for Novice Entrepreneurs

The summary of the literature focussing on the novice entrepreneurs highlights a number of paradoxes. Whereas the expert entrepreneur will have less comparative over optimism, the novice will be more likely to be over optimistic (Ucbasaran et al., 2009; Ucbasaran et al., 2010). In the early stage of start-up business, experienced entrepreneurs will be better at using avoidance coping mechanisms than novice entrepreneurs, meaning the novices may suffer from lower emotional resilience during the early stages of business development (Uy et al., 2013). Portfolio entrepreneurs, in particular, are likely to be more adept at minimising the emotional costs of failure (Jenkins et al., 2014). Likewise, serial entrepreneurs will have more control of their emotions whilst novices may feel more emotional conflict, possibly translating to greater levels of perceived risk (Podoynitsyna et al., 2012). For cognition, novices will tend to use

more planned decision-making approaches (Blume & Covin, 2011) whilst expert entrepreneurs will be more effectual (Sarasvathy, 2008).

The definition of entrepreneurs has been referred to earlier as has the debate concerning differences between small business owners and innovating entrepreneurs (Shane & Venkataraman, 2000; Townsend et al., 2010; Bluedorn & Martin, 2008). I have defined the entrepreneur as the individual starting the new venture. However, the term “novice entrepreneur” introduces other questions about the categorization of entrepreneurs. Parker defines the categories as novice, serial and portfolio entrepreneurs (Parker, 2013). Some other scholars use the term “novice” as meaning the opposite of an “expert” (Dew et al., 2009). In this review I define the first time entrepreneur as a novice, which some other scholars also refer to as a ‘de novo’ novice (Renko, 2013; McKelvie et al., 2011).

In a review of the literature the novice entrepreneur provides an extreme exemplar of the possible stresses of cognitive coping. In particular the de novo novice will have no prior entrepreneurial experience, therefore the least amount of directly relevant experiences to draw from. This context of potentially highest uncertainty could mean that cognitive coping will be at its most difficult. However, this does assume that the novice realises the extent of the uncertainty that might, otherwise, be masked by their overconfidence (Townsend et al., 2010). It is worth reviewing the novice/expert literature solely with regards to decision-making to clarify this proposed cognitive coping within decision making for novices.

2.4 Decision Making

This review shows that decision-making is a key focus for understanding the cognitive activities of start-up businesses and the individual entrepreneurs that make those decisions. Therefore, I review the theoretical models that are specific to decision-making expertise to consider the different approaches and similarities. I develop a coherent framework of decision-making as entrepreneurship research often uses different theoretical bases, which may require further integration.

Decision making in the entrepreneurial context has been of interest in the entrepreneurship literature, particularly for providing insight regarding expertise; but is this expertise in the decision or the decision-maker? These two perspectives are different but inter-related, so for expert entrepreneurs their method of decision-making is a learnt process that over time provides success (Sarasvathy, 2008). However, at the level of each individual decision,

achieving success is the result of a learnt process that provides improved outcomes by overcoming underlying emotions and biases (Kahneman, 2011). I will explore and extend these different theories to identify the commonalities and where one theory takes over from another, in particular by understanding for the novice entrepreneur, having no prior entrepreneurial expertise, what experiences are they drawing on for decisions in their new context. I explore the prior literature on decision making, secondly the aspects of expertise in experiential learning, and thirdly examine current research of the novice, to bring together a model of novice decision-making.

2.4.1 Decision-making Context – Difference in Risk vs. Uncertainty

Knight provided the original definition of the economic difference between risk and uncertainty (Knight, 1957). Knight proposes three contexts and the associated decision making methods, as follows;

- for known distributions, classical analytical techniques.
- for unknown distributions, estimation techniques.
- unknowable future, heuristics and inductive logics.

Therefore this review of decisions within the entrepreneurial context, shows that the entrepreneur takes risks in uncertain situations with the objective of making profits. The context is defined into three states of probability as risk, uncertainty and unknown (Knight, 1957). However, the decision-maker will make judgements of probability even when there is no possibility of knowing the outcomes. Therefore, a key initial pre-decision is to know which of the contexts apply, so for instance applying a technique for known risk would be inappropriate for a situation that was unknowable and whose outcome does not follow a probability distribution.

These definitions of risk vs. uncertainty are regularly used by many entrepreneurship authors (Shepherd et al., 2012; Cassar, 2014; Sarasvathy, 2003). The underlying premise is that people in general prefer risk or known distribution decisions rather than uncertain or unknown distributions (Sarasvathy, 2001), and that entrepreneurs are tolerant to risk or risk-takers (Jones, Coviello & Tang, 2011; Rauch, Wiklund, Lumpkin & Frese, 2009). Although, the correlation for risk taking and performance was the lowest at $r = .139$, in the authors review of cumulative papers by Rauch et al. (2009).

In section 2.3, I have examined the entrepreneurship literature with regards to affect, behaviour and cognition without specific detail regarding this context of risk or uncertainty. Effectuation is proposed as a credible logic for the entrepreneurial context of an unknown future. As stated by Sarasvathy, for the unknown context, with an unknowable probability, the decision maker has two thinking systems; causation, a planned approach, which makes decisions by predicting the future; and effectuation, an emergent approach, which makes decisions to effect or create the future (Sarasvathy, 2008). Sarasvathy states that experts use both approaches, but tend towards an emergent or effectual approach. Effectuation as an approach has been widely tested as being more representative of the activities of entrepreneurs during start-up (Fisher, 2012, Wiltbank et al. 2009, Chandler et al., 2011).

As previously mentioned, Sarasvathy developed her logic of effectuation based on these three Knightian contexts for decision-making (Sarasvathy, 2001). In addition, Sarasvathy used Herbert Simon's concepts of bounded rationality, which is defined as the human cognitive limitations (Sarasvathy, 2001, p251). These limitations include physiological constraints on thinking capacity and psychological limitations such as biases and fallacies as proposed by Tversky & Kahneman (in Sarasvathy, 2001, p252). Effectuation focuses on the context of uncertainty and the unknown, with causation being placed as the contrasting logic applicable in the context of risk. However, within the detail of effectuation, one aspect of the effectuation logic aims to control an unpredictable future, which could suggest the unknowable future or unknown. Effectuation uncertainty is not made clear but is defined in contrast to causation that is placed in the context of risk and attempting to predict the future.

As well as Sarasvathy, many other authors have referred to the work of Kahneman & Tversky, especially considering biases (Burmeister-Lamp, Lévesque & Schade, 2012; Ucbasaran et al., 2010; Holland & Shepherd, 2011; Baldacchino, 2013) rather than expertise. In the Kahneman psychology research the risk context has complete information so there exists a known probability, in which the decision-maker makes a judgement under uncertainty based on two thinking systems; fast thinking and slow thinking (also known as system 1 and system 2). Fast thinking is automatic or intuitive thinking, which uses learnt heuristic-based decisions. Slow thinking is deliberate, which uses analytical calculation of decisions (Kahneman, 2011). Use of these two systems can lead to bias and inaccuracy in selecting the optimum decision (which in a risk situation is a known probability context). For instance, the individual may solve an easier problem or be distracted by irrelevant numbers. Essentially it is much more cognitively demanding to think slowly and consider not only the available information but also the wider

possibilities. The use of biases enables decisions to be made when potentially the difficulty or time constraints for ‘slow thinking’ could be too onerous for the situation. Interestingly, Kahneman highlights that experts, such as financial traders, mitigate the biases to improve their decision-making.

Kahneman’s research (2011) developed the concept of expert’s intuition under risk which lead to these heuristic biases and in particular that help to explain the skew that causes most people to dislike loss much more than winning. In particular “people expect to have stronger emotional reactions, including regret, to an outcome that is produced by action rather than to the same outcome when it is produced by in-action” (Kahneman, 2011). Within the entrepreneurial context there will be many decisions that must be made under conditions of uncertainty such as generating new sales, acquiring resources and sustaining finances. These decisions could all cause regret for poor or sub-optimal decision-making outcomes.

Regret is a crucial issue for novice entrepreneurs in creating new economic activity and as stated earlier “the asymmetry in the risk of regret favours conventional and risk-averse choices” (Kahneman, 2011). For novice entrepreneurs as decision makers, these emotions of regret and disappointment are real and this loss aversion theory aligns with the Sarasvathy affordable loss principle (2001, 2008). So how do novice entrepreneurs cope with these early, perceived losses and the human biases they need to overcome? Kahneman highlights the example of experienced traders that shield themselves from the emotional pain of losses by redefining their decisions as just one of many.

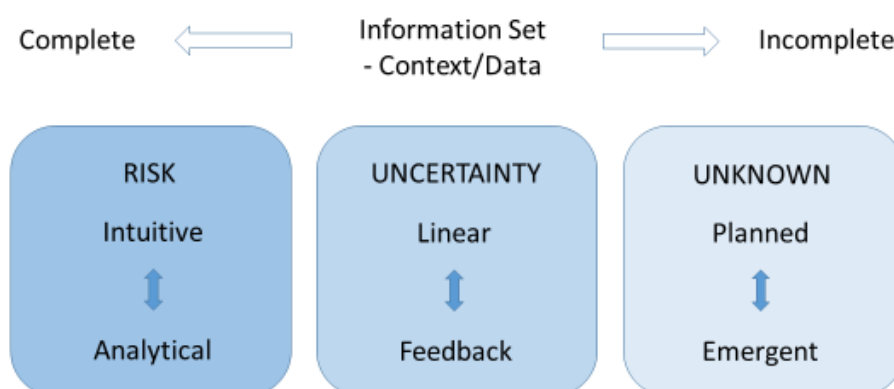


Figure 2-3 Application of Decision-making

Figure 2-3 Application of Decision-making shows these two theories together with their similarities but in different aspects of completeness of context and data, which is labelled as the information-set. Within 'risk' the information set is complete as there is a possible optimum probability to a result for a given situation, whereas for decisions where the outcome cannot be known (ie. 'unknown') the information set is incomplete, and not possible to complete by definition. Both theories have people using differing aspects of their theories at the same time so; thinking fast and slow; or thinking in a planned or emergent approach.

However, conditions of risk or the unknown are the extreme contexts so what is happening within the 'uncertainty' stage? This is where either the data is unknown or the context is unknown, however each could be known, for instance by other peoples. In the Knightian classification, uncertain decisions may be made as if within a calculable risk environment, however the probability cannot be known beforehand. This would suggest that decision makers are making decisions either using the intuitive or analytical model, or alternatively are using a planned or emergent approach. This is pertinent, particularly because uncertainty is the context that defines the decision-making in entrepreneurship (Arora et al., 2013).

The recent research work by Jones and Casulli is also based on the Kahneman framework of intuitive and analytical reasoning, defined as heuristic reasoning and analogical reasoning (Jones & Casulli, 2014). These authors provide an interesting theoretical framework whereby the experienced entrepreneur recollects prior known experiences to project or map them onto new situations or decisions. In particular prior experiences include business experiences and idiosyncratic life experiences, so that these will be unique to each individual. They state that the cognitive logic is a comparative reasoning approach, and that both heuristic and analogic reasoning interact and are not mutually exclusive.

The use of two logics is similar to the Sarasvathy assertion that entrepreneurs use both causal and effectual logic, however Jones and Casulli (2014) align the deliberate analogic reasoning with effectuation as they argue this is non-predictive. The authors suggest that future international entrepreneurship research should explore the interplay of experience and reasoning, particularly for the individual entrepreneur (2014). The authors highlight that expertise is developed from experience and that this is a continuous and changing process of sense making, where sense making is reasoning.

Jones and Casulli (2014) further explore logical reasoning within this framework by using

cognitive comparisons to future new decision by recollecting prior past experiences, which builds directly on Kahneman's model of intuitive and systematic comparing. Jones et al. highlight the context as it is currently experienced as being a continuous and changing process of sense making (Jones & Casulli, 2014), or alternatively defined as counterfactual thinking when deconstructing and reconstructing scenarios (Arora et al., 2013).

These aspects of sense making align to the expertise of decision making in management theory, with the assessment of the quality of project managers decision-making (Winch & Maytorena, 2009). The Winch & Maytorena research in decision-making explores the balance between explicit knowledge and judgement within the bounds of the behavioural school of complete information-set in 'risk' to the sense making school of 'uncertainty' based on the work of Weick (2009). The authors develop understanding of uncertainty situations, when an information-set is partly complete/incomplete.

This work also developed from papers by Knight, and Tversky & Kahneman. The research participants are project managers and this is relevant as the decision-making of risks involved in the project decisions as, "Decisions are not a one-shot statement of position, but typically a learning process as managers acquire the knowledge that they believe is relevant to their situation" (2009, p183.). 'Risk' and 'uncertainty' are categorized into four areas, with 'uncertainty' having two different conditions of known-unknowns and unknown-knowns, with the former being situations identified but with an unknown impact and the later being situations known by others but not to the decision-maker (Morris, Pinto & Soderlund, 2011). 'Risks' are known-knowns, as the probability and impact are known; likewise 'unknowns' are unknown-unknowns.

This may seem unnecessarily complex, but referring back to Figure 2-3 Application of Decision-making, will clarify the middle ground between risk and unknown, as the behavioural school fits the 'risk' and the sense making represents the 'uncertainty'. In addition, for the condition of unknown-knowns where other people may have identified the information-set, the skilful or well networked entrepreneur may connect to these others prior to their decision-making, providing an advantage. This research design uses an active information search to display on cognitive maps whether subjects exhibit linear or feedback styles for decision-making (Winch et al, 2009).

The methodology applies an experimental protocol as an assessment tool for the quality of

decisions whilst avoiding retrospective bias, measuring the number of risks identified, their probability and potential scale of their impact. The scenario is identical for all subjects and the results show that participants make better sense of the situation predominantly using the feedback or iterative style of thinking. Interestingly their results showed that education helps, but that experience does not, the feedback style is more an indicator of outcomes than either of these antecedents.

Research into uncertainty and entrepreneurial judgements, may help to understand the decisions which then result in actions (McKelvie et al., 2011). The implication is that these adaptable cognitions could explain dynamic decision-making processes in the entrepreneurial context (Haynie et al., 2010; Kickul et al., 2009). By using an experimental model that can bring in an evaluation of the quality of judgements it is possible to better understand the boundary between intuitive/analytical risk decisions and planned/emergent unknown decisions.

Although many of these authors (Sarasvathy, 2008; Kahneman, 2011; Winch & Maytorena, 2009) use differing terms their research is based upon common foundations of decision-making in situations of risk and uncertainty (Knight). Therefore it should be possible to bring together these three approaches into an integrative model of decision-making, focused on the central issue of uncertainty, but providing greater clarity on the connections and boundaries of when ‘risk’, ‘uncertainty’ and ‘unknown’ are most relevant in the entrepreneurial context.

2.4.2 Summarising decision making for novice entrepreneurs

Contrasting between novices and experts, novice participants must have some domain knowledge to make a useful comparison, or else the novice may not even understand the tasks. As reported earlier, in the expert versus novice comparison for effectuation research, novices were represented by MBA students so that they could understand the business language and issues (Dew et al., 2009). That research suggested that novices would predominantly use causation logic and decision-making as experts would predominantly use an effectuation logic (Sarasvathy, 2008; Wiltbank et al., 2009; Read, Dew, Sarasvathy, Song, et al., 2009) and an effectuation approach connects positively with new venture performance (Read, Song, et al., 2009). Similarly, for expert traders, individuals could overcome their biases so that they could re-frame the issues of decisions differently, whereas novices could not overcome these stronger emotional reactions to loss by action (Kahneman, 2011). Building on the Kahneman

framework, Jones and Casulli argue that novices will recollect their own unique prior experiences as part of the process of sense making (Jones & Casulli, 2014), similarly with the deconstructing and reconstructing of scenarios (Arora et al., 2013). Experts also predominantly used a feedback style in sense making for their decisions which infers that novices would mostly use a linear style (Winch & Maytorena, 2009).

As summarised earlier, the literature predicts that the novices should not act like expert entrepreneurs (Dew et al., 2009). Therefore, in terms of decision-making novice entrepreneurs would be expected to reach decisions using a predominantly causal approach. Current theory predicts that their decision-making style should be linear with few feedback loops or searching for more information. Novices that have a wider breadth of experiences might be expected to have more prior experiences to refer to in their decision-making and so should explore issues more widely. However, as novices they may feel more conflicting emotions and not be as in control of these emotions, or be able to minimise the emotional cost of failure (Kahneman, 2011). Novice's will be less likely to use coping mechanisms, especially avoidance coping mechanisms, and so have less emotional resilience or confidence at the early stage of their business (Uy et al., 2013). The literature also predicts that novice entrepreneurs should have a predominantly positive affect (emotional) state with the associated creativity and innovation markers (Baron & Tang, 2011).

Potential early markers of venture success are difficult to identify and measure (Moroz & Hindle, 2012; Stinchfield et al., 2013). However there are some indicators that are recommended as potentially providing connections to any entrepreneurial background and relevant experiences. The literature also recommends that it is important to use existing scales and measures, where possible, so that the results can be consistent with existing published frameworks. As my research is proposing to integrate the similar but different decision-making frameworks, it is important to use a research method that offers the potential to integrate these theories as parsimoniously as possible. As both the expert entrepreneur and expert decision-making results use think-aloud protocols (Sarasvathy, 2008; Gustafsson, 2006; Baldacchino, 2013; Winch & Maytorena, 2009), it should be possible to combine these in a coherent approach. This will be detailed in the methodology section.

2.5 Research Questions and Potential Contribution

There is a consistent call for more research directly with entrepreneurs and especially with novice entrepreneurs due to the difficulty of identifying novices during the start-up phase. Reviewing the literature from both an affect-behaviour-cognition lens and also decision-making expertise highlights the potential benefits of understanding the novice perspective. In particular, the novice in the start-up phase is most likely to be in an environment requiring strong cognitive coping skills but having the least prior experiences, skills and resources to draw upon.

Therefore, the fundamental research question to be addressed in this thesis is; to what extent are current models of entrepreneurial decision-making relevant to novice entrepreneurs?

In particular, could the expert decision-making cognitive model offer a useful indicator for early novice success?

To what extent might indicators of expert decision-making at the start-up stage of new business, provide an early marker for the success for novice entrepreneurs?

Are there particular patterns of prior experiences, or “experiential markers” that might better prepare novices to pursue entrepreneurial endeavours?

If there are common experiential markers, are these linked to the novice’s emotions such that they have better cognitive coping? Either in respect of the novice’s ability to cope, or in their resilience with potential losses?

The hypotheses addressed in the research are that a sample of true novice entrepreneurs would struggle to draw on appropriate experiences at the early stage of their business (Dew et al., 2009; Sarasvathy, 2008). In addition, the novices would be over optimistic compared to the general population (Hayward et al., 2010; Kuechle, 2011; Watson et al., 1988; Thompson, 2007). These aspects are explored in CHAPTER 5: Experiences and Emotions. The aspects of entrepreneurial decision-making are examined in CHAPTER 6: Decision-Making and address the different theoretical expert decision-making models as highlighted by the literature review (pages 47-48).

The key hypotheses are that true novices entrepreneurs will:

H1 Infrequently use feedback loops (Winch & Maytorena, 2009; Maytorena, Winch, Freeman & Kiely, 2007);

H2 Infrequently use an effectual logic (Chandler et al., 2011; Sarasvathy, 2008; Dew et al., 2009); and

H3 Will not be adept at switching between analogical and heuristic sense-making (Jones & Casulli, 2014).

The final two hypotheses (H4 and H5) that are considered in Chapter 6 seek to encompass decision-making and aspects of entrepreneurs' experiences and emotions:

H4 Novices will be unlikely to identify with salient experiences, emotionally or cognitively (Mathias et al., 2015), and

H5 Novices will be unlikely to identify with salient experiences, particularly where these arise as a consequence of negative outcomes or feedback (Katre & Salipante, 2012).

2.5.1 Appropriate research methodology

Entrepreneurship research has many examples of think-aloud protocols being used to highlight cognitive thinking, with the effectuation model of emergent thinking starting a resurgence (Sarasvathy, 2008; Gustafsson, 2006; Baldacchino, 2013) with a call for more use of experimental approaches (Brush, Manolova & Edelman, 2008b; Haynie et al., 2010; Dimov, 2011; Mitchell et al., 2004). However, these approaches have mainly been used to understand how entrepreneurial thinking is different, rather than focussing on novices to identify any previous experiences that might be relevant the first time that they at start a business.

The experimental protocol needs to reflect key areas for the entrepreneur during start-up. A meta-analysis suggests three areas of performance for the small firms; growth, profitability and non-financial aspects (Stam et al., 2014). Their measures show similar effects between self-reported information and archival sources. In addition the work analysed both high and low

technology firms but showed no differences. For the individual novice at the early stage, these three areas can be assessed as generating new sales, sustaining finances and acquiring resources.

The verbal protocol that is developed uses two methods of analysis, both concurrent think-aloud and retrospective think-aloud in two parts (Ericsson & Simon, 1993; Ericsson & Simon, 1980). The concurrent method occurs while performing the first part of the task and the retrospective method is introduced for the second part of the task. According to Ericsson and Simon (1993) there are three levels of verbalization and these develop from the different uses of both short term and long term memory. An example of level 1 would be when the participant reads aloud direct information. Level 2 and level 3 are encoded levels, and the authors link level 2 predominantly to the use of short term memory and to concurrent verbal protocol analysis, being most aligned with direct verbalized cognitive processes. Level 3 is most likely to be observed in the retrospective verbal protocol analysis, which reflects the processes involved in accessing long term memory. In particular, level 3 occurs when the participant may be generating information on their own internal processes and Ericsson and Simon state that ideally the participant would generate this retrospective data immediately after the task is completed, in order to ensure the closest approximation to the actual memory.

In conclusion, it should be possible to generate cognitive maps (Winch & Maytorena, 2009; Maytorena et al., 2007) that bring together the models of Kahneman and Sarasvathy in a coherent approach (Kahneman, 2011; Sarasvathy, 2008). In addition, to reduce long-term retrospective bias, it should be possible to use both concurrent think-aloud and retrospective think-aloud methods to enhance the cognitive maps when the novice's identifying their prior experiences (Banks et al., 2014). Of course, experiential markers may be tainted by retrospective bias, however it may be possible to design the experiment such that the data is generated as close to when the task is completed, as possible.

3 CHAPTER 3: Methodology

3.1 Introduction

As discussed in Chapter 2, the literature review, there is an interconnection between affect, behaviour and cognition such that these influences impact and reflect on the individual's decision-making. In addition, an examination the largely separate literatures on the skills of expert entrepreneurs, expert traders and expert decision-makers indicates a gap for integrating current research specifically on decision-making. By researching the early-stage of business start-up we can seek to better understand whether current theoretical decision-making models (Sarasvathy, 2008; Winch & Maytorena, 2009) are relevant to novice entrepreneurs. In particular, are there common patterns of experience that could be markers to the novice's emotions such that they have better cognitive coping? Especially for the ability of the novice to cope or their resilience with potential loss, which during the start-up stage probably represent new, and negative situations. How do novices make decisions in their new context of start-up businesses?

Many of the previous studies in decision making and in entrepreneurship have used think-aloud protocols to mitigate the bias of self-reporting (Sarasvathy, 2008; Dew et al., 2009; Gustafsson, 2006; Winch & Maytorena, 2009) to understand their expertise, underlying strategies and use of prior experiences. The complexity of identifying the behaviours of novice entrepreneurial decision makers requires that the decision context is held constant, allowing the variability of their decision-making and experiences to become clear. This research is testing the applicability of expert theories for the novice in entrepreneurship, holding the context the same, to understand and explain these early and varied experiences, especially compared to the published results of experienced decision-makers (Easterby-Smith et al. 2008).

This research uses a pragmatic relativist approach employing mixed methods to place the research contribution within the existing literature of decision making, as well as providing greater detail for the novice experiencing this new context. There are concerns about the use of mixed methods, however within a realism perspective it will be useful to draw

together existing tested theoretical frameworks quantitatively, as well as contribute by providing an in-depth understanding of the novice perspective qualitatively.

Therefore, this research will bring together these existing and different theories of decision-making within risk and uncertainty to provide more detail and, potentially, to show patterns of insight for understanding the situations in which each theory might provide the more complete explanations for novice entrepreneurs, if such situations exist.

The existing constructs are of expert management decision-makers (Winch & Maytorena, 2009), expert entrepreneurs (Sarasvathy, 2008) and expert financial traders (Kahneman, 2011), and this study will extend research into the context of decisions in the start-up phase of business.

The scenario based decision-making uses a verbal protocol experiment to know the cognitive elements of decision making, while understanding the novices' estimates of the likelihood of events occurring and the extent of confidence in their decisions. The research will also contribute to development of qualitative elements of potential experiential markers for the participants.

Therefore, to allow the complexity and richness of the participants' experiences to emerge, the development of the verbal protocol needs to be carefully planned for this research (Ritchie et al., 2014). An explanation of this approach and development in the research method process follows, as well as the approaches to coding, reflection and analysis.

3.1.1 Verbal Protocol Analysis

The methodology uses mixed methods in parallel with a relativist research design, aiming to build on existing theoretical constructs, for a coherence theory of truth (Ritchie et al. 2014, p7). Mixed methods are used to analyse the situation in a qualitative sense drawing from participants' previous experiences, as well as comparing this quantitatively to the existing

tested expertise models.

The protocol developed uses two methods of verbal protocol analysis, both concurrent think-aloud and retrospective think-aloud in two parts (Ericsson & Simon, 1993). The concurrent method occurs while performing the first part of the protocol and the retrospective method is then introduced for the second part of the protocol. There are, of course, possible problems with these methods and these will be outlined further in the limitations section.

However in terms of my research this mixed method approach should provide useful insights into the decision-making of novice entrepreneurs. There is a recent example of research using this method of verbal protocol analysis, within an externally measured environment (Banks et al., 2014) to provide greater detail and insight to the decision-making associated with behaviour, in this instance, for driver emergency situations.

This research is guided by the existing uses of verbal protocol analysis in the literature, especially Sarasvathy's (Sarasvathy, 2001; Sarasvathy, 2008) work with expert entrepreneurs. However, Sarasvathy's protocol needed to be tested in the context of novice entrepreneurs to see if this would initially work and, in particular, whether it would be relevant and meaningful to the target subjects (novice entrepreneurs). In addition, would this method provide a contribution to develop the existing literature by providing useful insights?

The protocol was initially piloted with a smaller group of novice entrepreneurs to test the applicability for the participants and to understand any constraints in their context, as detailed in Chapter 4. The pilot stage was particularly important as the base protocol was developed for expert entrepreneurs and as detailed by Dew et al. those authors' "novice" population provided different decision-making results to the experts (Dew et al., 2009). Dew et al.'s "novice" population were not entrepreneurs but MBA students and therefore were not truly novice entrepreneurs as defined for research. To date, research has not been published for early-stage novice entrepreneurs using the expert entrepreneur protocol and as a result, it is expected that this study will make a useful contribution to the literature.

The development of the protocol instrument follows as well as the research methodology for

sampling selection, data collection, coding and analysis.

3.2 Research Process

As outlined, an important aspect of the research is the careful planning and development of the research instrument, which includes development of the verbal protocol, data collection, coding processes and data analysis. These processes involved the development of a conceptual model from the literature review CHAPTER 2: Literature Review, including a pilot phase to test the applicability and appropriateness to novice entrepreneurs, that are explained in detail in Chapter 4. Piloting the research instrument was important, as previous research on expertise has expressed concern about the difficulty of providing a comparable context for novice entrepreneurs.

This methodology chapter focuses on the wider research development, indicating the contribution of the pilot phase, that specifically seeks to understand if truly novice entrepreneurs can contend with the difficulties of a proposed think-aloud protocol, which Dew et al. doubted (Dew et al., 2009).

3.2.1 Planning

The planning required a careful review of the use of mixed methods so that there is an appropriate juxtaposition of the quantitative and qualitative elements. The aim of the research is to understand the decision-making of novice entrepreneurs and the prior experiences that they might use, to make decisions at the early-stage of their business development. Is an expert decision-making cognitive model a useful indicator for early novice success? In particular, are there experiential markers that may be common for novice entrepreneurs? How do novices cope with the usual emotions associated with loss-aversion and does this coping lead to better cognitive skills and greater resilience to potential losses? Therefore, the protocol development needed to reflect the early-stage of new business formation for a representative group of novice entrepreneurs, as well as allowing for a wide range of participants' prior experiences to

emerge.

3.2.1.1 Ethics

The ethical considerations relating to this research are that the data should be representative of the participants experience and of high quality, in representing their voice. At the same time, the data brings together existing theoretical decision-making frameworks, exploring prior experiences and emotional aspects, as well as fitting within existing published indicators. Both of these internal research consistency considerations are important, as well as the external research requirements that follow.

It is important that the issues of confidentiality and anonymity are respected (Ritchie et al., 2014). To this end the research must not only meet the requirements of university regulations but also allow participants the opportunity to withdraw consent in the event that the experimental protocol is not representative of their experiences. To this end the process of disclosure and consent is clearly detailed in the sampling and data collection procedure. The opportunity to withdraw consent was emphasized four times; highlighted at the initial contact phone call; written in the follow up email document; at the face-to-face interview emphasised verbally; as well as obtaining the participants signature for the consent form prior to starting the protocol.

3.2.2 Protocol Development

The think-aloud protocol was developed from the initial published instrument used by Sarasvathy (Sarasvathy, 2001; Sarasvathy, 2008) which proposed the theoretical basis for expert entrepreneur decision-making, known as the effectuation-causation model. The development of my instrument was through a staged process, with two main stages. In the first stage, the pilot, I took the initial expert entrepreneur instrument and modified it slightly for UK participants to test the suitability for a novice population. During the second stage, the instrument was further modified to make it suitable for the requirement of integrating the different expert decision-making protocols (Winch & Maytorena, 2009) and also enabling participants prior experiences to be collected. These two stages are detailed below.

3.2.2.1 Pilot and Review

Details of the developments and results of the pilot phase are in Chapter 4, however the central aim of this pilot stage was to understand the suitability of the protocol for the novice population. Dew et al. (2009) use a sample of MBA students because of the authors' concerns about the difficulty of using the protocol for an inexperienced entrepreneurial population. During my initial phase of development the changes I made to the protocol were limited. There were a few minor additions to the wording to make it understandable for a UK audience, for instance to the US term "hockey stick", I added "hockey stick (slow start then rapid growth)". The protocol used in this pilot phase is shown in APPENDIX A: Pilot Phase Verbal Protocol Guide.

3.2.2.2 Protocol Development

The second stage is the main development of the protocol instrument, occurring after the pilot phase that had shown that the instrument worked for novice entrepreneurs, refer to Chapter 4. The refinements involved a number of different aspects, although the aim was to keep the instrument as consistent as possible to existing frameworks to allow for a comparable contribution to the literature. There are four parts to these changes, two minor and two more pronounced. I will detail the changes. The complete final protocol is provided in APPENDIX B: Verbal Protocol Guide.

The minor changes were concerned with making the protocol instrument more suitable for UK novice entrepreneur participants, so adjusting the terms and simplifying the language to plain English. The changes are required so the protocol can be used for a randomized sample of a sub-population of all novice businesses and it is expected that a representative sample of participants will have a range of levels of education; this is discussed further in the sampling section.

Examples of the changes that were made were; for instance, to measurements US \$ to UK £, and to the names of organizations for instance Barnes & Noble to Waterstones. In addition, the information was updated to the current 2014 UK market values, so the pilot protocol had US values of 200,000 Educators, whereas the main research protocol had UK 21,000 Educators. The other minor change was to simplify the language so "from bankruptcy to a "hockey stick"

(slow start then rapid growth)” became “from bankruptcy, to stable business, to rapid growth”.

The more significant changes are the developments that allow my research to test the different decision-making frameworks and address the research questions raised if the expert protocols are suitable for novice entrepreneurs. This is in two parts, one is the change in form to allow for the emergence of linear or feedback decision-making in the concurrent verbal protocols (Winch & Maytorena, 2009). The second is adapting the retrospective verbal protocols to explore the extent of use (if any) of the prior experiences in the novices’ decisions (Banks et al., 2014; Saldaña, 2013).

To consider the active information search aspects of an expert decision-maker (Winch & Maytorena, 2009) I extracted aspects of the base protocol from the Pilot Phase Verbal Protocol in Appendix A to place these into additional information cards as shown in the Verbal Protocol in Appendix B. These information cards were available during the interview and the participants could ask for them. The participants were informed about the information cards prior to the protocol, the information cards were physically put onto the table, see the photo in Figure 3-1 Photo of Additional Available Information, and finally reference to the additional information was part of the protocol instructions that were read aloud. As part of the data collection during the protocol, each information card requested or reviewed, and the stage that it was requested, was tracked.

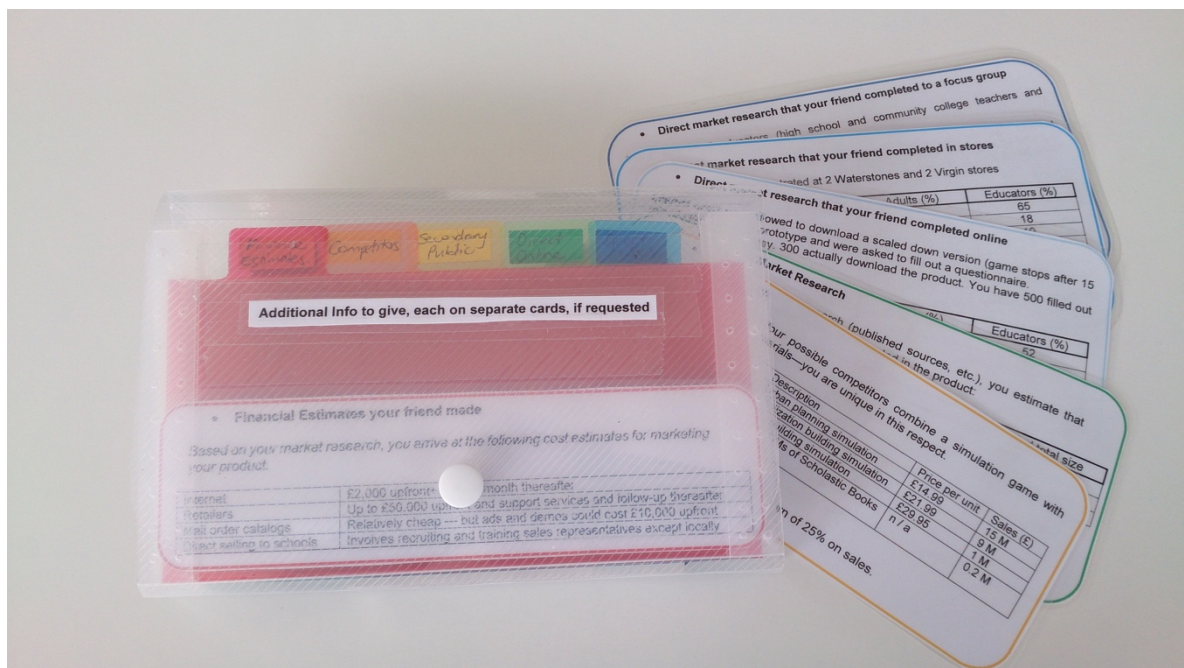


Figure 3-1 Photo of Additional Available Information

Compared to the pilot phase, three questions were removed and two additional questions were added to the main protocol. The additional questions in APPENDIX B: Verbal Protocol Guide, questions 6 and 7, were specifically focussed on the issue of decision-making under uncertainty, loss or regret. These questions aimed to identify data to explore the research question about the novice's ability to cope with potential losses.

Pilot Phase Protocol [Appendix A]		Research Verbal Protocol [Appendix B]	
Identifying Market	5 questions	PART 1	7 questions
Defining Market	3 questions	PART 2	Prior experiences of 7 questions

Table 3-1 Development differences between Pilot and Main Research

The second change in the main research protocol was the addition of Part 2, APPENDIX B: PART 2, a reflection by the participants on their prior experiences (if any) that they considered when making their decisions. Part 2 aims to explore the research question relating to common patterns of prior experiences and the extent to which these experiences linked to the emotions of the novice such that they might have better cognitive coping. Part 2 is an immediate retrospective think-aloud method, which was completed immediately after Part 1, and so accordingly was fresh in the participants recent memory (Ericsson & Simon, 1980; Banks et al., 2014). In addition, during the experiment in Part 1, I took copious notes, which I then re-read to the participant in part 2 prior to each of the 7 questions, to further remind and re-fresh their memory. The whole experiment was also recorded and transcribed.

These changes to the protocol have made the research somewhat different, however as can be seen within the actual detail of the two protocols in Appendix A and B, they remain very similar in their pure conceptual form. As a result it is believed that the data collected is comparable with the previous studies on which this research builds.

Following Part 1 and Part 2, the participants were asked to complete a structured survey, which is Part 3 detailed in APPENDIX B: PART 3. This survey was composed of three parts, which

were all published survey scales; the first was the Positive and Negative emotion scale (PANAS); the second was decision-making under risk; and the third was decision-making under uncertainty validation study (Thompson, 2007; Kahneman, 2011; Chandler et al., 2011). This approach was adopted to allow the research to be further connected and comparable with more widely published results.

The final part of the interview was a check of interviewees' background particulars. This section is detailed in APPENDIX B: Background Information. This enabled a formal check of surrounding background details and business status issues. In Stam et al. the authors discuss the comparability of outputs given by business owners and externally measured outputs (Stam et al., 2014).

3.2.3 Sampling

3.2.3.1 Sample Selection

My qualitative research requires a combination of sampling approaches to identify and access novice entrepreneurs. Ritchie et al. highlight the systematic approach of purposive sampling using a prescribed selection criteria (Ritchie et al., 2014). As discussed previously the aim of this qualitative research is to gain an understanding of the nature and form of the early markers in decision-making of the novice. In *Qualitative Research Practice*, Ritchie et al. (2014) recommend following a process for 'symbolic representation' to typify a circumstance or characteristic and that the sample requires diversity within the defined population. Therefore, I detail this sampling approach as the design of a suitable sample frame using purposive selection criteria to get a representative sample of novice entrepreneurs.

There is a call in the literature to use entrepreneurs, rather than proxies (Perry et al., 2012), although the novice population is a difficult group to identify, particularly while they are starting their businesses. Therefore the purposive sample is needed to identify novices as a sub-set within a wider group of start-up entrepreneurs. This required a combination of approaches to get to the sub-set of novices, starting from the initial stage of finding a gatekeeper organization for start-ups, then followed by the use of appropriate selection

criteria.

The gatekeeper organization that provided permission for the contact database of this research were not involved in the development of my research, or in any way associated with the funding of my doctorate, which was entirely self-funded. The gatekeeper organization is Business Finance Solutions Ltd (BFS) who are an established provider of business support and development, especially for government subsidized finance support. The identified sample population of entrepreneurs are a sub-set of the wider BFS programmes, with this selected population being the recipients of the UK government initiative, Start-Up Loan Scheme (SUL) (Young, 2012; Young, 2013). This initiative was piloted in 2012, but rolled out to the regional areas in 2013, with BFS as the main provider for the North West region.

I was given permission by BFS and SUL to conduct this research, as in my past work I have provided regional business start-up support. However, I was not involved in the provision of any of this SUL/BFS scheme and my research is wholly part of my doctoral requirements and completely independent, with no obligation to provide any results to either SUL/BFS organization.

Following the definition of entrepreneurship as the “emergence of new economic activity” (Wiklund, Davidsson, Audretsch & Karlsson, 2011), this new government initiative was representative of the UK economic environment, with the recipients of these loans being part of the population of entrepreneurs in the UK, as discussed in Chapter 2, the literature review. The literature highlights the difficulty of identifying the early-stage activity of entrepreneurs, and in particular, novice entrepreneurs, and this SUL activity allows for an identifiable sub-set of novice (or first time) start-up entrepreneurs for this study.

The limitations of this sample will be discussed further, but the SUL situation is that in order to be included in the sample frame the businesses will have received initial small start-up loans reflecting that they have complied with a selection process to receive start-up funding. Potential participants could be contested as a not being a representative sample. However due to the prevailing economic environment the government proposed this development (Young,

2012) to counteract the lack of commercial start-up bank loans and to encourage an increase in entrepreneurial activity to the levels of the US from the lower UK levels detailed in the GEM UK Report (Hart & Levie, 2011). It is therefore argued that the sample frame is representative of the vast majority of new firms in the North West of England. Businesses requiring larger sums of money, or financing from external investors will probably be under-represented. But such high investment businesses represent a very small proportion of the total population of new firms (Poutziouris, Chittenden & Michaelas, 1999).

The participants were selected using a randomisation process from the population of applicants receiving Start-Up Loans issued in the North West region, with only novice entrepreneurs being included during the initial participant contact stage. That is, the respondents initially confirmed that this activity is their first-time business and they must be operating at the start-up stage of business development.

As explained, the experimental protocol is an intensive process for the participants requiring, an anticipated time of up to an hour, and entrepreneurs are busy at the early stage of their business development. It is expected that this required time commitment could impact the response rate in terms of agreement to participate, however this was carefully evaluated to minimize the difficulty of involvement for the participant and to get a representative sample.

According to the expert authors for sampling size in qualitative research (Baker & Edwards, 2012), the sample size for qualitative research depends on reaching theoretical saturation, however they recommend aiming for a sample size of 30, which for my mixed method study also allows the results to meet statistically significant results for the quantitative elements (2012). Therefore the total research sample size is expected to be 30 interviews, which allows for the limitations driven qualitatively by the volume of data to be analysed, but at the same time having primary and secondary selection criteria to get a breadth of novice representation (Ritchie et al., 2014).

Consequently, the criteria for selection are then prioritized during the initial contact stage with participants, when gaining their agreement to participate, with the focus on the primary

criteria of being a novice, and then a spread of participants between business start-up date (either 2013 or 2014). My criteria to check representativeness in terms of the UK entrepreneur population were; Age, Gender, Ethnic diversity, Education level (using the NQF framework) and business sector.

The data collection was checked for representativeness at stages and where necessary additional purposive sampling was initiated. This occurred during data collection when it was clear that the age cohort of 50+ were under-represented and that this was due to the initial SUL scheme being age constrained in the early 2013 stage of loan approvals.

3.2.3.2 Sample Matrix

The profile of the resulting interview participants in Table 3-2 Planned Sample Matrix combines the prioritisation of the selection criteria, after the requirement of novice, being Year in receipt of SUL loan and the anticipated sample size, of ~30. The range within the criteria are the anticipated minimum for that sub-set, with the total participant sample size of ~30. The primary important criteria, after Year, is a range of the financial sustainability alternatives as a possible early marker of success. Whilst Stam et al. mention that financial criteria are not the only measure of possible early-stage success indicators (Stam et al., 2014), alternatives are difficult to apply because of the diverse nature of businesses in different industry sectors

In addition, to provide potential diversity of insight, a range of lengths of time since start-up is another primary criteria which will allow a difference of up to 12 months from start-up within the pool of participants. This criteria was chosen to enable exploration of any differences between the very recent novices (started within the last 12 months) as compared to those novices who already have some early stage business experiences (those who started 13 to 24 months ago), whilst all still being true novice entrepreneurs. The GEM criteria for TEA has the start-up developing from 0-42 months (Hart & Levie, 2011) and so all of the research sample are also novices within this wider definition in the literature.

Planned Sample Matrix (Primary Criteria)		2013	2014
Financial Sustainability	Not Yet	3-5	3-5
	Breakeven	3-5	3-5
	Positive	3-5	3-5
Planned Sample Matrix (Secondary Criteria)		2013	2014
Innovativeness of their business	Not innovative	3-5	3-5
	Innovative	3-5	3-5
	Very Innovative	2-3	2-3
Education level	Entry level, 1-2 GCSE	3-5	3-5
	3-5 A levels, HND	3-5	3-5
	6-8 Degree +	3-5	3-5
Work / Managerial Experience	Only work experience	min 3	min 3
	2+ years manager	min 3	min 3
	related work 2+ yrs	min 3	min 3
	related manager 2+	min 2	min 2
Total		30	

Table 3-2 Planned Sample Matrix

Since the gatekeeper organization, BFS, has been supporting novices since early 2013, I will use two levels of recent novice, those given loans in 2014, and developing novice, those receiving funding in 2013, to provide diversity in the sample in terms of development of their business. Within these two lengths of duration, markers were used for achieving initial financial sustainability, with criteria for the last few months being classified as 'not yet' sustainable, at 'breakeven' sustainable, so covering costs, and 'positive' sustainability, where there is some net income after deducting costs being generated by the novice venture. Recent novice with positive sustainability might be difficult to identify, however if that were possible such a measure could provide diversity of insight, particularly as an important possible early marker of success.

The secondary criteria considered as potentially important from the literature are aspects that have been previously applied as indicators of success. These criteria are the potential innovativeness of business, the level of educational background and the existence of relevant work experience.

Innovativeness will be self reported relative to their sector so if they are taking an imitative strategy of existing business models then this would be in the 'non innovative' category. I

anticipate that the sub-set of 'very-innovative' would be the most difficult to identify, however the participants will provide their view of the innovativeness of their business. The other two secondary criteria are education and work/managerial experience, which have been identified in the literature as likely indicators of success.

3.2.4 Study Population

The population for the study is drawn from the gatekeeper organization BFS which is the regional organization delivering nation-wide government support contract for start-up businesses, the SUL scheme. The criteria for a SUL loan is a staged application process including registration, guided development of the business plan and meeting the application criteria (StartUpLoans LTD, 2015). The criteria initially had age restrictions of 18-30 years, however this was extended, and importantly the business must not have been trading for more than 24 months prior to application and the anticipated average loan size was £6,000. In addition, this government backed start-up loan support although targeted at businesses, is taken as personal loan for business purposes. As shown in the literature review, these support organizations can provide representative populations of the wider start-up business group.

The inclusion of participants in the experimental protocol will follow the randomised approach with the sample matrix. In addition, I tracked the process of contacting and identifying the participants from the larger population sample of the BFS applicants in their database. This included response and inclusion into the study, or alternatively reasons for not being included. Reasons for not participating could include ineligibility to the criteria, the inability to contact the potential respondent, refusal to participate and finally being eligible but within a quota sub-set that is already filled in the matrix.

3.3 Data

3.3.1 Collection

The process of data collection involved the randomization of the sample frame of 1128

recipients, which were then contacted from the randomized list.¹ The main research process for collection involved the agreement to participate which was documented and then checked against the sample matrix at various stages to manage sample representativeness (as noted previously).

The initial phone contact provided a brief explanation of the doctoral research aims with reassurance of independence and anonymity, before the primary inclusion check of whether this was their first business. As this requirement to be a novice is the fundamental part of the research, a negative answer would exclude the participant from the outset. If the participant was a novice, I would then explain that the research would take up to an hour at a place and time suitable for them and I would email them the summary information document, which is included in APPENDIX C: Email Invitation Document. I made it clear that I could not explain what the research experiment would involve beforehand, but that they would be able to ask questions once they had completed the experiment. The opportunity to withdraw from the research was emphasized and I would then allow time to consider by calling them back another time to agree to participate, although a few did agree at the initial call. The results of this process of random contact are detailed in the sample results.

3.3.2 Coding

The coding of the data for analysis is in two parts, which reflects the research design. These two parts draw together the decision-making results of the think-aloud protocol using part 1 (APPENDIX B: Verbal Protocol Guide); and the emotional and experiential results of part 2 (APPENDIX B: PART 2). These are explained in further detail below.

The coding for decision-making is based on the framework developed to understand expertise in sense-making (Winch & Maytorena, 2009). As discussed this method brought together the decision-making expertise frameworks as the results for the participants' standardised risk test (3b) and effectuation test (3c), collected in part 3 (APPENDIX B: PART 3). The coding started with the individual concepts from the information search maps, which were classified as linear or feedback on the basis that the participants' exhibited iterative behaviour; a) asked or referred to the extra information; b) asked or posed questions that they would want answers for; or c) created their own feedback loops in the think-aloud process. This analysis is further detailed in

¹ The data collection for the research involved the initial pilot phase, however these results are not included in the main results analysis and are detailed separately in chapter 4.

chapter 6, with examples of the different types from the data.

The resulting information search maps were then classified into linear or feedback clusters, that provide an overarching summary information search map, coded as predominantly linear or predominantly feedback. The decision-making analysis is part of the pattern of the segmentation of the verbal protocol analysis (Winch & Maytorena, 2009) with the expertise captured from the standardised measures, 3b and 3c. It is intended that this data would provide knowledge as to whether the existing models of expert decision-making (with iterative thinking and feedback yielding better decisions (Winch & Maytorena, 2009)) could act as useful indicators for early novice success.

The coding of part 2 reflects the qualitative element of the research and records the experiential and emotional aspects entrepreneurs are considering in their cognitive decision-making process. To be as rigorous as possible and still provide data analysis that represents the experience for the participants, I have developed the initial coding criteria from the theory elements for the two aspects of the affective dimension Positive and Negative Affect Scale (PANAS) (Watson et al., 1988), emotional research, and structural coding for the experiential research. Saldaña (2013) recommends appropriate coding mechanisms.

In this case to do simultaneous coding of two codes to the single qualitative data is appropriate for the qualitative element of this research and “is warranted if a segment is both descriptively and inferentially meaningful” (Saldaña 2013, p80). Although this may seem complex, I am examining the interaction of these three affect-behaviour-cognition aspects that are linked theoretically and in the literature, as shown in Chapter 2. Simultaneous coding will be part of the qualitative analysis, with two parts which will be the emotional magnitude coding and structural coding of their experiences (Saldaña 2013). An example of the emotional coding would be “excited” and the magnitude scaling would be a single positive, if excitement was exhibited, or double positive if expressed strongly, similarly with the negative emotions “really disliked”. The emotions identified will be initially arranged according to the long version of PANAS (Watson et al., 1988), and this will be supplemented by the additional emotions that do not fit within this schema but are also part of the emotional profile (Champney & Stanney, 2007). Examples are detailed in Chapter 5. An example of the structural coding would be an experience that they have referred to personally, in their prior job, or alternatively an experience that they have heard of from a friend e.g. when buying something. Chapter 5 further details these structural codes and the common patterns of analysis.

The aim of this part of the research is to observe and seek to understand any cognitive coping strategies used by the novice entrepreneurs. Are there common patterns of prior experiences in launching a new venture or are there commonalities in the emotional markers that suggest better cognitive coping, particularly for losses? The participants could be better at coping *emotionally* because of their emotional resilience or coping *cognitively* as they may draw upon relevant previous experiences.

In Chapter 5, a possible limitation is associated with retrospective reporting. Participants may infer or generate a plausible explanation, for instance if they cannot fully recall or if the task is too onerous (Ericsson & Simon 1993). However, the research design seeks to reduce this risk, as discussed, because the second part of the experiment happens directly after part one. In addition the notes of the participant's part 1 answers are read back aloud, by the interviewer, prior to the participant responding to each of the 7 questions, in turn.

3.3.3 Relativist Design – Generalisability

The use of a relativist design means that both the reliability and validity of the quantitative data, as well as the authenticity, plausibility and criticality of the qualitative aspects need to be considered and brought together in a way that is both coherent and meaningful. In Management Research (Easterby-Smith et al. 2008, p96) the a 'deep understanding' of what is taking place is required; plausibility results from connection to current entrepreneurship research; and criticality relates to the identification of 'something genuinely novel'.

In analysing the interview results I had the full transcripts of the participants think-aloud responses for each of the seven questions and combined these with the underlying base measures. An example can be seen in APPENDIX E: Sample Analysis Spread Sheet showing the complexity of the raw text and also how meaning was established, providing overall transparency. In Qualitative Research Practice (Ritchie et al. 2014) the issue of reliability relates to the importance of replicability of the research findings. I have sought to address this by explaining the detailed methods employed in my study. In addition, the research both seeks to replicate and extend the work of other authors (Sarasvathy & Dew, 2008; Dew et al., 2009; Winch & Maytorena, 2009).

Ritchie et al. (2014) stress the importance of the validity of the findings in terms of measurement validity and internal and external validity. My research design addresses these issues by analysing the data collected and triangulating the results using to externally validated measures, such as PANAS. The result is that I conduct both internal comparison of results and external validation to a wider setting (Thompson, 2007; Chandler et al., 2011; Kahneman, 2011).

3.4 Analysis of the sample

Sample	Main	Extra	Total
Phone Contact	110	21	131
Participants	26	6	32
Not Participants	84	15	99
Not Contactable	47	7	54
Not Contactable after email	11	2	13
Refusal to participate	13	1	14
Ineligible-not novice	7	4	11
Ineligible-other	6	1	7

Table 3-3 Final sample of Randomised Participants

The complete database, as at 21 November 2014, comprised of a population of 1128 individuals who had been through the Start Up Loan process offered by BFS. The database was then randomly sorted² and potential participants were systematically contacted with the results collated in Table 3-3 Final sample of Randomised Participants. As shown, after 26 participants the representativeness of the sample was assessed against the UK population results and this indicated that the sample did not include any participants in the age group 50+.

This was most likely due to the initial SUL criteria that focused on supporting 18-30 year olds (Young, 2012). People from older age groups may also have access to more of their own resources and so would likely be under-represented in the database. However, the age cap criteria was removed in late 2013 following a revised report (Young, 2013). To improve the underlying representativeness of the population, the decision was taken to oversample in the 50+ cohort for the final 6 participants. The final sample comprised of 32 participants as shown

² [<http://www.random.org/sequences/?min=2&max=1129&col=1&format=html&rnd=new>]

in diagram Table 3-3 Final sample of Randomised Participants. The 50+ sample exhibited slightly higher agreement to involvement, 28.6% compared to 23.6%, and a higher level of ineligibility in terms of not being a novice, 19% for the 50+ compared to the 6.3% for the main sample. These results are based upon individuals approached for interviews, not the whole BFS database.

In total, 24.4% of the individuals contacted agreed to participate. Each of the phone calls were made at random times of the day with a maximum of 4 attempts per phone number. However, 41.2% were not contactable (no answer messages were left when there was no response). At the initial contact 10.7% refused to participate. The main reason being that they were “too busy”. In addition 8.4% were ineligible to participate as they were not novices. Just over 5% (5.3%) were ineligible for other reasons such as they were not currently running the business, plans were on hold, stopped or hadn’t started yet.

Profitability	Planned		Participated		
	2013	2014	2013	2014	TOTAL
Not Yet	3-5	3-5	1	4	5
Breakeven	3-5	3-5	11	11	22
Positive	3-5	3-5	4	1	5
Novelty	2013	2014			
Not innovative	3-5	3-5			0
Innovative	3-5	3-5	14	10	24
Very Innovative	2-3	2-3	2	6	8
Education					
Entry level, 1-2 GCSE	3-5	3-5	3	2	5
3-5 A levels, HND	3-5	3-5	4	4	8
6-8 Degree +	3-5	3-5	9	10	19
Work Experience					
Only work experience	min 3	min 3		1	1
2+ years manager	min 3	min 3	4	5	9
related work 2+ yrs	min 3	min 3	5	1	6
related manager 2+	min 2	min 2	7	9	16
	30		16	16	32

Table 3-4 Final Matrix Results

The final sample matrix is shown in diagram

Table 3-4 Final Matrix Results, which shows the breakdown of the two primary criteria of year of receiving the SUL loan, 2013 or 2014. More detail on the results is shown in Table 3-5 Total Sample Background. The final matrix shows that half of the sample of 32 are from 2013 and

half from 2014. The other primary sample criteria was the range of business finance outcomes over the last months. In terms of participants this was tracked by the five criteria in APPENDIX B: Background Information. The classifications were: no business income yet; some monthly income but not enough to cover costs; enough to just meet the costs; enough to meet costs and pay myself a bit; consistent monthly income. The first two form the ‘Not Yet’ category, the second two are described as “breakeven”. “Enough income to pay myself a bit”, and the “consistent income” are collated as “positive”.

Age		Gender		Ethnicity	
18-24	4	Male	21	White	24
25-34	15	Female	11	Mixed	1
35-44	4			Asian	3
45-54	5			Black	3
55-64	4			Other	1

Education Level		Innovative-Novelty		Current Finance	
Entry	1	Not so much	7	Not yet	2
GCSEs	4	Yes, innovative	10	Some	3
A Level	3	Very innovative	15	Enough costs	9
BTEC	1	Innovative-Usefulness		Enough + pay	13
NVQs	3	Not so much	3	Consistent	5
HND	2	Yes, innovative	16		
Dip./Degree	18	Very innovative	13		

Table 3-5 Total Sample Background

As shown the summary results are predominantly in the breakeven category, with 68.8% of the total sample in this section. The difference in the Not Yet and Positive finance categories between 2013 and 2014, reflects the increase in business sustainability over the year, although the businesses themselves started at different times. The results for their current situation indicated that most of the businesses were generating at least some income, with only 2 to having no business income yet, remembering that these are at the early stage of business.

The secondary matrix criteria were tracked and there are similar profiles between the two years. The participants were asked about the innovativeness of their business, broken down into novelty and usefulness. The criteria “not innovative” was intended to be used if the

respondents answered not so much to both of these sub-aspects of innovativeness.

Interestingly, none of the participants answered in this way. This is most likely due to the need for a positive view of their own business as an underlying need of ‘belief’ to start-up. In addition, a third of the participants answered that their business was very innovative both in terms of novelty and usefulness, which could represent the optimistic nature of the novice entrepreneur. This optimism was higher for the more recent 2014 businesses.

The difference between 2013 and 2014 for the education criteria are very similar and this is further discussed in comparison to the UK population statistics that follow. The results for work/managerial experience showed only one participant had solely work experience, with 9 participants having 2 years managerial experience, 6 having a minimum of 2 years work experience related to their current business and 16 having a minimum of 2 years managerial experience related to their current business. As mentioned, all of the background information results were provided by the participants at the completion of their interview protocol, in APPENDIX B: Background Information.

The Table 3-5 Total Sample Background shows the final summary results for all the criteria. The categories of age, gender, ethnicity and education are discussed in more detail compared to the UK Office National Statistics results. The average years of work experience are 18 years and managerial experience is 6.7 years over the 32 participants. The length of time since their business started is an average of 15 months. This data is from the participants own responses, not from the date that they received the SUL funding. However, these results are comparable with half the participants from 2013 and half 2014.

The aspect of Innovativeness, which was asked of the participants about their own business, was in two parts novelty and usefulness. Participants provided a range of answers and there were no respondents who answered “not so much” to both aspects. Although many participants answered Very Innovative to novelty (15) and usefulness (13) only 8 respondents, a quarter, provided the “very innovative” response to both aspects. This observation is weighted to the more recent businesses of 2014, with 6 of the 8, viewing their business as “very innovative” in both aspects. This could indicate that all novices need to view their business as innovative and that after a longer period of trading they become more aware of

their business model in the wider market.

ONS Education Categories	No Quals	Level 1	Level 2	Level 3	Level 4+
ONS 2011 Census North West %	24.8	13.6	15.8	12.9	24.4
Category Equivalent for Research	EntryLevel	GCSEs	A Levels	Btec,NVQs	Degree,HND
Research Sample %	3.1	12.5	9.4	12.5	62.5
All categories:Economic activity:Ethnic group	White	Mixed	Asian	Black	OtherEthnic
ALL-sex, North West, Age 16-64 %	90.2	1.3	6.4	1.4	0.7
Research Sample %	75.0	3.1	9.4	9.4	3.1
Economically active:Tot All categories:Ethnic group	Age 16to24	Age 25to49	Age 50to64		
ALL-sex, North West, Age 16-64 %	15.9	58.8	25.3		
Research Sample %	12.5	68.8	18.8		
Labour Force Statistics Self Employed	2011	2013			
Women self-employed total %	26.9	29.0			
Research Sample %		34.4			

Table 3-6 Research Sample and Population Comparison

Representativeness of the final sample of 32 participants as compared to the general UK population is shown in Table 3-6 Research Sample and Population Comparison. The Office of National Statistics 2011 Census North West data, shows that interviewees held higher levels of qualifications. This difference particularly affects the ‘No Qualifications’ aspect, with the other sample categories being similar. Although the SUL and BFS application process was open to the full age range population by 2014, there is possibly a bias in the application process favouring participants holding higher levels of education. Better qualified candidates would likely find it easier completing the application process, even though there was support available to applicants in preparing business plans.

The ethnic group mix also has a difference in that the sample has a lower percentage of white British, as compared to the North West population. So, the randomised sample has higher levels of “other ethnic groups”. This could again be due to the BFS application process, in that they provided a proactive approach to the ethnic minority community. In addition, levels of entrepreneurship are known to be higher for ethnic minority communities. Information was not available characterised by the joint criteria of both economic activity and ethnicity.

The age spread is also shown and as mentioned previously there was deliberate over sampling of the 50 to 64 age group to address the issues regarding the initial SUL loan criteria targeting under 30s. The gender proportion is compared to the sub-set of the self-employed women from the Labour Force Statistics. This shows the research sample had 34.4% women respondents as compared to 29% in 2013.

The randomised sampling process yielded a variety of different business types. Due to the limitations of the SUL loan size, it cannot be inclusive of capital intensive businesses. To check the businesses were assigned to their sector codes and these codes were then assigned to the broad categories of Primary, Construction, Distribution and Services as proposed (Poutziouris, Chittenden, Watts & Soufani, 2003). The results for the 32 sample were 8 in the Primary, 11 in Distribution, 13 in Services and none in Construction. With this sample size and the randomised process it was not possible to get a business from each sector industry code. However, the sample contains manufacturing, retail and service businesses in the UK.

3.5 Conclusions

This is a mixed methods survey of novice entrepreneurs that seeks to add to the literature by studying the extent to which current models of entrepreneurial decision-making are relevant to novice entrepreneurs.

The sample comprises of 32 early stage businesses founded by novice entrepreneurs drawn from a population of 1128 business founders in receipt of a Start-Up Loan in 2013 or 2014. The database comprises firms in the North West of England (for practical reasons). The sample has been weighted to provide a broad cross-section of businesses founded by novice entrepreneurs. This is the first time that such a sample has been assembled and studied in depth.

Examination of the profile respondents leads to the conclusion that the sample is likely to be broadly representative of early stage businesses, founded by novice entrepreneurs in the UK,

in 2013 – 2014, except that the sample is relatively highly educated and excludes any construction activities. This is possibly a result of the selection process in being awarded SUL finance.

4 CHAPTER 4: Pilot Project

4.1 Introduction

A key aspect of this research into novice entrepreneurs is to understand the extent to which current models of entrepreneurial decision-making are relevant to novice entrepreneurs. This is important as much of the research on decision-making has been conducted from the view point of expertise (Sarasvathy, 2008; Dew et al., 2009; Winch & Maytorena, 2009). In particular Dew et al. selected their sample of “novice” population from MBA students to address the anticipated knowledge gap, or lack of business domain knowledge of the think-aloud experiment participants. Therefore as the Dew et al. sample were all educated at the university masters level this could only be representative of a sub-set of potential entrepreneurs. The authors acknowledge that the university education system could have influenced the MBA students’ decision making towards a predominantly causal approach. The MBA students’ results were compared to the expert entrepreneurs who primarily exhibited an effectual approach, as referred to in (Dew et al., 2009). The MBA students were selected to have a requisite baseline of business knowledge. Therefore an initial challenge for this thesis is to understand whether the effectuation decision-making framework can be appropriate for a more representative sample of novice entrepreneurs?

The main objective of this pilot phase of the research is to clarify the extent to which novice entrepreneurs can complete the decision-making protocol approach and, more importantly, in a way that is meaningful to them as novice entrepreneurs? This pilot was a stand-alone piece of research to test this initial question and to reveal any relevant adjustments that may be required for the main body of research, as detailed in chapters 3, 5 and 6. This chapter includes detail on the activity of the pilot phase, including the methodology, development and results, as well as discussion of the findings and the implications for the main body of the research.

4.2 Methodology of Pilot Phase

The aim of this research is to replicate, as far as possible, the original research on effectuation (Sarasvathy, 2008) but using participants that came from a sample of novice entrepreneurs. Initially the methodology was to replicate the original published research (Sarasvathy, 2008). However in the work by Dew et al. the authors did not conduct all 10 parts of the decision-

making problems that were put to the expert entrepreneurs (Dew et al., 2009). The Dew et al. research included the original Sarasvathy expert results (2008) and provided some comparison results between novices and expert entrepreneurs (Dew et al., 2009) in order to identify the effectual behaviours in decision-making. However the study used only the first two parts of the original 10 problems. The advantage of using the Dew et al. think-aloud framework is that the authors provide a clearer coding system for the analysis of their data.

In the Dew et al. paper the novice sample were all MBA students, who were recruited as a sample of educated “novice entrepreneurs”. However this may cause confusion, as I refer to my sample as novice entrepreneurs. Although Dew et al. describe them as novices, this does not meet my more rigorous definition. The MBA students are not in the process of starting a business and may or may not have any intention to do so. Therefore I refer to the Dew et al. participants as MBA students throughout this chapter.

The Dew et al. (2009) publication provides detail and summary data of both the original 27 expert entrepreneurs interviewed by Sarasvathy as well as 37 MBA students, with both of these providing benchmark comparison groups for my sample of novice entrepreneurs. As mentioned, the think-aloud protocol from Dew et al. used the first two parts of the original protocol and these parts are involved in the initial business idea generation and the market identification of the development of the business logic.

The authors of the Dew et al. work include Sarasvathy, Read and Wiltbank and more particularly the results are the basis of the original expert sample group of Sarasvathy (2009). An important concern of these authors was the possible lack of knowledge and familiarity with terminology of any comparison group. Meaning that they could be unfamiliar with the language and business concepts used in the think-aloud protocol. Therefore they used an “educated population” of MBA students to help mitigate the risk that *“the findings from the business specific task used in our protocol might be confounded simply by lack of familiarity with business in general or inconsistent interpretations of terminology and concepts used in the decision task”* (Dew et al., 2009, p295).

As the aim of this pilot phase is to test the applicability of the Sarasvathy think-aloud protocol to a novice entrepreneur population, it is important to keep the think-aloud protocol as similar as possible to the one used in the original study, while addressing concerns about participant understanding. In this regard I decided to keep the protocol exactly as it was but with a few

words added to provide an explanation for the UK context, such that I added the explanation in brackets ‘ – from bankruptcy to a “hockey stick” (slow start then rapid growth)’. I decided to leave all of the remaining contextual US data and values in their original form, which would enable a meticulous replication during this pilot with the full complexity of the original. The complete think-aloud protocol used is detailed in APPENDIX A: Pilot Phase Verbal Protocol Guide.

As noted there was concern about participants lacking the required “business knowledge of the type that MBA students acquire in their first semester in business school” (Dew et al., 2009). However, this concern contrasts with the original work by Ericsson and Simon on think-aloud protocol analysis which states that “inexperienced subjects could be used, since the subjects were asked simply to express their thoughts, a skill which, it was thought, should be a part of every subject’s normal repertoire” (Ericsson & Simon, 1993, p60.).

Further, for the main research to be representative of novice entrepreneurs’ experiences it is necessary to have an appropriate sample that includes a range of participants from different backgrounds. The pilot phase attempted this, as far as is possible for a small sample, to highlight any difficulties might be encountered in the subsequent larger study. In addition, to address the ethical concerns the participants were provided with a consent form, which they signed to acknowledge the nature of their involvement and that stated they could withdraw their approval to participate at any time.

4.2.1 Sampling

The pilot phase is a test sample and is intended to be diverse but not necessarily representative. Therefore the analysis aimed to understand whether the interviewees would be able to complete the think-aloud protocol. More importantly the relevance of the hypothetical experimental protocol situation to the novices endeavours to establish new ventures needed to be explored. The selection of the sample participants required that they should be in the process of establishing their first business and should have some ambitions for growth. The intention was that the sample would, as far as possible, meet the existing published requirements for early stage entrepreneurial ventures, such as the Total Early-stage Entrepreneurial Activity up to 42 months or TEA rate (Hart & Levie, 2011). And also to get a breadth of sample participants in terms of age, gender, education and business type. Although the sample would be less than 10,

as the aim of the work was to test the relevance to a variety of novices before the main body of work, this was thought sufficient to provide evidence of any potential difficulties or problems.

This sample still needed to address the issues of recruitment of the participants, capturing the results and ensuring that these were an ethical representation of their perspective (Ritchie, Lewis, McNaughton Nicholls, & Ormston, 2014, p83.). I have mentioned in Chapter 2 that I work in the area of business start-up and support generally and with a particular sub-group of entrepreneurs that also experience mental health issues. However, this research is not intended to address issues in the mental health arena, so all participants were selected through my more general work.

To meet the requirements that the businesses should be aged between 0 and 42 months, as defined by GEM for a novice entrepreneur, the individuals asked to participate in the start-up phase and for this venture to be their first business. In practice this proved to be difficult to find true novice entrepreneurs, so although I could identify early-stage businesses, it transpired that many of the individuals had previously started a business and therefore had to be excluded from this pilot. An important lesson for the larger study.

I initially used convenience sampling in terms of my work network, I also needed to use snowball sampling to get to a reasonable sample size for the pilot. I followed the requirements for disclosure and ethical consent by the participants as discussed in Chapter 3.

4.2.2 Method – Protocol Analysis

The participants were contacted initially through my personal network using convenience sampling and with the initial check that their new business was actually their first start-up business. I anticipated that obtaining a small sample pool of ~10 participants would not be difficult, particularly as I work with many such businesses.

However, as noted above, the requirement that their new business was their first start-up meant that a significant number did not meet this requirement. In addition, as is usual with entrepreneurs during the start-up phase of their business, the requirements of arranging a meeting for an anticipated ~1 hour interview proved difficult to organise. Ideally, the interviews should be held in a quiet room with no interruptions so that audio recording can assist in capturing the data. In practice, it was not possible to get the required first time novice entrepreneurs through my direct contacts and therefore I needed to use snowball sampling to a

wider network and be more flexible on the requirements of a quiet office location.

4.2.2.1 Pilot Interviews

The requirement for the quiet space or venue and then recording the participant's think-aloud statements was too difficult to coordinate. It was necessary to be more pragmatic and flexible on the location for the protocol interviews, therefore a number were held in cafes or sometimes in the participant's own homes. All of the participants agreed to the interviews being recorded. However the main data collection and results were written notes that were taken during the interviews, with these being supplemented by the audio recordings where necessary.

Dew et al. (2009) mention the complexity of the think-aloud protocol as part of the requirement for using MBA students. Therefore, in addition to the protocol in Appendix A, I asked an additional open question on the participant's view of the think-aloud process. This proved useful in capturing any required changes for the research protocol to be used in the larger study. In addition, my own reflection on the process of the interviews related to the difficulty of conducting this style of interview protocol.

An important part of the process is to capture the participant's thought processes and quite often they would attempt to engage in a two-way conversation with me, sometimes to clarify information, but mostly to provide confirmation that they were providing the 'correct' answer. In this instance there is no 'correct' answer, however the participants sometimes wanted reassurance through the normal process of a two-way conversation. The risk being that my responses could influence the information captured through the think-aloud protocol.

There were a number of actions that I subsequently took to address these issues. For example, I learned to sit to the side of the participants and, as far as possible, not directly facing them by sitting diagonally in the chair. At the start I would actively focus on looking down at my notes and writing things to avoid eye contact and being an active part of the process. Although the café locations tended to be noisy, this environment actually helped the process for participants as they seemed to be more comfortable talking aloud in a busy environment.

The advantage was that this more relaxed environment tended to be less clinical than a quiet office space. However it did make it much more difficult to capture the notes and follow the think-aloud thoughts that were being spoken. Overall in reality, the prime difficulty was organising a suitable time to conduct the interviews and the appropriate location therefore

became a secondary consideration.

4.2.3 Coding

An important benefit in using the comparative results of Dew et al. is that their coding criteria are detailed clearly in their paper (2009). This provided the opportunity to adopt a similar coding scheme. Although, the original effectuation work did include some indications of the coding (Sarasvathy, 2008) the author's underlying expert results were not provided for comparison. The Dew et al. work is more detailed and provided the opportunity for comparison between the MBA students and the experts focusing on particular aspects of the effectuation framework.

I did not use all of the coding system, as the main aim was to understand the applicability for the novice entrepreneur population. In addition a full transcript of the participant responses was not available due to time constraints in the pilot phase however an extended transcription of the notes was used. For one of the interviews a full transcription was prepared and compared to the extended notes and the comparison showed the extended notes were a similar approach. As stated, the summary results of the two original studies are available, so in this pilot phase the extended notes were appropriate for comparison of the results. Using the coding scheme, my data results are collected for the following aspects as detailed with the coded title in brackets in Table 4-1 Pilot Coding Scheme.

[Affordability]	Did the person worry about how much money or the costs of executing or the affordability of his or her decisions? Yes or No, and count times if Y
[BelieveNumbers]	Did the person believe the numbers? Yes or No
[BusinessWhole]	Did this person go beyond making marketing decisions to talk about building the business as a whole? Yes or No
[Partnerships]	Did the person visualise partnering or building a relationship with someone? Yes or No, and count of the number of times if Y
[NumberMarkets]	Number of new markets – Responses to the question: Who could be your potential customers for this product?
[Channels]	Check off channels they used: Internet, Retail, Mail order catalogue, Direct Selling
[Direct sales]	Direct Sales: count of - selling personally or -recruiting salespeople
[PersonalRefExp]	Did the person mention any of their own personal experiences? Yes or No, and count of the number of times if Y

Table 4-1 Pilot Coding Scheme

The final coding of [PersonalRefExp] was additional data to the Dew et al. results and was a

variation on their coding for intuition or gut feel. I made this adjustment as there were no underlying coding examples published but it was possible to more clearly identify examples where participants were referring to personal experiences. Therefore, during analysis I made the decision to collect this aspect of their experiences mentioned during their participation in the think-aloud protocol as a numerical count. This was an additional aspect that I have coded to understand if any of these personal experiences were referenced.

Overall, the aim of coding the pilot phase was to evaluate the appropriateness and applicability of the experimental protocol for novices. Therefore, in the analysis I discuss the following aspects in the results including, the length of time, the appropriate location and the potential difficulty of obtaining novice entrepreneur participants for the main doctoral research.

4.3 Analysis

The analysis will detail the descriptive statistics of the sample and the coded results. The results will include some qualitative aspects to understand the suitability of the think-aloud protocol for novice entrepreneurs in a wider application in my main research study. In addition, the results from the coding will be compared to the available published data for MBA students and expert entrepreneurs, with limitations highlighted for the developments that follow from this pilot phase.

4.3.1 Sample – Descriptive Statistics

The final sample consisted of eight participants that were all in the early stage of their first business. This is not and was not intended to be a representative sample however it is still useful to understand the descriptive statistics of the participants. The average time since starting their business was 17.1 months, with a minimum of 6 months and a maximum of 36 months. In the literature there is no clear definition of when the start point of a business is measured. These descriptive statistics from the participants were their own judgement on how many months since their business started. All of the results are valid for the required GEM maximum of 0-42 months.

The average age of the sample participants was 37.1 years old, with a minimum age of 19, maximum of 46 and median age of 40. The nature of the convenience sampling has meant that the sample is skewed towards the higher age range, with only one individual under 30. The

corresponding length of work experience for the sample was an average of 13.9 years, which is a similar skew to their age. In addition, as a convenience sample, half of the participants were educated with a university degree, with a range of other levels of educational qualifications such as GCSEs, A-Levels and HND Diplomas.

The sample had 5 females and 3 males in the total sample of 8 and this is significantly different from the usual higher proportion of males to females within the UK entrepreneurial population.

The descriptive statistics show that for the main research the sample selection process needs to be carefully managed. The key statistics of age, education and gender may also require further information for representativeness, such as ethnicity.

4.3.2 Results

The primary finding is that all of the 8 participants were able to complete the think-aloud protocol analysis. So, although this pilot was a small sample size it has shown that it is possible for a range of novice entrepreneurs to be able to use the current decision-making model for effectuation in the full original complexity. As mentioned all the participants were asked an open question of what they thought of the relevance of the exercise. In this review they all mentioned that they found it interesting, even though a few of them did find some aspects difficult.

Two of the eight participants discussed the difficulty of thinking aloud while trying to absorb the information, for instance one person saying; “It’s difficult to take things in when reading out loud”. In addition, a couple of the participants made points about the relevance of the protocol to their current start-up situation such as; “It certainly was an interesting exercise, it was relevant to me”; and “I don’t normally think aloud... it was interesting and I don’t know games³ but a business is a business”. In addition a couple of the participants made more specific points about actually doing the experiment such as; “It was interesting, the second part was harder and the first part was a bit easier”, and “it was fine, it felt like if I was in a group”. An extra consideration is that all of the eight interviews took between 20 to 40 minutes to complete.

³ A business game is the subject of the “think-aloud” scenario.

		Affordability	Partnerships	Sell.Pers	Bus.Whole	Number Markets	PersRefExp
N	Valid	8	8	8	8	8	8
	Missing	0	0	0	0	0	0
Mean		4.25	1.63	3.88	2.13	6.25	3.38
Median		3.5	2	3.5	2	6	2.5
Std. Deviation		2.188	1.506	2.1	0.641	1.488	3.249
Skewness		0.669	0.183	1.081	-0.068	0.477	2.286
Std. Error of Skewness		0.752	0.752	0.752	0.752	0.752	0.752
Kurtosis		-0.818	-1.142	0.923	0.741	1.107	5.724
Std. Error of Kurtosis		1.481	1.481	1.481	1.481	1.481	1.481

Table 4-2 Pilot Coding Results

The quantitative results of the coding data are shown in Table 4-2 Pilot Coding Results, above. The result for the ‘affordability’ coding is the number of mentions of availability of money or concerns about the cost of an option. The mean of the sample of novices is 4.25, with a min of 2 and max of 8. This compares with the Dew et al results of a min of 0 and max of 10, however this count is for the combined sample of both experts and MBA students. The Dew et al. work provides the F statistic for the two groups of 41.52 as a difference in results, with experts more concerned with project affordability than novices. In addition, 24 of the 27 experts explicitly worried about affordability making 108 mentions, compared with only 16 of the 37 novices making 27 mentions. The results above were 8 out of the 8 novices made a total of 34 mentions. This is a rate of average 4 mentions per expert, 0.73 per novice and 4.25 per novice as detailed in Table 4-3 Results Comparison of Novices with Dew et al. (2009). It is clear from these answers the novices in my pilot survey were certainly able to comprehend and engage with the task. If anything they responded more like “expert entrepreneurs” than MBA student participants.

	Experts	MBA Students	Novice
Sample Size	27	37	8
Participant mentions Affordability	24	16	8
Percentage mentioning affordability	88%	43%	100%
Affordability mentions	108	27	34
Average Affordability mentions	4	0.73	4.25
Participant mentions Partnership	15	4	5
Percentage mentioning partnership	55%	10%	62%
How many Partnerships?	21	5	13

Table 4-3 Results Comparison of Novices with Dew et al. (2009)

The number of times that the novices mentioned partnerships is 1.63 with a min of 0 and max of 4. This compares with the with the Dew et al. work of min 0, max 3, following a similar pattern as with partnerships. The partnerships aspect also provided some of the base results. Therefore, the following results are possible with this underlying data; 55% of the 27 experts mentioned 21 partnership opportunities, 10% of the 37 novices mentioned only 5 and for my early stage 62% mentioned 13 partnership opportunities. This puts the early stage novice with results similar to the experts as compared to the MBA students, which again provides strong evidence that the pilot phase worked and, potentially, that the novice participants responded effectually. Even though it is a small sample the result could provide an insight with the untested part of Sarasvathy's theories i.e. that at the early stage decision-making is at least to some extent biased towards effectual logic (2008, p 134).

The aspect of selling personally has a mean 3.88 with min of 2 and max of 8. The coding for consideration of the business as a whole has a mean of 2.13 with a min of 1 and max of 3. The number of new markets identified has a mean of 6.25 with min of 4 and max of 9. This compares with the Dew results of min 0 and max 8. In addition of the eight participants, half of them believed the numbers whilst half raised questions or concerns about the market research numbers. This compares to the Dew et al. results where for the experts 13 believed and 14 did not, with the MBA students 34 believed and 3 did not.

In addition, the final result was the count of number of times that the participants made a reference to personal experiences, in which the mean is 3.38, minimum 1 and maximum 11. This mean result was influenced by one particular individual, so the median was 2.50 with a kurtosis of 5.72.

4.3.3 Discussion

The final sample for this pilot project was 8 participants, which although not large enough to enable rigorous statistical analysis the results still highlight interesting issues. The primary objective of this phase of the research concerns whether the current models of entrepreneurial decision-making are relevant to novice entrepreneurs. As previously mentioned in the literature review the underlying raw data of the both the expert and the MBA students results were not all available (Sarasvathy, 2008; Dew et al., 2009). However looking at those results that are

available, it seems that genuinely novice entrepreneurs are able to complete the protocol. The results are within the range of those available publicly, so for instance the affordability, partnerships and number of markets, could be comparable to the Dew et al results. For the two more holistic aspects, those of the business as a whole and believing the numbers, both are within the range expected. This is particularly useful as discussed previously some comparable underlying data were not available, but by following the Dew et al coding scheme the comparative results that were available provide useful indicators.

Statistically the results within the novice group showed that there was a significant correlation at the 0.01 level between the number of new markets identified and the personal experiences drawn upon, 0.835, and also for new markets and references to affordable loss, 0.900. At the significance of 0.05 the correlation between personal experiences and affordable loss was 0.729. Due to the limitations with this pilot there could be a number of issues underlying this, the most positive being that it reflected the participants responding effectually to the protocol, the negative being recording bias.

The inter-correlation of these measures fit with effectuation framework aspects of affordable loss, means driven action and non-predictive control that, based on this small sample, appear to be present even at these early stages of start-up. An example of this from interviewee P4 is; *“I look back now at when I started and I remember stuff that I used to think, I think that’s so, either so small, narrow minded or looking at the bigger picture but its only experience that opens that up to you and I do think some things very differently”*.

A concern with the methodology is that people who are comfortable talking extensively end up contributing more data on each of the measures. However, this concern is mitigated to some extent, as the emphasis did change with individual participants focussing on different parts of the protocol.

The pilot did seem to show that even at this early stage participants are (unknowingly) perceiving themselves in the effectuation framework. For example, in terms of perceptions of risk the following quote in response to part 2C was apt; *“probably I’m the type of person who shouldn’t set up a business... I’m a very play safe, I don’t think I’m a risk taker, I mean I must be to do it... other people would say ‘you are’...”* (business started 14 months before).

The additional results that I collected, relating to personal experiences, shows that the

participants were able to complete the protocol and also to connect to their own experiences. This measurement is a variant on the intuition and gut feel that the Dew et al. were collecting. Their results shows that the experts and MBA students do not differ on their use of intuition or gut feel. However, these (true) novice results of referring to personal experiences could be a more appropriate indicator. Perhaps MBA students, with limited entrepreneurial experience, use the intuition or gut feel but are necessarily drawing upon a more limited pool of experiences? However, by comparison, although the novice population do not have the extensive experience, they all have some experiences to connect in making their decisions.

4.4 Implications

The implications of this pilot phase have shown that a truly novice population of entrepreneurs are capable of appropriately participating in the effectuation framework. The first time that such a survey has been conducted with entrepreneurs at this earliest stage of business formation. As a consequence this pilot offers the prospect that studying a larger sample may enable comparisons with previous research with expert entrepreneurs and MBA students (Sarasvathy, 2008; Dew et al., 2009).

Interestingly this small pilot sample provided some tentative evidence that these “truly novice” entrepreneurs (in the first 30 months of business formation) may exhibit some evidence of effectual thinking. If this finding is discovered in the results from a larger sample, such a conclusion could support the work by Chandler et al. on the young firms, up to 5 years, that shows that these new businesses also already have markers of effectuation (Chandler et al., 2011).

The pilot indicates that it is both possible and useful to further explore the applicability of current models of entrepreneurial decision-making to novice entrepreneurs. The objective will be to understand the extent to which novices may be inclined to use the skills exhibited by expert entrepreneurs (Sarasvathy, 2008). A study that, as far as we are aware, has not previously been undertaken.

The pilot study has shown that the challenge of engaging with entrepreneurs, novice or experienced, cannot be underestimated. The process of contacting them is difficult because they are busy. However, once contacted they were amenable to be involved in the research. The most difficult element of the process was finding a suitable time that they were available. As

discussed, flexibility in the location for the interviews, in not needing a quiet or private space, made it more likely that potential participants would be available. It was also found that, with some adaption to the data capture process, this approach did not materially affect the ability to conduct, complete the protocol and interpret the results.

The initial estimate of time duration for conducting the think-aloud protocol of ~60 minutes ended up being an overestimate. However, most of the novice entrepreneurs approached were willing to meet for that time duration. This was another important outcome as it allowed for the development of the interview protocol to include additional aspects.

Some participants raised concerns about the talk-aloud process, as understandably, this was not an approach that they were familiar with. On reflection it was decided that issue could be addressed in future work in several ways. These included seating arrangements for the interviews, having a structured note taking system and providing clear instructions, especially repeating the important aspects. The system of conducting the protocol interviews and the method of data collection are important since they provide confidence to the participants and may influence their willingness to engage.

In the pilot phase all the participants completed the process and the results appear interesting and comparable to previous studies of expert entrepreneurs and MBA students. Therefore, the pilot provides evidence that the effectuation framework is a relevant and applicable method for researching decision-making by novice entrepreneurs. As well as being a useful method for research with many calls for increased use of think-aloud protocols (Haynie et al., 2010; Dimov, 2011), the participants themselves found it engaging. Two of these early stage entrepreneurs both stated "...business is business...". Most importantly all of the participants found the business scenario interesting and relevant to the entrepreneurs. Although the pilot sample was not representative of a wider population of entrepreneurs, the participants had a range of backgrounds, ages and types of businesses, which suggests that the research protocol could work for a larger sample.

The results tentatively indicate that the novice entrepreneurs were thinking more like expert entrepreneurs than the MBA students. Due to extensive practice being part of the definition of expertise (Sarasvathy, 2008) this suggests that there is something different and interesting happening in the novice's behaviour.

It could be that the context of their own entrepreneurial environment quickly provides novice entrepreneurs with new and relevant experiences to draw upon (Jones & Casulli, 2014). Possibly providing evidence that the entrepreneurial decision making is very rapidly influenced by context. Alternatively, it could be that the comparison between MBA students and experts highlights that the university context (encouraging logical reasoning and the need for evidence based decision-making) was influencing their decision-making processes (Dew et al., 2009). Therefore the representation of MBA students as educated novices may not be representative of novice entrepreneurs in general.

Tentative evidence of this may be seen in the lack of difference in the control variable on intuition or gut feel in the Dew et al. (2009). Here there was no observable difference between the extent of use of intuition or gut feel between MBA students and experts. However, in the pilot ('PersRefExp' Table 4-2 Pilot Coding Results) the measure of personal reference experiences does show that true novices do refer to their own experiences and this indicates a potential area of further investigation.

Such an investigation would require an understanding of the types and breadths of experiences that the novice entrepreneurs may be considering. As mentioned in the literature review, true novice entrepreneurs may have limited experiences in their own start-up businesses, however they may draw upon previous work experiences or events from their personal lives. In order to capture sufficient detail to study these aspects, I conclude that the main research sample will require the resources to enable full transcriptions of the think-aloud protocols, to provide the data for analysing the novices' personal experiences.

The gap or opportunity to better understand the cognition of novice entrepreneurs is an area for development and this pilot study has suggested a few interesting lines to follow; understanding the applicability of expert decision-making frameworks for novices; potentially integrating these different frameworks; and exploring the experiences that were mentioned during the protocol. This research on novice entrepreneurs is important for wider economic development particularly as the early stage entrepreneurial businesses are currently being provided with government backed finance loans following the Lord Young report (Young, 2012).

This report led to a national UK initiative to receive targeted financial and business support (Young, 2013). The effectiveness of this support to new businesses and novice entrepreneurs is of interest at the regional and national level. It is hoped that a deeper understanding of the

cognition of novice entrepreneurs may contribute to enhancing this important element of public policy.

An important aspect of this pilot was understanding the need for gaining access to the underlying research data, for the purposes of more detailed comparison. This could suggest that there is a possibility for future research in collaborating with the authors of the papers cited to share the complete results. Another option is to identify alternative published and widely tested measures to enable the main research to connect to wider studies and measures. In addition, whilst the effectuation model is one approach to understanding entrepreneurial expertise there are other decision-making models. Perhaps by using alternative validated measures to supplement the effectuation data it could be possible to connect and understand the extent to which these alternative decision-making models are complementary, connected or conflicting. Future research could show the extent of applicability of such frameworks and might also be used to guide the development of the novice entrepreneurs in honing their skills.

4.5 Conclusion

This pilot represents an important first step in testing the applicability of the existing models of cognition and decision-making framework for early stage entrepreneurs, focusing on theories of effectuation. Whilst acknowledging the limitations of a small pilot study, it appears that the effectuation framework is applicable and extends successfully to early stage novice entrepreneurs.

An important proposition in the current entrepreneurship literature is that effectuation is a suitable and appropriate approach for managing entrepreneurial uncertainty for young firms (Chandler et al., 2011). This is because of the principles, established in the literature (Sarasvathy, 2008), i.e. affordable loss, experimentation and flexibility can lead to superior outcomes (Wiltbank et al., 2009). The pilot phase of my research has provided a number of indicators that the decision-making of early stage novice entrepreneurs may have more in common with the “expert entrepreneurs” than with MBA students (Dew et al., 2009).

The pilot study has revealed that the think-aloud protocol works well and is meaningful to true novice entrepreneurs. Lessons have also been learnt about the challenges of identifying true novice entrepreneurs i.e. business founders in the first 30 months of establishing their first new venture (GEM, 2012). Finally, it has become apparent that business founders are willing to give

up their time for this research. Having arranged the interviews, for one hour, it may be possible to collect additional relevant data. This information could provide the opportunity to compare the effectuation model of entrepreneurial decision-making with more widely established measures of managerial decision-making.

5 CHAPTER 5: Experiences and Emotions

5.1 Introduction

The aim of this chapter is to provide the results of the experiential and emotional aspects of the think-aloud protocol and evaluate these with respect to the research questions. As discussed in the CHAPTER 2: Literature Review, emotions and experiences are complex with many interactions, however it is intended that the results will provide some insight into these patterns of commonality with novice entrepreneurs, a group that until now has received relatively little attention from research scholars.

The survey results will help to understand novice entrepreneurs' patterns of experiences and emotional responses to the cognitive decisions that are made. Are some novice entrepreneurs already equipped to be better at coping emotionally so that they have more resilience? Or can resilience only be developed in response to failure or potential loss experienced in the process of founding their businesses, as these are more salient events? (Mathias et al., 2015)

Alternatively, is it possible that some novice entrepreneurs may be better at coping cognitively because they have a greater depth of experiential resources to draw upon?

This chapter will provide an analysis of the results identified and a discussion of the implications of these results. This study of emotions and experiences is an emerging theme in the entrepreneurship literature (Baron, 2008; Cardon et al., 2012; Shepherd, 2015) and a deeper understanding of the emotional influence of affect has the potential to be revealing, as the interconnections between affect-behaviour-cognition cannot be investigated alone.

5.1.1 Coding

As discussed in Chapter 3, the methodology section, the coding of the participants experiences has been conducted using a structural coding system (Saldaña, 2013). This provides a systematic and structured approach of capturing the variation in the personal experiences that the survey participants have referred to. This data is drawn from the second part of the experiment see APPENDIX B: PART 2 and is a retrospective recall exercise (Banks et al., 2014).

For each question interviewees were reminded of their responses to the relevant question in the first part of the research protocol and then asked for their evaluation of the likelihood and confidence in their decision. Participants were then asked “*What in your past experience tells you this? This experience could have come from something that you have done before, heard or seen before, something similar or even something that you have thought before?*”.

The process of re-reading the notes of the participant’s own response to part 1 and then repeating the same prompting question about their past experiences was followed systematically for every participant and for each question. The average protocol time audio recorded for the Parts 1 and 2 of the experiment was half an hour, with the minimum time of 18’ 35” and the longest time of 56’43” (minutes’, seconds”). An illustration of the interaction in the experiment between the interviewer and the participant is presented in Table 5-1 Example of Interview Flow and Timing showing the timings for an average length participant.

PART 1	Protocol Instructions	1	2	3	4	5	6	7	Add?
Interviewer	1,32								0,10
Participant	2,53	0,38	2,42	0,33	3,07	0,38	1,20	1,30	0,37

[All Times: mins,sec]

PART 2	Protocol Instructions	1	2	3	4	5	6	7
Interviewer	0,30	0,45	0,47	0,38	0,41	0,26	0,43	0,37
Participant		1,54	2,46	1,23	3,02	2,42	2,48	0,49

[All Times: mins,sec]

Table 5-1 Example of Interview Flow and Timing

As can be seen, although the interviewer starts with the introduction instructions paragraph see in APPENDIX B: Verbal Protocol Guide, these directions only take 1’32”. There is then some time (2’53” in this example) for the participant to read aloud their part of the introduction and instructions to the protocol. The remaining protocol and responses to questions 1 to 7 of part 1 are captured in full in the audio recording. In Part 2 re-reading by the interviewer of the notes of the participants’ part 1 response, to prompt the immediate retrospective recall, takes a little extra time (0,30; 0,45; 0,47 etc in this example). However, overall the interviewer speaks in total for 6’39” of the 36’11” total recording, and the participant speaks in total for 29’32”. Thus, the participant’s input represents 81.6% of the total interview. The full transcription is included in the analysis spread sheet (examples in link appendix E), apart from the participant’s

initial verbatim reading of the protocol.

In the transcripts, the interviewer responses or prompts are included in square brackets [], and summarised where the meaning is not affected. An example of a full transcript response and analysis is included in APPENDIX E: Sample Analysis Spread Sheet. As highlighted by Maytorena et al., the “data cannot claim to have captured every nuance of the interviewees thought processes” (Maytorena, Winch, Freeman, & Kiely, 2007, p6), however Part 2 of the interview protocol does offer insight into the experiences and information pursued during participants’ decision-making. The detail of the process of coding these experiences follows.

For a few of the participants the process of reminding them of their answers prompted them to start to re-answer the question or elaborate on why they gave that answer, rather than mentioning their own experiences. I did not interrupt such responses. However when the interviewee stopped talking I would then re-iterate the same prompt question about their own experiences. For some of the participants in the Part 2, Question 1, this process remained unclear, but generally by the third question they would have properly understood the objective and would provide responses drawing on their own experiences. As noted, some participants would also want to provide further answers to the original questions in part 1. This pattern of revisiting previous discussions is important (as noted by Maytorena et al, op cit) and is recorded in the analysis as the participant creating their own feedback loop from Part 2 to Part 1 (loop2>1).

In contrast, during Part 1 the participants generally did not refer to their own experiences, which is understandable as it was not part of the instructions. For part 1 they would be focused on responding to the actual case study questions. However, where the participants have specifically referred to their own experiences these have been included in the part 2 ‘experiences’ and coded in the same manner described above.

The experiences coding follows the Saldaña suggestions of structural coding as particularly appropriate for multiple participants and standardised data gathering protocols where the structure connects to the question used to frame the interview (Saldaña, 2013). In this research in Part 2 APPENDIX B: PART 2 participants’ experiences are coded in three parts, as; whose is the experience; what is the environment of the experience; and what is the topic of enquiry as shown in Table 5-2 Codes for Experiences Categories, as follows.

Experiences-who?	Personal	Family	Friend	Colleague
	Generic			
Experiences-Environment	Own business	Work or Job	As a Consumer	As a Company
Experiences-Sub Area	Start-up	Finances	Profitability	Customer
	Competitors	Research	Market	Reputation
	Sales	Marketing	Pricing	Relationships
	Using (product/service)	Buying		
Experiences-Enquiry	Done	Heard	Seen	Similar
	Know	Thought		

Table 5-2 Codes for Experiences Categories

The type of experience is further broken down into a sub-area of Environment as the focus of concern within business that they are referring to (also shown in Table 5-2 Codes for Experiences Categories). So, for example, the experience could be ‘Personal’, in their current ‘Own business’, with a sub-area ‘Sales’ that they have ‘Done’ before (coded - own personal/business/sales/done). Alternatively it could be a ‘Friend’ that as a ‘Consumer’ was ‘Buying’ something that is a ‘Similar’ experience (coded - friend/consumer/buying/similar). The code classification of ‘Generic’ within ‘Who’ is used to capture the experiences that participants referred to that were not personal but they state to be known (‘Know’) or as an example (‘Similar’). This is referred to in the literature as knowledge that is perceived information generally taken as a fact (Maytorena et al., 2007).

In coding the data there are different degrees of focus in the categories, so for example the ‘Who?’ was the focus of the experience and this could have been a direct ‘Personal’ experience of the participant. Then there were a number of categories for experiences of people that they refer to, for instance ‘Family’, ‘Friends’, or ‘Colleagues’, acknowledging that colleagues may be different from family and friends as they are part of the work environment. As mentioned previously there is also the ‘Generic’ code for more generalised examples where an actual focus of the experience is not specified or is unclear.

The context of the environment was categorised into four codes, with their current ‘Own business’, their ‘Work or Job’ experience, experiences ‘As a Consumer’ and then experiences

of a business ‘As a Company’. Most work experience is in the past, however some participants mentioned current work experiences whilst starting up their ‘Own Business’. This could be expected for a sample of recent start-ups, at various stages of business growth and income.

The Environment context was then further broken down into a sub-category of the functional area of concern of business that they mentioned. There were 14 of these ‘Experiences Sub-area’ codes as detailed in Table 5-2 Codes for Experiences Categories. These codes provide coverage of most areas of the business. There were only a few mentions of items such as ‘operations’, perhaps a more general business term rather than a specific area or simply that at this early stage of business development operational aspects were relatively simple. Similarly there was a reference by two participants to an “investment” in a business that they do not own or run. In such circumstances these few examples were placed into related categories, such as ‘finances’ for “investment”.

The final experiential code was the focus of enquiry, or the source of their knowledge, for the participant’s experience and this was detailed by the experiment question in APPENDIX B: PART 2. This has two main categories; first hand i.e. ‘Done’ experiences and second-hand experiences that they have knowledge of. The knowledge experiences were broken down into categories of ‘Similar’, ‘Heard’, ‘Seen’, ‘Thought’ or ‘Know’.

The final element of coding relates to emotions. Saldaña presents a specific emotion coding method for emotions either experienced by the participant or inferred by the researcher about the participant (Saldaña, 2013). One of the objectives of the research is to gain a richer understanding of the interaction between affect, behaviour and cognition, that is the influence of emotions (affect) and experiences (behaviour) on the novice’s decision-making. This involved a particular research design in order to connect this research to the existing published frameworks. Therefore, the results represent the participants’ approaches within a clearly structured analysis that is consistent with the work of other scholars.

The challenge for identifying emotions is the interpretation of an emotion when there are potentially hundreds to select from. As a consequence part 3 APPENDIX B: PART 3 uses the Positive and Negative Affect Scale (PANAS) rating as this is a well validated affect scale developed by Watson et al. (Watson et al., 1988). The International Short Form PANAS, I-PANAS-SF, was selected for this research as it has been developed and validated to provide an internationally standardised scale that is also relatively shorter and so easier to administer

(Thompson, 2007).

Thus the analysis of the emotional aspect of the participants’ experiences has been connected to the positive and negative aspects (PANAS) of the emotional content. The magnitude coding is the most appropriate method to indicate the intensity or direction (Saldaña, 2013) using five degrees of positive to negative;

++	+	0	-	--
----	---	---	---	----

Figure 5-1 Emotions Magnitude Coding

The magnitude coding in Figure 5-1 Emotions Magnitude Coding indicates the intensity of emotions that were displayed in the responses to the protocol questions, for the participants as discussed in Chapter 2. Use of the PANAS scale here provides a measure of the “medium time frame” emotional traits as the question is “...how you normally feel (in the last months)”

APPENDIX B: PART 3. This data was collected after the interviewees had completed the think aloud protocol exercise. As noted, the emotions coding follows Saldaña (Saldaña, 2013) providing support for the magnitude coding direction and strength.

Positive Affect		Negative Affect		(Watson, Clark, Tellegan, 1988)
Interested	Alert	Distressed	Irritable	
Excited	Inspired	Upset	Ashamed	
Strong	Determined	Guilty	Nervous	
Enthusiastic	Attentive	Scared	Jittery	
Proud	Active	Hostile	Afraid	
				(Champney, Stanney, 2007)
Surprise	Desire	Surprise	Dissatisfaction	
Joy	Admiration	Anger	Embarrassed	
Happiness	Satisfaction	Sadness	Boredom	
Trust	Fascination	Disgust	Indignation	
Anticipation		Fear	Confusion	

Table 5-3 Codes for Emotion Categories

The emotion codes in Table 5-3 Codes for Emotion Categories are the framework for the analysis. These were pre-selected from the original long form PANAS (Watson et al., 1988),

with additional codes to provide breadth and to structure the analysis (Champney & Stanney, 2007). The list used cannot cover all possible emotions, but as mentioned the magnitude coding direction of affect is the area of focus in this research. In practice the classifications used proved to be sufficient for this analysis.

The high intensity emotions of ‘++’ or ‘--’ shown in Figure 5-1 Emotions Magnitude Coding above were only used if the participant was particularly vehement either in a positive or negative direction. In addition the ‘0’ emotion was available when emotions were expressed, but not in a positive or negative direction. An example would be where an interviewee was ‘confused’. Similarly, the emotion of ‘surprise’ can be seen in Table 5-3 Codes for Emotion Categories previously to be on both the positive and negative sides of the affect scale. This emotion was coded in the appropriate direction depending on the participants’ expressed intentions.

5.2 Results

The results follow for each of the hypotheses including the initial discussion of the analysis and any recommendations for further research or developments. Results for the experiences will be discussed first and then results for the emotions will follow.

5.3 Experiences

The hypothesis is that novices will struggle to draw on appropriate experiences, particularly at this early stage of their business. The current research explores how entrepreneurs’ experiences imprint on their decisions and affect the growth and survival of the business (Mathias et al., 2015). Mathias et al. review and identify the sources of experiences that imprint on entrepreneur’s decision-making and action after starting up. The objective of this research is to extend Mathias’ work by exploring the extent to which novice entrepreneurs draw on experiences that they have accumulated prior to founding their first venture.

The prompting question asked by the interviewer was;

“Thinking about the ‘.....’ decision in question 1/2/3/4/5/6/7 What in your past experience tells you this? This experience could have come from something you have done // heard/seen // something similar // thought before?”

As detailed previously (Table 5-2 Codes for Experiences Categories), the interviews are coded according to; Who is the focus; What is the environment – broken down into the Sub-areas of the environment; and What is the topic of Enquiry. The results of the analysis follow this structure.

5.3.1 Experiences Code – Total Codes

As can be seen in Table 5-4 Descriptive Statistics Focus of the Experience the results are ranked in decreasing frequency. The Total coding number represents the sum of the coded experiences for all of the participants.

	No. of participants	% of participants	Total mentions	Mean	Min	Max	SD
Personal	31	97%	621	19.41	0	58	12.26
Generic	28	88%	155	4.84	0	18	3.75
Family	11	34%	22	0.69	0	5	1.20
Colleague	6	19%	10	0.31	0	3	0.74
Friend	6	19%	8	0.25	0	2	0.57
TOTAL	32		816	25.50	5	67	13.79

Table 5-4 Descriptive Statistics Focus of the Experience

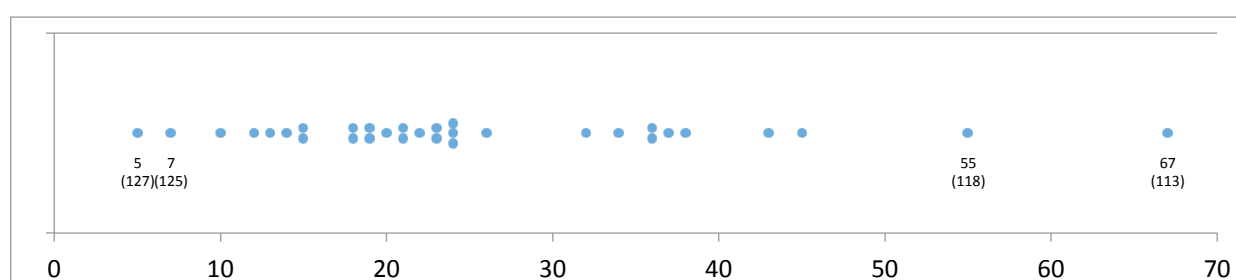


Figure 5-2 Distribution of Participants number of Total Experiences

[The figures in parentheses relate to the participant interview number. Candidate 127 referred to 5 experiences, whereas candidate 113 related 67. The numbering series began at 101]

As each identified experience was coded on all four aspects of Who, Environment, Sub-area and Enquiry, the total results are the same for each of the individual categories, such that there are a total of 816 coded items for Who, 816 for Environment etc. The 32 participants had total mentions of experiences of 816, with a mean of 25.50 (SD = 13.79), minimum of 5 and maximum of 67. The maxima and minima differ from the categories in the table above as the totals of 5 and 67 are per participant, rather than being analysed by category of experience.

Hence the minimum number of experiences of all types mentioned by participants was 5, even though some participants did not relate experiences in every category. Similarly, the maxima of 67 was for one interviewee across all the categories.

The finding is illustrated in Figure 5-2 Distribution of Participants number of Total Experiences and shows that the novices all had experiences that they referred to when making their decisions. There is a range of experiences and two of the participants had less than 10 while two of the participants related more than 50 experiences. This could reflect participants who were more or less talkative in the interview or felt more or less comfortable in revealing their experiences as well as the number of relevant experiences that they could draw upon in reaching decisions arising from the case study questions. The identification of the outlier points are noted on Figure 5-2 Distribution of Participants number of Total Experiences in parentheses. This figure will be referred to again later, when analysing the categories of business experiences referred to Figure 5-4 Participants with zero 'Own Business' Experiences.

5.3.2 Experiences Code – Who is the focus?

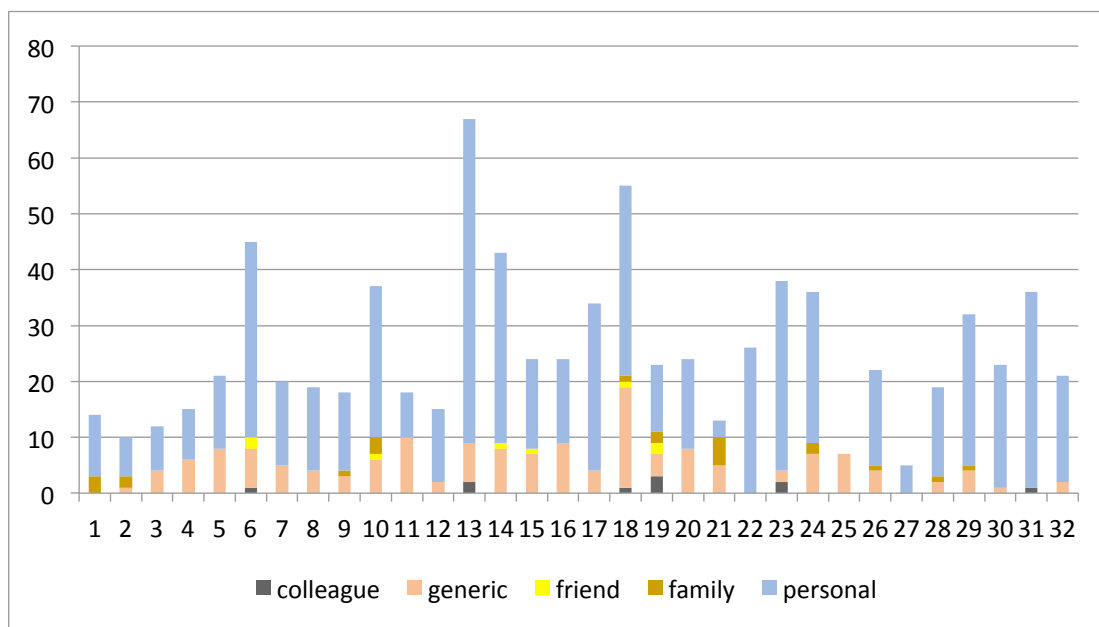


Figure 5-3 Graph of number and source of Experiences

The summary data is shown in Figure 5-3 Graph of number and source of Experiences . The predominant experiences are of both the 'Personal' examples with 31 of the 32 participants at 97%, and the 'Generic' examples with 28 of the 32 participants (88%) drawing on these. In

reviewing, participant 25, that did not use any personal examples, however they did use generic examples, so a possible explanation is that this reflects their preferred manner of speaking. An example of generic is the participant (108) who said; “well, I think common sense would tell you, that for that kind of product you’re not going to have foot traffic coming past your shop saying I want to buy that”. This response was categorised as Generic/As a Consumer/ Buying/ Know.

The question clearly asks about the participant’s personal experiences so it dominates not only the number of participants but also the volume of mentions, with 621 of the total of 816 mentions (76.1%). This could be anticipated due to the wording of the question. However the hypothesis is that novices would struggle to draw on appropriate experiences. The statistical result for ‘Personal’ gives a mean of 19.41 (SD = 12.26) with a minimum of 0 and maximum of 58. So, whilst the ‘Personal’ examples dominate, probably because of the wording of the question, there is a breadth of results across the participants.

The ‘Generic’ category is, as mentioned, the next most referred to experience with a mean of 4.84 (SD = 3.75), minimum 0 and maximum 18. The 28 participants that mentioned ‘generic’ experiences made a total of 155 mentions, 19% of the total mentions. The ‘Family’ category is much lower, with only 11 of the participants (34%) mentioning 22 of these experiences. The remaining categories of ‘Colleague’ and ‘Friend’ were similar to each other with 6 of the participants making mentions, of these 3 participants referred to both colleagues and friends.

In summary, the total results show that the participants have mentioned a substantial number of experiences with total mentions of 816, and a minimum of 5 and a maximum number of 67 experiences. Most of these (76%) were “Personal” experiences, with “Generic” experiences accounting for 19%. Some of the concentration may relate to the framing of the question (a learning from this research study) but it may also relate to the fact that the interviewees are true novice entrepreneurs, who are in the process of founding their first business. The detail of the remaining 3 categories of experiences follow.

5.3.3 Experiences Code – What is the Environment?

The experiences code Environment details where the experiences were gathered.

	No. of participants	% of Participants	Total mentions	Mean	Min	Max	SD
Own business	28	88%	445	13.91	0	33	9.57
As a consumer	26	81%	123	3.84	0	13	3.66
As a company	25	78%	138	4.31	0	16	3.58
Work or Job	18	56%	110	3.44	0	32	6.29
Total	32	100%					

Table 5-5 Descriptive Statistics Focus of the Environment

The results shown in Table 5-5 Descriptive Statistics Focus of the Environment details the breakdown of the experiences into four areas. The dominant category is the ‘Own business’ with 28 of the 32 participants (88%) providing experiences from their own current start-up, with 445 of the 816 mentions, 54.5% of all the mentions. All of the participants had started their business and therefore it could have been anticipated that all the participants (100%) would have relevant experiences to draw upon in answering the case study questions in the think aloud protocol. The four participants that did not refer to any ‘own business’ experiences were also recorded in the lowest range of total identified experiences. In Figure 5-4 Participants with zero ‘Own Business’ Experiences in RED the participants referring to zero ‘Own business’ experiences are shown in RED colour, so this may be associated with their lower overall identified experiences.

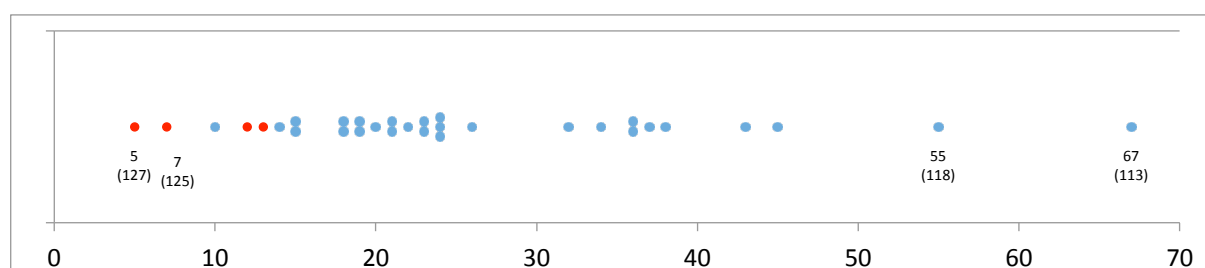


Figure 5-4 Participants with zero ‘Own Business’ Experiences in RED

The two categories, ‘As a consumer’ and ‘As a company’ show similar results, with 26 participants having 123 mentions for ‘As a consumer’ and 25 participants having 138 mentions for ‘As a company’. This data shows that many of the participants were referring to experiences that were as a consumer (for example products or services that they had used) or as

a company (for example that they know of in the news), as examples of experiences that they were drawing on. In addition, the final category of ‘Work or Job’ was referred to by 18 (56%) of participants having 110 mentions of experiences in their previous work or job (or current for some participants who were still employed while growing their business). Overall, only two participants had all their experiences in one category with one in ‘Work or Job’ (5) and one in ‘Own Business’ (23) the remaining 30 participants’ results were from multiple categories.

To summarise, in terms of Focus of the Environment from which experiences were drawn, the participants drew upon a variety of different episodes. Approximately half of these were from within their ‘Own business’ (445/816 - 55%) and the remaining 371 were ‘As a Consumer’ (123 – 15%); As a Company (138 – 17%); or through ‘Work or Job’ experience (110 – 13%). In testing the means between ‘As a Company’ and ‘As a consumer’, the p value was 0.645 and so the difference were not considered to be not statistically significant. However, testing the means between ‘As a Company’ and ‘Own business’ had a p value of 0.0001 and this difference is considered to be extremely statistically significant.

5.3.4 Experiences Code – What is the Sub-area of the Environment?

The environment results included the sub-area of the environment of business and these are shown in Table 5-6 Descriptive Statistics Sub-area of the Environment, below.

	No. of participants	% of Participants	Total mentions	Mean	Min	Max	SD
Sales	29	91%	101	3.16	0	7	2.00
Using (product/service)	28	88%	102	3.19	0	16	3.07
Customer	27	84%	89	2.78	0	7	2.27
Start-up	24	75%	81	2.53	0	10	2.54
Marketing	25	78%	65	2.03	0	9	2.24
Market	23	72%	68	2.13	0	10	2.32
Pricing	23	72%	58	1.81	0	7	1.82
Reputation	23	72%	36	1.13	0	4	0.98
Competitors	21	66%	40	1.25	0	4	1.27
Profitability	20	63%	43	1.34	0	6	1.56
Relationships	16	50%	40	1.25	0	8	1.95
Research	16	50%	27	0.84	0	3	0.95
Finances	13	41%	37	1.16	0	6	1.71
Buying	13	41%	26	0.81	0	7	1.55

Table 5-6 Descriptive Statistics Sub-area of the Environment

The three highest of the codes are the ‘Sales’, ‘Using (product/service)’ and ‘Customer’, with the highest number of participants 29, 28 and 27 and total number of mentions 101, 102 and 89 respectively.

For a new business all areas need to be considered, however these results also reflect the important areas for getting a business up and running, in the sense that understanding the customers, making the product or service ‘right’ for the customer and then getting the sales are key (Churchill & Lewis, 1987). The frequent identification of these aspects as high probably relates to both the case study used for the think aloud protocol and respondents’ current situation in their own business.

The two lowest mentions of the codes are ‘Finances’ and ‘Buying’ with 13 of the participants referring to these experiences, having 37 and 26 mentions respectively. Although these are also important aspects for the businesses at an early stage of development (Scott & Bruce, 1987) there may be several reasons why they are seen to be of lesser importance to the novice respondents. First, all of the interviewees have successfully raised finance through BFS (the source of the research database). Second, recent research (BusinessFinanceMonitor 2015, Q2) has shown that financing of small business is less of an issue, certainly compared to identifying and obtaining customers (FederationSmallBusiness, 2014). Third, the application process to obtain a BFS loan, that includes mentoring and assistance with business plan preparation, may heighten participants awareness of the importance of these issues and simultaneously weed-out applicants that are unclear about the economics of their own supply chain.

5.3.5 Experiences Code – What is the topic of enquiry?

The final coding for the experiences is the participants’ focus of enquiry with the results shown in Table 5-7 Descriptive Statistics Focus of the Enquiry.

	No. of participants	% of Participants	Total mentions	Mean	Min	Max	SD
Know	32	100%	344	10.75	1	43	9.65
Done	31	97%	320	10.00	0	26	6.07
Thought	29	91%	85	2.66	0	12	2.42
Seen	18	56%	34	1.06	0	6	1.37
Heard	11	34%	18	0.56	0	3	0.88
Similar	9	28%	15	0.47	0	3	0.84

Table 5-7 Descriptive Statistics Focus of the Enquiry

All of the 32 participants had experiences in the 'Know' category, with 344 mentions. In addition, 31 of the participants were identified as having experiences that they had 'Done', with 320 mentions. These two codes accounted for 81.4% of all the mentions and are also the two codes that provide the strongest connection to the participants first hand experiences. The other four codes of 'Thought', 'Seen', 'Heard' and 'Similar' relate to more indirect experiences. This result could suggest that the participants were able to refer to experiences that they had either personally engaged with ('Done') or directly 'Know' about. This first hand element probably increased the salience of the events for the novice entrepreneurs, whether or not such experiences equip founders appropriately for the challenges of launching their own venture.

A final point about the experiences is that the participants were asked questions about these as Part 2 of the protocol experiment. However a number of these mentions happened 'spontaneously' in Part 1 of the protocol, even though this was not requested. Twenty of participants acted in this way (63%). However in terms of numbers, these accounted for 50 (6%) of the 816 experiences referred to.

5.3.6 Experiences Summary

Overall, the null hypothesis based upon existing published research studies was that novices would struggle to draw on appropriate experiences to inform their business decisions. Such experiences would only accrue after their business was launched. However these results show that the null is rejected. Contrary to expectations from the literature the novices interviewed draw upon a wide variety of experiences that they regard as relevant in reaching business decisions. The majority are based upon direct and personal experiences. A small majority (55%) of the experiences cited were based upon their current business activities. However, 45% were based upon experiences as consumers or in previous work related environments.

The analysis turns now to the issue of emotions.

5.4 Emotions

5.4.1 Emotions – Optimism?

The literature predicts that the start-ups will be overconfident (Koellinger et al., 2007; Ucbasaran et al., 2010). Indeed this may be a prerequisite to business formation. There is no available published measure for this overconfidence that could be used for comparison between 105

the novice entrepreneurs in this sample and a broader group of entrepreneurs. As a surrogate measure, the null hypothesis is that there will be no observable difference in the optimism (or overconfidence) of the most recently founded business owners (those receiving finance in 2014) compared to those who launched in 2013. As shown in other work on young firms, 2-5 years, aspects of effectual decision-making can emerge in the early years of business formation (Chandler et al., 2011), although those authors did not identify the “relative” novices within their sample. So it may be that the novices that have already been trading for a year will already show some signs of being less optimistic, i.e. less overconfident and more realistic in their decision-making processes?

The externally validated emotion measure of affect results from the participants’ completing the I-PANAS-SF test (Thompson, 2007) from APPENDIX B: PART 3 of the interview protocol. The PANAS methodology records two measures of emotions (or affect). Positive Affect (PA) and Negative Affect (NA). These are scores independent of one another but tend to be inversely correlated, so a high PA score is usually accompanied by a low NA result.

For the full sample of 32 participants the mean (M) positive affect (PA) was 20.28, with a SD of 2.99 (n=32). This compares to the published results for the UK sub-population of the international sample (n=1789) where M was 19.48, with SD of 2.89, (n=29). According to the null hypothesis stated above, novice entrepreneurs are expected to be similar to a more generic sample of people in the UK. Prima facie, this appears not to be the case for the sample of 32 novices, where the mean (M) positive affect score (20.28) is higher than the “general” sample (19.48). However, with a p-value of 0.29 the difference in the mean scores is not significantly significant (unpaired t-test, two-tailed) so the observations from the novice sample may have happened by chance.

Similar comments apply to the negative affect (NA) scores. The result was 10.72, SD of 2.93, (n=32) compared to the more general UK sample of 11.21, SD of 2.04, (n=29). The lower scores of the negative affect represent the greater optimism of the novice entrepreneurs. However, again the p-value of 0.46 for the two groups comparison indicates that the difference is not statistically significant (unpaired t-test, two-tailed), and therefore may not necessarily observable in larger samples.

In addition, results for the participants were compared for the novices in my sample that started in year 2013 as compared to those participants who had founded businesses in 2014. The mean

positive affect (PA) for Yr2013 was 19.69, SD of 3.11 (n=16), and for Yr2014 was 20.88, SD of 2.85 (n=16). The P value of 0.27 for the positive affect comparison indicates that the difference is not significant. The mean negative affect (NA) for Yr2013 was 10.88, SD of 2.89 (n=16), and for Yr2014 was 10.56, SD of 3.06 (n=16). Likewise, the p-value of 0.77 for the difference of negative affect is considered to be not statistically significant. The null hypothesis, that there are no differences between optimism (both Positive and Negative Affect) of novice entrepreneurs in my sample and a more general sample drawn from the UK population, is upheld. It seems that the current models of entrepreneurial cognition, need further refinement before they can fully describe the behaviour of true novice entrepreneurs.

Some of the literature studies predict that females will score lower on the PA and higher on the NA results (Thompson, 2007). The results showed that for the novice sample the females had mean positive affect (PA) of 21.27, SD of 3.17 (n=11), compared with the males positive affect of 19.76, SD of 2.84 (n=21), the p-value of 0.18 for the difference is considered to be not statistically significant (unpaired t-test two-tailed).

Similarly, the females had a mean negative affect score (NA) of 10.45, SD of 3.05 (n=11), compared with the males negative affect of 10.86, SD of 2.94 (n=21). The resulting p-value of 0.72 for the difference is also considered to be not statistically significant (unpaired t-test two-tailed). Contrary to some predictions in the literature, for novice entrepreneurs there is no evidence in my sample that female novice entrepreneurs are any more or less optimistic than their male counterparts.

5.4.2 Emotions - Consistency

Does the novice entrepreneur behave consistently with their emotions? So does the response to emotions reflect the novices' measure of mood. The positive affect (PA) will be a predictor for the positive emotions identified in Part 2 of the protocol.

	No. of participants	% of Participants	Total mentions	Mean	Min	Max	SD
++	12	38%	20	0.63	0	5	1.10
+	32	100%	439	13.72	1	40	9.27
0	8	25%	11	0.34	0	3	0.70
-	30	94%	171	5.34	0	23	4.98
--	7	22%	9	0.28	0	2	0.58
Total			650	20.31	4	66	13.84

Table 5-8 Descriptive Statistics of the Identified Emotions

As can be seen in Table 5-8 Descriptive Statistics of the Identified Emotions there were a total of 650 emotions coded during the protocol analysis. The coding for the emotions and the experiences were independent, so an experience may or may not have emotions identified with it and vice versa. In total there were fewer emotions coded at 650, compared to the 816 experiences that were identified. The single strength positive '+' emotions were coded for all 32 participants with the most mentions of (439), at 67.5% of all emotions. The single strength negative emotions '-' were coded for 30 of the participants (94% of participants), with 171 mentions, 26.3% of the total emotions. The strong or neutral emotion states ('++', '0', '- -') made up the remaining 6% ,or 40 emotions.

In this analysis the positive emotions consist of both the identified single positive, +, and double positive, ++, emotions, due to the magnitude scaling. Therefore the calculated total number of positive emotions consist of a value of 1 for a single positive and 2 for the double positive, likewise for the total negative emotions, and the neutral states were excluded. It is acknowledged that this method assumes that the emotions scaling is linear. I have seen no evidence to support or question this assumption in my scaling.

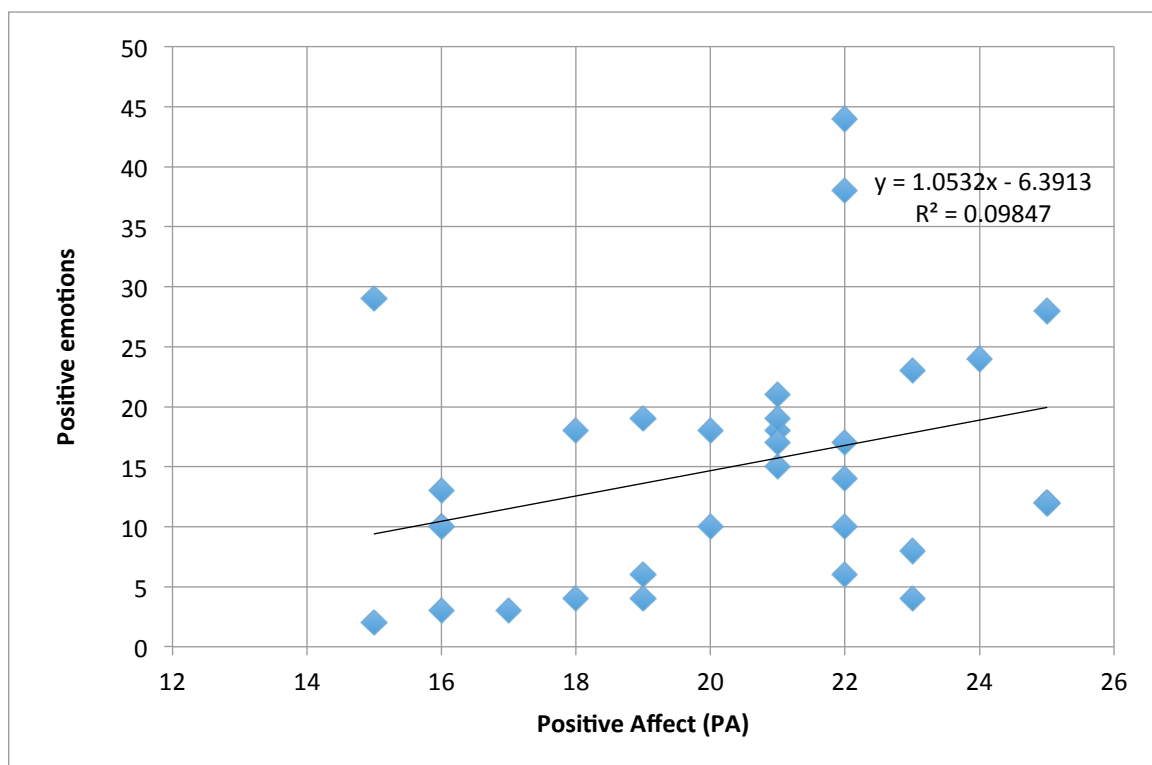


Figure 5-5 Graph of Positive Affect to Protocol Positive Emotions

Figure 5-5 Graph of Positive Affect to Protocol Positive Emotions is the graph of the relationship between the participants' positive affect (PA) score on the PANAS scale and their positive emotions, identified during the protocol.

The linear regression shows the relationship between the two variables as the participants with a higher positive affect tend to have higher identified emotions. The linear regression model has summary statistics with an R^2 of 0.098 and the adjusted R^2 of 0.068, F-statistic = 3.27, with a p-value = 0.080. However this p-value is not less than 0.05 and so the relationship is only statistically significant at 90%. The results for the negative variables follow a similar analysis and are shown in Figure 5-6 Graph of Negative Affect to Protocol Negative Emotions.

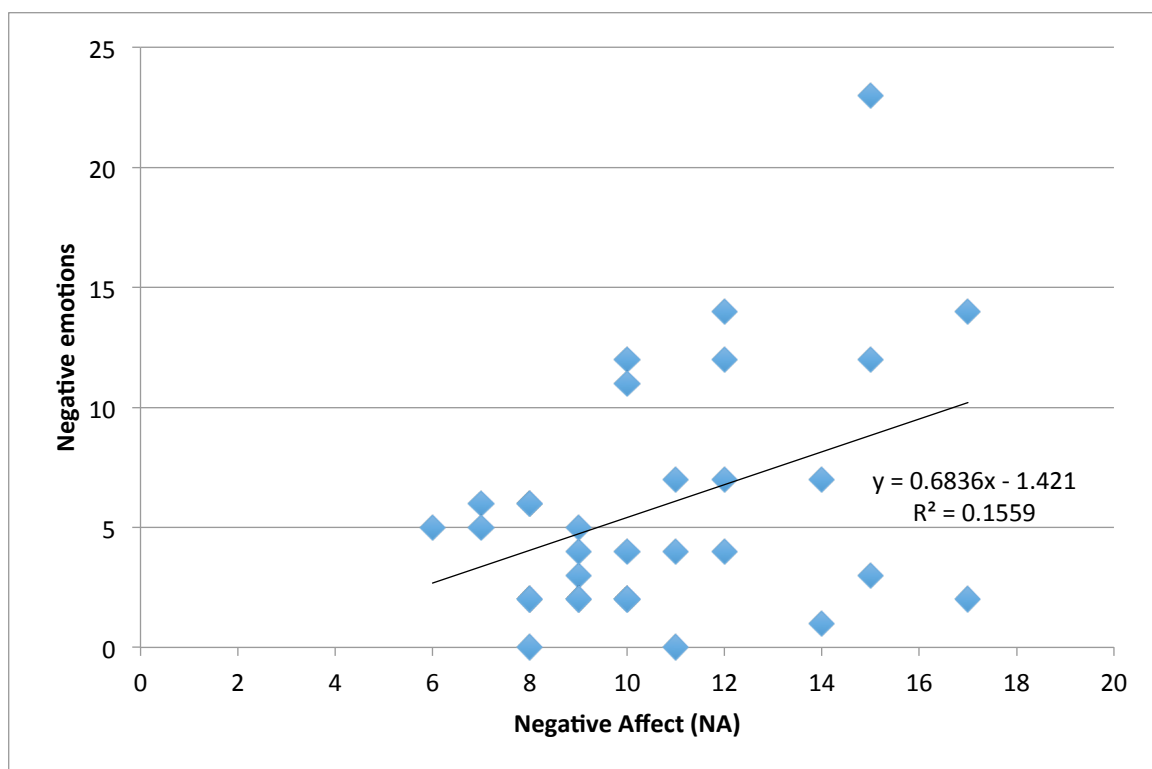


Figure 5-6 Graph of Negative Affect to Protocol Negative Emotions

The linear regression shows the participants with a higher negative affect having higher identified negative emotions. The linear regression model has summary statistics with an R^2 of 0.156 and the adjusted R^2 of 0.128, F-statistic = 5.54, with a p-value = 0.025. As this p-value is less than 0.05, there is a statistically significant relationship at (95%) between the variables in the model.

Therefore the results suggest that the underlying PANAS scores for the novice entrepreneurs reflects their emotions experienced at least to some extent. Although the R^2 values indicate that these simple correlations only explain a small part of the variations. The negative affect (NA) scores do seem to be more strongly reflected in the observed emotions of the novice entrepreneurs than the PA scores, although both have some validity. It seems that current predictions in the literature about the optimism of true novice entrepreneurs, as measured on the PANAS scale, have some explanatory power.

This is an important issue as research currently postulates that positive emotions may enable novices to cope better with set-backs, so greater the level of positive affect then higher the entrepreneurs resilience should be.

5.4.3 Emotions - Overconfidence/Persistence?

In Part 2 of the protocol the participants rated their decisions to each question in two parts as stated in APPENDIX B: PART 2 as “How probable or likely is your decision (to achieve the desired outcome)?”, then “How confident are you in your decision?”. They were provided with a five point scale for each of the answers. This scoring provides an indication in the participants’ likelihood of achieving the desired outcome as a result of their decision and their confidence in that decision. By combining these two aspects into a weighted “confidence in the decision”, similar to the approach taken in the literature (Winch & Maytorena, 2009; Maytorena et al., 2007), this provides a measure of the novices perception of the risks involved. Maytorena et al. state the scale cannot be generalised but it does provide a measure of the participants’ ability to make sense of the issues.

Probable or Likely		Confidence	
Impossible	0	Very Low C	0
Low Likelihood	0.25	Low Confidence	0.25
50/50 P	0.5	50/50 C	0.5
High Probability	0.75	High Confidence	0.75
Certain	1	Very High C	1

Table 5-9 Weighted Confidence Scale Decision Items

As shown in Table 5-9 Weighted Confidence Scale Decision Items the probability and confidence were weighted and then multiplied together for each individual question, giving a result that will lie between 0 and 1. One participant declined to answer one question and a few 110

participants provided multiple ratings if they had provided alternative decisions. In these 5 cases, the highest rating was selected in the assumption that they would select the more confident decision as their preferred option. As defined this is not a measure of risk, but of the novices' perception of risk via their confidence in their decision.

The summary for each of the questions is shown in Table 5-10 Descriptive Statistics Results of Weighted Confidence Scale per Question with the total for the 32 participants providing a mean score of 4.32 for the sum of the 7 questions, minimum 2.63, maximum 6.75 (SD=1.07). Whilst this result cannot be generalised to other published results it is intended to be useful to understand the participants' perceptions of confidence for the different questions.

PxC	Mean	Min	Max	SD
Q1	0.59	0.13	1.00	0.19
Q2	0.47	0.13	1.00	0.27
Q3	0.62	0.13	1.00	0.25
Q4	0.57	0.13	1.00	0.20
Q5	0.62	0.00	1.00	0.27
Q6	0.71	0.25	1.00	0.25
Q7	0.75	0.25	1.00	0.27
Total	4.32	2.63	6.75	1.07

Table 5-10 Descriptive Statistics Results of Weighted Confidence Scale per Question

As can be seen the highest weighted confidence is in the two questions, Q6 and Q7, which are responding to uncertainty and the serious flaw respectively. The literature review states that people have stronger emotional reactions to outcomes that are produced by action (Kahneman, 2011) and these two questions are the responses to action. Although the differences between these two scores and the other questions are not statistically significant, the participants' higher weighted confidence suggests that this could be an interesting indicator of their persistence behaviour. Kahneman highlights that experienced traders shield themselves from potential losses by redefining decisions as one of many decisions. This result is analysed further in Chapter 6 in the decision-making, comparing the results for the questions 6 and 7, which were different in nature from the more exploratory start-up questions 1 to 5.

The academic literature provided the hypothesis entrepreneurs with higher trait happiness and anger select more uncertain options (Foo, 2011). The null hypothesis for this thesis is that higher PANAS would have lower confidence for a higher risk as PANAS is a similar measure

for a trait emotion on a medium time scale and the novice will have lower weighted confidence if they think the risk is higher. It is possible that the novices may be very certain about their decisions, as they are naïve with fewer relevant experiences to consider. The summary of the participants' individual decisions provided their total weighted confidence rating and this is plotted against the positive affect (PA) aspect of the PANAS, as seen in Figure 5-7 Participant Confidence to Positive Affect.

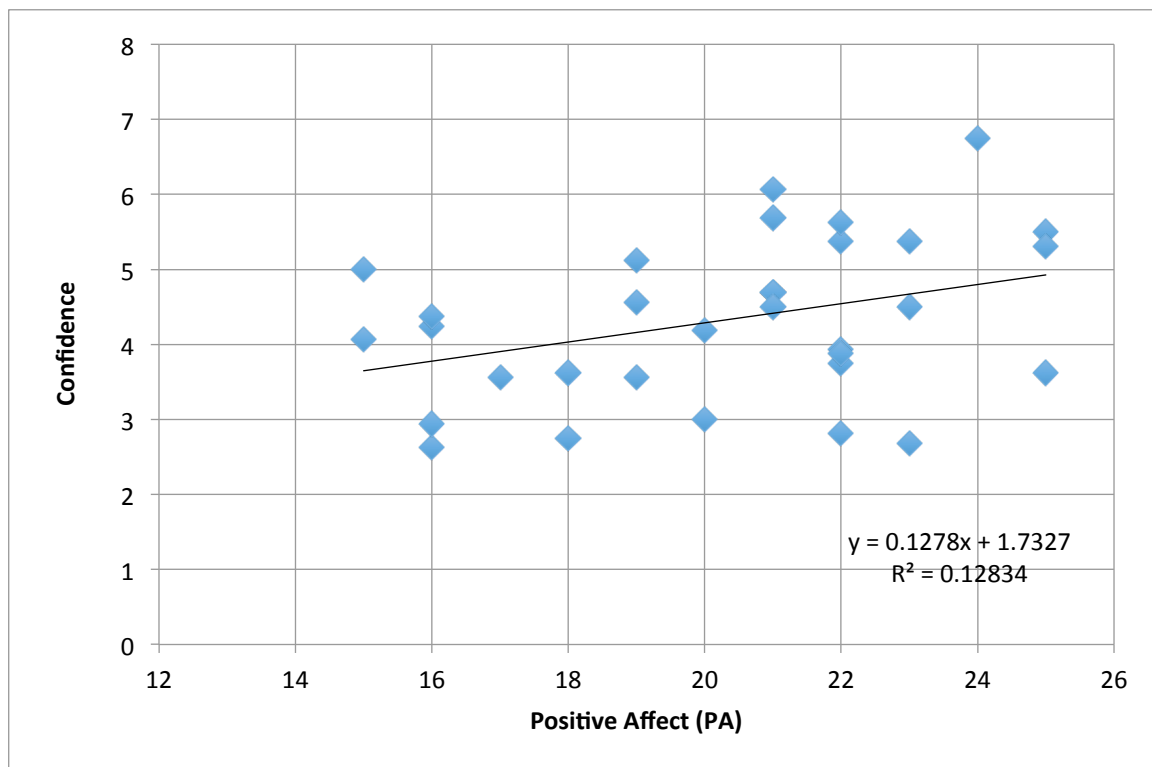


Figure 5-7 Participant Confidence to Positive Affect

The linear regression shows the participants with a higher positive affect having higher identified weighted confidence in their decisions. The linear regression model has summary statistics with an R^2 of 0.128 and the adjusted R^2 of 0.099, F-statistic = 4.41, with a p-value = 0.044. As this p-value is less than 0.05, there is a statistically significant relationship between the variables in the linear regression model.

Therefore the results suggest that the novices' positive affect emotion is related to their weighted confidence in their decisions

The literature indicated that the novices will not be able to manage their emotions as well in their persistence as entrepreneurs persist in adversity (Holland & Shepherd, 2011). Perhaps the

measure of a weighted confidence developed in this research is a viable alternative measure of persistence?

5.5 Conclusions

This chapter has presented the results for the experiences and emotions of the novice sample. The key finding that has been disproven is that the novices would struggle to draw on appropriate experiences because they lack prior business start-up experience and are at the early stages of their first own business. However, all of the novices were able to engage with the narrative of the exercise and connect to both their own business and work experience. In addition, the novice sample engaged emotionally with the protocol. The emotions connected to their underlying trait positive affect.

Just over half (55%) of the experiences drawn upon by the novice entrepreneurs were based upon recent events in their own ventures, showing how quickly these build up in the early years of trading (Chandler et al., 2011). However, a range of personal experiences were also seen as relevant by the sample of novice entrepreneurs. The experiences drawn upon tended to have been first hand events, and in addition to personal experiences, included episodes from previous work and corporate environments, albeit to a lesser extent.

It is apparent that, contrary to existing models of entrepreneurial cognition and behaviour, novice entrepreneurs are able to bring a range of experiences to inform their decisions. However, this does not necessarily mean that these experiences lead to more informed business judgements. Data on the fragility of young businesses, would tend to support notions that experiences refined in the furnace of years of business leadership may form a richer information set to guide business judgements.

In addition, the novice sample engaged emotionally with the protocol. The emotions connected to the underlying traits of positive and negative affect. Interestingly, the null hypothesis that novice entrepreneurs would be no more optimistic than a more general sample of the UK population was upheld. It must be acknowledged that the comparison sample of UK citizens, that was used to validate the PANAS scores, was of a similar size to the sample of novice entrepreneurs (n=29 & n=32, respectively). However, no statistically significant differences between the two samples were observable for either positive or negative affect. From this finding it can be concluded that existing models of entrepreneurial cognition may need refining in the context of novice entrepreneurs. Perhaps it is only the most optimistic business founders

who remain in business after two years? Novice entrepreneurs may not necessarily be more optimistic than the general population.

Two further tests were conducted to explore this issue of optimism. First, a test was conducted to explore whether existing predictions that entrepreneurs who had been trading longer would be less optimistic than the most recent business founders (reference) . Second a comparison was conducted between the optimism (PA & NA) of the male & female novices in my sample (Thompson, 2007; Podoynitsyna et al., 2012). The existing literature was not supported in either case. No statistically significant differences were found between the optimism of the novice entrepreneurs in my sample that had launched business in 2013 or 2014. One years trading did not appear to have impacted substantially on their confidence or concerns about future outcomes. There were also no statistically significant differences observed between the optimism expressed by the male and female entrepreneurs in my sample of novices.

Finally, a test was conducted to explore the extent to which the novice entrepreneurs' feelings of optimism (positive affect - PA) impacted on the confidence that they held in the decisions made about the case study, that was the subject of the "think aloud protocol". The hypothesis, according the previous research (Foo, 2011), is that entrepreneurs with higher positive emotions (PA) would be more confident in making risky business decisions. The hypothesis was supported with a simple regression model showing a statistically significant relationship between PA and confidence held in decisions made. It must be acknowledged that the PA only explained a small proportion in the variation in the extent of novice entrepreneurs' confidence, but this relationship is statistically significant (95%). There are two possible interpretations for this finding, that support existing models of entrepreneurial cognition and decision making. First, that more optimistic novice entrepreneurs may be willing to take more risky decisions (Foo, 2011). Second that more optimistic novice entrepreneurs may be more resilient in pursuing their business goals, even in the face of adverse experiences (Kahneman, 2011).

Chapter 6 follows, in which I further explore the decision making of novice entrepreneurs.

6 CHAPTER 6: Decision-Making

6.1 Introduction

The aim of this chapter is to provide overall results for the decision-making frameworks for novice entrepreneurs captured in the interviews and through this, to explore the relevance of the current theoretical models for the de novo novices. The results should reveal when and to what extent the current frameworks are appropriate to novice entrepreneurs' decision-making and whether and to what extent novices draw upon their past experiences to inform current decision-making. This discussion will build upon the interaction of some of the results from CHAPTER 5: Experiences and Emotions where factors influencing decisions have been highlighted. However, the main focus of this chapter is to develop a deeper understanding of the decision-making models used by the novice entrepreneurs in the interviews and to explore the similarities and differences with current models of decision-making.

6.2 Research Questions

The key research question for this chapter is; “To what extent are current models of entrepreneurial decision-making relevant to novice entrepreneurs?” An extension to this question is; to what extent are indicators of decision-making like an expert, early markers of progress or success for novice entrepreneurs? In addition, are there common experiential markers for the novice entrepreneur that they might be better at coping cognitively because of their experiences?

As discussed in CHAPTER 2: Literature Review, expert entrepreneurs are shown to predominantly use the effectuation decision-making framework (Sarasvathy, 2008). This finding has been further tested against the decisions of MBA students who were found to predominantly use causation decision-making approaches (Dew et al., 2009). Angel investors have also been found to experience a reduction in investment failures (without reducing the number of their successes) when applying the principles of effectuation decision-making (Wiltbank et al., 2009). In the presence of great uncertainty (e.g. in young firms), the literature also predicts that entrepreneurs will be more likely to use effectuation approaches (Chandler et al., 2011).

The decision-making literature also indicates that the experts will use feedback loops (Winch & Maytorena, 2009). The feedback loops occur when in the process of forming decisions experts will be more likely to continually seek information from a range of sources and will revisit earlier decisions once new information is revealed. Therefore, the null hypothesis is that novice entrepreneurs would infrequently use feedback loops as compared to the experts so their sense making of the situation would be described as more ‘linear’.

In addition the null hypothesis is that novices will not make decisions like experts, so this provides the H_0 that novices would only infrequently use the effectuation approach. Novice entrepreneurs will, therefore, predominantly use a causal approach, taking their decisions analytically. In addition, novices will not be adept at switching between analytical and heuristic sense-making (Jones & Casulli, 2014) again predominantly taking decisions analytically. Novices entrepreneurs will be less likely to identify with salient experiences, either emotional or cognitive, (Mathias et al., 2015) and particularly from negative experiences or unfavourable feedback (Katre & Salipante, 2012).

6.3 Data Analysis

CHAPTER 3: Methodology details the methodology applied in the “think-aloud protocol” that can be found in APPENDIX B: Verbal Protocol Guide with the additional standardised part in APPENDIX B: PART 3. These are the sources of the data that will be examined. The sample participants’ backgrounds are already detailed in Chapter 3, Analysis of the sample. The data analysis followed a systematic coding and mapping process to create the summary information search maps. The aim of this work is to provide an understanding of the participants’ thought processes in reaching their decisions. As with other results I ‘cannot claim to have captured every nuance of the interviewees thought processes’ (Maytorena, Winch, Freeman, & Kiely, 2007, p6).

The research questions for Chapter 6 seek to explore the extent to which current decision-making models are relevant to the novice entrepreneur. The literature indicates that novices will infrequently use feedback loops and will infrequently use the effectuation approach. In addition, the novices will not be adept at switching between analytical and heuristic sense-making approaches (Jones & Casulli, 2014). In pulling together these aspects of the current decision-making models the data results will be assessed by each hypothesis in turn, with comparisons to the published standardised measures.

The hypothesis that connects to the results from Chapter 5 is that novices will be less likely to identify with salient experiences, either emotional or cognitive. In addition, novices will be less likely to acquire knowledge, particularly from negative experiences or outcomes. This hypothesis will be tested in the data by comparing the responses to questions 6 and 7 in the think-aloud protocol, as these indicate the potential for reaction to uncertain or negative events.

	Topic	Question
Q1	Potential customers	Who could be your potential customers for this business?
Q2	Potential competitors	Who could be your potential competitors for this product?
Q3	Market segment	Which market segment will you sell to?
Q4	Selling/sales	How could you sell to your customers?
Q5	Pricing	How will you price your product/service?
Q6	Uncertain opportunity	You meet someone who may need what you are going to offer but you are not ready yet... If it is ready next week, it won't be quite right but you could sell it, although you don't have a price so what do you do?
Q7	Major flaw	You come to realise that the software has a major flaw and will need some serious work. What are your options and what will you do?
Q8	Additional points?	Is there anything else you would like to add/say about this?

Table 6-1 Protocol Questions

The full protocol questions and their summary titles are shown in Table 6-1 Protocol Questions. In particular, as can be seen, question 6 addresses uncertainty and can be interpreted as either a positive potential opportunity to test the concept or provide a potential customer. However, question 7 presents a clearly negative scenario with the wording “...software has a major flaw and will need some serious work”. Questions 6 and 7 were different from questions 1 to 5. These five questions were taken direct from the original effectuation protocol research (Sarasvathy, 2008; Dew et al., 2009). Questions 6 and 7 were added to explore the impact of novices’ response to outcomes “produced by action” (Kahneman, 2011).

6.3.1 Coding

In analysing the novice entrepreneurs’ responses, the data was initially broken into individual concepts or phrases, for example “Before those potential competitors arise I’d make sure that the product is a market-leading brand” (participant 107). These responses were then manually

grouped into clusters with the addition of any highlighted alternatives or concerns.

Simultaneously, requests for and reference to the additional external information elements were indicated such as; all of the indicated additional search materials; participants asking a question about the case study that they want answers for; participants creating their own feedback loop; and participants revisiting the case study questions in Part 1 as a loop back from Part 2, when discussing their experiences.

In accordance with Maytorena et al (2007) the summary search maps are then created indicating the overall decision-making style, as measured by the number of feedback loops and information requests per question. Broadly replicating the method used “of number of questions per topic” in the search maps for project manager expertise (Maytorena et al., 2007). The feedback count includes the three aspects of; the number of segments where the participant asked a question that they would want answers to; the segments when they would do their own loop to answer a previous question; and when they would return to the previous protocol questions looping back from part 2 when drawing on their own experiences.

The information request counts were the seven elements of information that were available, including the initial information in the protocol; and the six additional cards; financial estimates; competitors; secondary market research; direct online market research; direct in stores market research; and the market research resulting from focus groups with educators.

6.3.2 Excluded data points

The results of the full protocol experiment were obtained for n=32 participants as detailed in chapters 3 of the methodology and chapter 5 of the emotions and experiences⁴. However, during one of the protocol interviews, the participant’s business partner in the start-up venture included themselves in the experiment. This took place in a small open-plan office and the intervention happened after the recording had started so I continued the interview. The business partner was also a de novo novice entrepreneur. In Part 2 of the protocol I then captured their responses separately of these two participants. This intervention significantly affected the results for the decision-making part of the protocol (Part 1). The interaction between the two participants resulted in a more interactive and detailed exploration of the questions. The Part 2 experiences and emotions, were recorded individually, and revealed quite distinct results from

⁴ Chapter 4, the pilot chapter, collected responses from a sample of 8 participants, to test the viability of the research methodology. The pilot data is not included in the main body of results.

each of the two interviewees. Therefore, for this chapter on the novice entrepreneurs' decision-making, only 30 results are included.

The results of this interaction between the partners reflect the reality of many start-up businesses where teams often engage in the decision-making process, potentially leading to better decisions (Oakey, 2012). However my research is underpinned by the literature on individuals' emotions, behaviour and cognitive decision-making. Therefore, these 2 data points were not included, although a useful area for future research would be to include teams of business founders that are engaged in creating new enterprises. It is useful to understand why these two data points were outliers in terms of the data. The key difference for these two individual participants was the significant increase in the use of raising questions that they would want answers for. For the coding for 'Qn?', the number of items raised by these respondents was 26. This compared to a maximum value of 12 for the other 30 participants. Highlighting the interactive "question and answer" nature of their combined responses to Part 1 of the protocol.

For these two participants, there are examples in the transcript where one is thinking aloud on one train of thought, whilst the other partner is answering a question for a different train of thought. This did not come across as a negative interrupting interaction but as creative flow of seeds of different ideas and threads. These interactions provided additional information and prompts that would further continue in both participants' think aloud processes. This does fit with the literature on the creativity and benefits in team interactions (Oakey, 2012). For all the other decision-making protocol the results were within the range of the other data points, further highlighting the interesting nature of interactions between business co-founders as an area for exploring future research.

6.4 Results

The results follow for each of the five hypotheses, with the initial discussion of the analysis and recommendations for further research or developments. All of the results are synthesised and considered in greater detail in Chapter 7.

6.4.1 Linear and Feedback Decision-making

The first hypothesis is that, unlike experts, novices will infrequently use feedback loops in their 119

decision-making (Winch & Maytorena, 2009). As detailed previously in discussion of the coding process, the feedback metric has been systematically developed from the participants' interaction with the protocol. In that the feedback loops and requests for additional information were analysed by question to provide an overall table of results, shown in Table 6-2 Count of Decision-making Responses per Question. This table summarises the results from the full analysis with examples of the interview protocols detailed in the APPENDIX E: Sample Analysis Spread Sheet.

The calculation of the participants that were predominantly exhibiting a 'feedback style' in their decision-making (Winch & Maytorena, 2009; Maytorena et al., 2007) was developed from the summary of the results. A positive integer was assigned where the participant had either one or multiple loops or requests. The minimum possible is zero for linear thinking (without loops or requests for information) and the maximum result identified from the data per question was 11 (in Question 1 for participants 122 & 131).

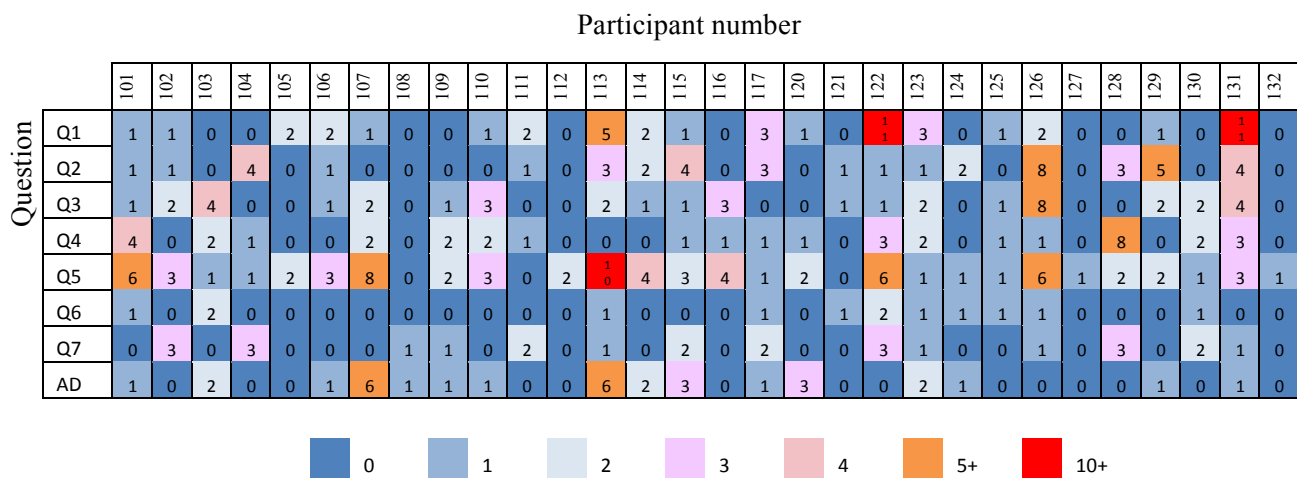


Table 6-2 Count of Decision-making Responses per Question

This summary decision-making diagram is colour coded as a "heat map", with frequent responses highlighted in orange and red. The lowest level is no response score (0) which is taken to represent 'linear style' thinking for that question and is coloured in deep blue. The colour coding progresses through the numbers summarising the number of feedback loops or requests for information; with 1 coloured mid-blue; 2 light-blue; 3 light-pink; 4 light-orange; 5+ (including 6,7,8,9) deep-orange; and finally 10 or more coloured red.

The table is labelled with the participant tracking number and viewing the vertical column

downwards represents the activity for the areas explored during the protocol. So, for example, the final right hand side participant 132 has data points 0, 0, 0, 0, 1, 0, 0, 0. This compares to the first left hand side participant 101 that has data points 1, 1, 1, 4, 6, 1, 0, 1.

Viewing columns with “hotter” colouring represents individual participants that are responding in a feedback style, for example participant 131. Likewise, viewing horizontally for “hotter” colouring across the rows can indicate the interaction per question, such as for question 5 for pricing that will be discussed later. The decision-making styles exhibited in Table 6-2 Count of Decision-making Responses per Question are summarised below in Table 6-3 Predominant Decision-making Style.

Linear / Feedback	Participant number																															
	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	120	121	122	123	124	125	126	127	128	129	130	131	132		
L	1	3	3	4	6	3	3	6	3	3	4	7	1	3	1	5	1	4	5	1	0	4	3	1	7	4	3	3	1	7		
F	7	5	5	4	2	5	5	2	5	5	4	1	7	5	7	3	7	4	3	7	8	4	5	7	1	4	5	5	7	1		

Linear style

Feedback style

Table 6-3 Predominant Decision-making Style

As shown in Table 6-3 Predominant Decision-making Style the total linear rating was calculated from the sum of the zeroes, with the total feedback rating as the sum of the non-zero results, regardless of the size of the number per question. In addition, in Table 6.3 an individual is only taken to adopt a predominantly feedback style of decision-making if their overall approach to engaging with additional feedback loops or information can be observed for more than half of the protocol issue areas (i.e. a count of 5 or more questions). Otherwise their decision-making is taken to be primarily a linear style. In the context of the hypothesis, this is intended to represent a cautious approach.

For consistency with the heat map in Table 6.2, Table 6-3 Predominant Decision-making Style is coloured in deep-blue for linear style and red for feedback style. The conservative classification approach referred to above allowed for a range of nine combinations from 0 to 8, depending whether the respondent is predominantly linear or feedback. None of the participants responded in a solely linear approach, however as can be seen 3 participants (10% of the sample) are predominantly linear (interviewees 112, 127, 132), with total ‘7’ linear rating. In total 18 participants (60% of the 30), are predominantly feedback in their responses,

with a total feedback rating at 5+. This result includes one participant at a score of ‘8’ (participant 123), with seven predominantly feedback in their responses having a rating of ‘7’.

These findings provide evidence that, contrary to the hypothesis, that many of the true novice entrepreneurs in this sample use feedback loops in reaching decisions. In addition, for more than half of the sample (18/30 – 60%) they display a predominantly feedback style. It useful to review the analysis per question and also the detail of the feedback approach to decision-making.

Table 6-4 Participant Total Loops per Question below presents the analysis by question and also shows the count of mentions, since the number of times a topic is discussed (mentioned) is indicative of the extent to which conversations refer back (or loop) to the topic. For example, for Q5 (Pricing) 27 participants discuss this question 80 times in total. It can therefore be concluded that the average number of times the topic is ‘revisited’ (or looped) is 2.96 times. The purpose of this iterative processing is to explore if there is more information that can be gleaned from the case study itself or the ancillary information that can be requested as part of the protocol. Further information on this topic is presented in Table 6-5 Participant Total Feedback Loops.

		No. of Participants	% of participants	Total mentions
Q5	Pricing	27	90%	80
Q3	Market segment	19	63%	42
Q1	Potential customers	18	60%	51
Q4	Selling/sales	18	60%	38
Q2	Potential competitors	17	57%	45
ADD	Anything to add?	16	53%	33
Q7	Major flaw	14	47%	26
Q6	Uncertain opportunity	11	37%	13

Table 6-4 Participant Total Loops per Question

In reviewing the participant engagement per question Table 6-4 Participant Total Loops per Question shows that Question 5, referring to the area of pricing, was the question that had the highest percentage of feedback decision-making responses, with 27, or 90%, of the participants having a feedback approach for this concern. Question 5 also had the highest number of total mentions for this question at 80, providing the highest engagement and interaction with feedback style. This could also be seen visually on the heat map of Table 6-2 Count of

Decision-making Responses per Question by viewing row ‘Q5’ where there are more pink, orange and red cells, indicating higher numbers of responses and / or requests for information than for the other topics.

The remaining protocol questions are shown in rank descending order in Table 6-4 Participant Total Loops per Question by number of participants. However the counts are fewer than for Q5, Pricing, and are at a similar level to each other, except for Q6 that relates to uncertainty. For example Question 3, market segment, is the second highest count at 19 participants, 63%, and only 42 mentions. The lowest count of feedback for participants was for question 6 with 11 participants (37% of the sample) using feedback style. Question 6, Uncertainty, also had the lowest number of mentions (13). This possibly offers evidence that the nature of the question influences the decision-making style adopted by many participants. Discussing factual market data that is in common parlance, like price, may prompt the search for more information and a greater number of feedback loops. This is an additional perspective that might offer the opportunity for further research. Are there particular topics which either a linear or feedback style of decision-making are more appropriate?

It is useful to understand any difference in the external feedback elements such that; participants asking a question ‘Qn?’ that they want answers for; participants creating their own feedback loop ‘ownloop’; and participants returning to the problem as a loop back from discussing their experiences in part 2 ‘loop2>1’. These are shown in Table 6-5 Participant Total Feedback Loops in rank descending order with ‘loop2>1’ feedback loops from their experiences as the most frequent with 26 of the 30 participants, 87%, providing a total of 111 ‘mentions’. In this case ‘mentions’ refers to looping back to or reconsidering decisions they made in Part 1 of the protocol, whilst responding to Part 2 that discusses any experiences that they may have drawn upon to inform their decisions.

	No. of participants	% of participants	Total mentions	Mean of mentions	min	max	SD
loop2>1	26	87%	111	3.70	0	10	2.56
Qn?	26	87%	86	2.87	0	12	3.10
ownloop	21	70%	43	1.43	0	5	1.28
Total			240				

Table 6-5 Participant Total Feedback Loops

The total ‘mentions’ including all loops and requests for information on the aspects listed in

Table 6-5 Participant Total Feedback Loops and Table 6-6 Participant Requests for Information was 328. The aspect of feedback loops from experiences (count – 111) is the most frequent participant external engagement activity, overall. As can be seen in Table 6-6 Participant Requests for Information the ‘mentions’ from the additional information cards occurred less frequently (88 times) than the three types of loops (240 instances).

	No. of participants	% of participants	Total mentions
Initial Info	5	17%	5
Financials	6	20%	9
Competitors	16	53%	30
Secondary	8	27%	12
Direct Online	6	20%	9
Direct Store	7	23%	9
Direct Educators	8	27%	14
Total			88

Table 6-6 Participant Requests for Information

The literature indicates that expert decision-making tends to exhibit a particular approach (Winch & Maytorena, 2009). However, these results for novice entrepreneurs indicate that decision-making styles may be more diverse than currently predicted in the literature in two particular ways. First, novice entrepreneurs may use feedback as well as linear thought processes. Second, that decision-making styles may be influenced both by the context of the decisions and the nature of the issues under consideration.

Therefore the novice entrepreneurs’ cognition may need to be interpreted in terms of their responses in the context that they operate and bearing in mind the nature of the decisions that they are making, as there is considerable variability in responses and even within this sample of 30.

In summary, the hypothesis is rejected as the novices show a high level of feedback orientation. The detailed results from this sample of true novices are much more diverse than the literature indicates.

6.4.2 Effectuation and Causal Decision-making

The null hypothesis is that the novice entrepreneurs would only infrequently use the effectuation approach. The novices would find it difficult to complete the protocol and would

predominantly use a causation approach, behaving like the novice population of MBA students (Dew et al., 2009). However, in CHAPTER 4: Pilot Project, the pilot results showed that the novices were able to complete the protocol and all of participants in this randomised sample of 32 novice entrepreneurs, businesses of up to 2 years old, were also able to complete the extended protocol. This included four participants that anticipated difficulties, due to reading or speech problems, however they all completed the protocol.

The research provides the opportunity for these results to be compared with the recently published effectuation validation model provided for a US sample (n=196) of young firms drawn from the Dun & Bradstreet register (2 to 5 years of age) from two industry codes, plastics products and packaged software. There are no available results for young firms or for any comparable UK industry codes.

As can be seen in Table 6-7 Comparison of Novice and Young Firm Results, the novice sample resultant means are significantly or highly significantly different from the young firms, using a t-test comparing the means of the two groups. However the results do not behave in the manner predicted by the effectuation and causation literature (for example Sarasvathy, 2001; Sarasvathy, 2008).

It should be noted that the pre-commitments construct is repeated within the tables as Chandler et al. (2011) argue that it is a shared component of both causal and effectual approaches.

	Novices		Young Firms*		Unpaired t-test
Causal Elements**	Mean	SD	Mean	SD	p-value
Causation	4.15	0.59	3.32	0.85	0.0001
Pre-commitments	3.78	0.69	3.04	0.88	0.0001

Effectual Elements**	Mean	SD	Mean	SD	p-value
Experimentation	2.98	0.73	2.55	0.94	0.016
Affordable Loss	3.93	0.74	3.48	1.11	0.032
Flexibility	4.3	0.51	3.98	0.64	0.009
Pre-commitments	3.78	0.69	3.04	0.88	0.0001

*(Chandler, DeTienne, McKelvie, Mumford, 2011)

** (Sarasvathy, 2001, 2008)

Table 6-7 Comparison of Novice and Young Firm Results

Sarasvathy argues that although expert entrepreneurs will use both effectual and causal

decision-making, they will predominantly use effectual logic. Therefore the prediction for a sample of novices is that they will adopt a more causal and a less effectual approach to decisions as they will have insufficient business experiences to draw on. The published results for young firms would be predicted to be in a similar direction as a sample of novices compared to experts. However, young firm founders (businesses 2 to 5 years old) will be expected to have more experience and, potentially, additional prior experiences as the Chandler sample were not exclusively 'de novo' or first time novices (Chandler et al., 2011).

It is perhaps surprising therefore that in Table 6-7 Comparison of Novice and Young Firm Results, the novice sample are more causal in their decision-making for both the causation and pre-commitments elements at a highly significant level. In addition, the novices are more effectual than the young firms in their decision-making for the Flexibility and Pre-commitments elements, which are also highly significantly different. In respect of Experimentation and Affordable Loss, novice entrepreneurs are again more effectual, but this difference is significant at <5%, as opposed to <1%.

These causal and effectual results together are not as anticipated by the Chandler et al. (2011) validation study as *all* the mean results are higher, both casual and effectual. Additionally, the underlying theory predicts that when the causation construct is higher then the effectuation constructs should be lower, which is not reflected in these results.

There are many possible aspects that could be influencing these, at first sight surprising results. It could be that the sample of true novices interviewed were both highly effectual and highly causal, and able to engage in the protocol discourse at a high level. This could be partly due to the interviewing process as in the Chandler et al. study (2011) the responses were obtained through a mailed questionnaire whereas the novice results were drawn from face-to-face interview, following the protocol. This personal involvement with the process could have increased the engagement of the respondents, so the respondents may have been observed as behaving differently when providing the data.

In addition, the novice sample may have been subject to different biases to the Chandler et al. study, due to selection processes of the intermediary organisation, BFS, in terms of both implicit and explicit criteria. The explicit factors might include the requirement for a business plan as part of the application and approval process of BFS, including the provision of support in completing the requisite business plan format. There is evidence that business plans are both

a preparation ritual and a communication / signalling document (Kirsch, Goldfarb & Gera, 2009) and this process may have prepared the sample participants to engage with discourses around the more causal elements of prediction as well as the effectual elements of control. There might also be implicit criteria in the approval process that favour the selection of novices that are both more causal and effectual in their decision-making (e.g. a recognition by BFS staff that in the early stages of business formation there are many uncertainties and that a degree of experimentation and flexibility will be likely to contribute to the chance of business survival, and therefore repayment of money advanced).

The initial Sarasvathy research indicated that experts would make decisions both causally and effectually but the predominant behaviour will be effectual. However the results for this sample of true novices provides evidence entrepreneurs may do both and that neither may be predominant. Could it be that expert entrepreneurs employ both but then take their final decisions using the effectuation approach, as a means of managing the perceived uncertainties? Further studies of true novice entrepreneurs that have not been through a pre-selection process might shed further light on this topic.

In summary, the hypothesis that novices would only infrequently use the effectuation approach to decision-making is not supported. All of the randomised sample of novice population were capable of completing the experimental protocol, supporting the results from CHAPTER 4: Pilot Project. In addition, the novices were able to engage with the discourse of both causal and effectual reasoning to a statistically significantly higher level compared to the young firms (Chandler et al., 2011). The most likely explanations for this final observation relate to the differing, face-to-face, research methodology where the participants were primed by the protocol adopted for this thesis research as well as aspects to the pre-selection processes of BFS. Future research could have the Chandler et al. survey collected prior to the protocol experiment.

6.4.3 Analogical and Heuristic Sense-making

The null hypothesis developed from the literature is that novices will not be adept at switching between analogical and heuristic sense-making (Jones & Casulli, 2014). This development is interesting because of the Jones & Casulli proposed framework is that both heuristic and analogical reasoning rely on comparisons between prior experiences and new situations. These authors discuss the aspects of identifying similarities as well as differences. The Jones & Casulli approach defines heuristic reasoning as the process of making judgements on perceived

similarities and choices; whereas analogical reasoning concerns deliberate searching of an individual's memory for the relevant comparative experiences.

Jones & Casulli (2014) provide a theoretical framework, for their planned research on international entrepreneurship, that is drawn from the Kahneman and Sarasvathy decision-making approaches discussed earlier. In a similar vein the experimental protocol for this thesis used with the sample of true novice entrepreneurs has two parts. In Part 2 the novice participants are invited to recall their own past experiences that have informed their decisions in Part 1, the results provide a measure for understanding the switching between the two reasonings. The analysis of results for 'loop2>1' is an indicator of their experiential thinking returning the participant to respond to the original part 1 question. This meets the definition of analogical reasoning as participants logically search their experiences in order to suggest possible solutions (Jones & Casulli, 2014).

The data also provides an indicator for switching from heuristic to analogical reasoning in that a number of the participants specifically mentioned their own experiences when responding in part 1, without being requested to do this. Therefore the result for part 1>2 captured in the coding, 'part1', where they refer to their personal experiences in the initial part 1 decisions, is similar to the definition for heuristic reasoning in judgements on perceived similarities.

Therefore Table 6-8 Cross Protocol Experiences & Decision-making below shows the results for these two aspects which measure the extent of analogical and heuristic reasoning in this experimental protocol.

Basis of Decisions		No. of participants	% of participants	Total mentions	Mean	min	max	SD
Analogical	loop2>1	26	87%	111	3.70	0	10	2.56
Heuristic	Part1>2	18	60%	46	1.53	0	8	1.91

Table 6-8 Cross Protocol Experiences & Decision-making

The result for 'loop2>1' detailed in Table 6-8 Cross Protocol Experiences & Decision-making, shows 26 of the 30 participants, 87%, were identified as forming decisions using an analogical approach. This behaviour received the highest number of total mentions (111, i.e. a mean of >4 per participant) in response to the request that they reflect on the basis upon which they reached the decisions in Part 1. The result for Part1>2 (Heuristic decision-making – Jones & Casulli, 2014) shows that 18 of the 30 participants, or 60% were identified as doing this, with this result being lower than for the loop2>1 (the analogical decision-making). This aspect received 46

mentions, which is quite high considering it was not part of the instructions of the protocol and so was not requested of the participants.

In reviewing the 4 participants that did not undertake the analogical reasoning (zero ‘loop2>1’), it is interesting that they also did not undertake any heuristic reasoning in the interview, with zero ‘part1>2’ mentions of personal experiences. It appears that these participants were making fewer connections between their experiences and their reasoning. Although there could be other explanations – for example one such participant was not a native English speaker and so expression of the underlying reasons might have been both linguistically and culturally more difficult.

However, the results, but it do show consistency in that all participants undertaking heuristic reasoning were also engaged in analogical reasoning. Overall, the hypothesis is disproven. Contrary to expectations from the literature, the majority of novice entrepreneurs in this sample were adept at switching between analogical and heuristic sense-making in reaching and reflecting on their decisions.

6.4.4 Salient Experiences

The null hypothesis indicates that novices will be less likely to identify with salient experiences, either emotional or cognitive. The evidence for this result will draw on both the decision-making data and the emotional and experiential coding data, drawn from the think aloud protocol. There are two questions, Q6 and Q7, concerning potential salient experiences that are relevant to a business start-up. These are detailed in Table 6-9 Question Detail for Q6 & Q7. As can be seen question 6 presents an uncertain situation that could be interpreted as either a positive opportunity or a negative distraction. However, question 7 presents and reinforces a serious problem with the words “...a major flaw and will need some serious work”.

	Summary	Question in full
Q6	Uncertain opportunity	You meet someone who may need what you are going to offer but you are not ready yet... If it is ready next week, it won't be quite right but you could sell it, although you don't have a price so what do you do?
Q7	Major flaw	You come to realise that the software has a major flaw and will need some serious work. What are your options and what will you do?

Table 6-9 Question Detail for Q6 & Q7

The sample of novices had launched their first business and most had already begun trading. In addition a number of them, three, had already started a second business during the time period.

The published research proposes that entrepreneurs identify with salient experiences, both emotionally and cognitively, during the start-up phase as these provide important ‘imprinting’ on decision-making and action (Mathias et al., 2015) and these experiences affect patterns of survival and growth. At this early stage, it is not possible to know growth rates for the research sample. At the date of the interview all of the participants met the criteria for survival at that stage. However, the experimental protocol provides a measure of the extent to which novices relate to the salient experiences of uncertainty and major challenges that are typical of the business start-up process. The count of the number of emotions and prior experiences that were identified in the coding of questions 6 and 7 are compared to the overall totals for these aspects.

	Number of Participants	% of Participants	Total mentions
Q6 Experiences	30	100%	111
Q7 Experiences	27	90%	97
Q6 Emotions	28	93%	98
Q7 Emotions	26	87%	109

Table 6-10 Question 6 & 7 Experiences and Emotions Data

The totals of these two aspects for the complete protocol activity sample of 30 participants is; total experiences coded 816; and total emotions coded 650. The summary results for the two salient questions are in Table 6-10 Question 6 & 7 Experiences and Emotions Data. All participants (100%) mentioned experiences that they had considered, with a total of 111 mentions for question 6. For question 7, 27 of the participants (90%) refer to experiences that they had drawn upon with a total of 97 mentions.

To check this data, responses from the 3 participants that did not provide experiences for question 7 were reviewed. Two of the three did not provide a response as they considered they had discussed these aspects in question 6. The remaining participant (p 108) talked aloud around the topic but did not detail what they were considering, with their thoughts finishing up by “...I mean, I can think of, like, different situations that I’ve been in, but they, they’re similar but not exactly (LP yeah) not exactly the same, but it, that, that’s just common sense...”.

The results for the emotions for question 6, were 28 of the participants (93%) made 98 mentions in total. For emotions observed for question 7, 26 of the participants, 87%, made 109

mentions. The participants that had no emotions coded for these two questions comprised 6 different participants over the 2 different questions, with no common zeros, in other words all participants expressed emotions in respect of either question 6 or question 7, but six did not make such references in respect of both questions.

Overall, for these two questions the proportion of experiences referred to in Q6 & Q7 account for 25.5% of the total of 816 experiences mentioned. The proportion of emotions referred to in Q6 & Q7 is 31.9% of the total of 650 references to emotions. For the total sample, the engagement with these 2 salient issues is similar to the proportions for all of the protocol questions. (Questions 6 & 7 account for 2/7ths of the total number of questions or 28.5%. The experiences cited in respect of Questions 6 & 7 represent 25.5% of the total number of experiences. The number of emotions observed represent 31.9% of the total emotions.)

These results together show that the sample of novices identify and engage with questions of both uncertainty and major challenges to the business model as salient experiences; and they engage in both a cognitive and an emotional approach. Therefore the null hypothesis is rejected and the alternative hypothesis that the novices do identify with salient experiences during the start-up phase, both emotionally and cognitively, is supported. This result extends the research of Mathias et al. to include true novice entrepreneurs. Our findings provide similar results (Mathias et al., 2015). Additionally, Mathias et al. (2015) acknowledge the presence of retrospective bias in their methodology. This research protocol reduced this risk of bias, by basing the coding on observations from the think-aloud protocol.

6.4.5 Knowledge from Negative Feedback

The null hypothesis is that the novices will be less likely to acquire knowledge, particularly from negative feedback (Katre & Salipante, 2012). This hypothesis is addressed by Q7 in that; “You come to realise that the software has a major flaw and will need some serious work. What are your options and what will you do?”. Katre & Salipante find that the more successful start-up social entrepreneurs in their study were able to respond to negative feedback and acquire new knowledge and increase their network. As shown in the previous section on Salient Experiences there is clear evidence that the majority of the novice entrepreneurs engaged both cognitively and emotionally with negative feedback situations. Although the coded analysis is not directly measuring whether the participants were acquiring new knowledge, it could be possible to provide a framework to analyse the transcripts for that. However, reviewing the specifics of only the ‘loop2>1’ data that occurred in question 7 there were 5 instances of solely 131

this feedback approach or analogical reasoning, for the negative feedback from the situation. Therefore at this stage there is evidence that the novices are able to identify with negative feedback and some tentative evidence that they build specifically on the negative experience. Therefore, the null hypothesis is rejected and the novice entrepreneur sample builds on the social entrepreneur results.

6.5 Conclusions

This chapter provides strong evidence that the novice entrepreneurs at this early stage of their businesses do not behave entirely as the literature predicts. The novice entrepreneurs interviewed frequently used a feedback style of thinking that is associated with better decision-making of expertise (Winch & Maytorena, 2009) and they frequently use feedback thinking.

Whilst completing the think aloud protocol the novices in my sample provided evidence that they use several elements of an effectual approach in their decision-making. Comparison to published effectuation results (Chandler et al., 2011), the findings were not as predicted by the literature. The true novice entrepreneurs in my sample were statistically significantly more likely to engage with the discourses of both effectual and causal reasoning, so firm conclusions cannot be reached in this respect. A number of possible explanations are discussed, however, it seems most likely that the unexpected results reflect, at least to some extent, the different interview approach used in this study (face to face interviews compared to a self administered questionnaire in the Chandler et al. study) and the BFS pre-selection process that the sample of true novices had engaged with. Further research may help to shed light on the relative importance of these factors.

However, the novice entrepreneurs were statistically significantly more effectual in reasoning than the ‘novice MBA students’ (Dew et al., 2009). There is also evidence that the majority of the novices were very adept at switching between the different modes of thinking and that this protocol could provide a useful method for measuring analogical and heuristic sense-making whilst making decisions about new venture creation (Jones & Casulli, 2014).

7 CHAPTER 7: Discussion and Conclusions

7.1 Introduction

The aim of this chapter is to discuss and understand the implication of the study's main findings in regards to the literature. The important question for this research is to what extent are current models of entrepreneurial decision-making relevant to novice entrepreneurs? This chapter will comprise a brief summary of the study of the sample of 32 early-stage (first time novice) entrepreneurs and then focus on the main hypotheses relating to the study participants' experiences, emotions and decision-making. The results will be interpreted in the context of the literatures relating to both early stage entrepreneurship and decision-making, including both confirmatory and contradictory findings. The implications of these findings, drawn from the established "think-aloud" protocol research methodology, consider and seek to integrate contributions to theories of entrepreneurial experiences, emotions and decision-making. In addition, the results of this integration provides recommendations for practice and points to areas for future research. The limitations of the study will be reviewed and the potential for further research will be highlighted.

7.2 Research summary

The aim of the research is to understand the extent to which current models of entrepreneurial decision-making and cognitive coping are relevant to novice entrepreneurs, business founders in the first two years of establishing their first new venture. Therefore the research has two main concerns. First, to explore the appropriateness of existing models of decision-making to novice entrepreneurs. Second, to seek a deeper understanding of coping with the cognitive aspects of decisions made in the novice entrepreneurial context. The aspect of coping then has two elements. First cognitive coping, because decision processes do not occur in a vacuum. Are there underlying experiences that enable some novices to cope better with the decisions or some decisions that are easier to cope with compared to others? The second aspect relates to emotional dimensions of coping. The literature has only recently begun to address the need for understanding emotional influences on decision-making, but for novice entrepreneurs the new venture provides an uncertain or unknown future that they must navigate. To what extent do the

novice entrepreneurs have the emotional resilience to cope? Are they able to connect and manage their emotions, particularly for the more problematic issues of decisions when facing potential for losses. Such challenging situations require novices to manage or cope with their underlying human nature and the biases, such as our dislike of losses that result from our own actions.

The main research question that this thesis seeks to address is; to what extent are current models of entrepreneurial decision-making relevant to novice entrepreneurs? Second, are there prior experiences that are useful to novice entrepreneurs that enable better coping or resilience, from both a cognitive and emotional perspective?

7.3 Discussion of key findings

The discussion of the findings will firstly cover the hypotheses and results regarding the decision-making frameworks drawn from previous scholarly research. Second, the experiences that the novice entrepreneurs identified will be discussed and compared to predictions from the literature. Thirdly, the novice entrepreneurs' emotional engagement with the case study questions will be reviewed, together with their profiles based upon the internationally validated PANAS (Positive and Negative Affect) scale. This is the first time, so far as I am aware, that findings from a think aloud protocol have been correlated with an externally validated emotional score, and the implications of the results will be considered.

7.3.1 Decision-making

The existing literature has a strong emphasis on the decision-making skills of expert entrepreneurs having an effectual logic that leads to improved outcomes (Sarasvathy, 2001; Sarasvathy, 2008; Read, Dew, et al., 2009; Read, Song, et al., 2009). The hypothesis was that novices would struggle to use the effectual logic as they would have to adopt predominantly causal logic because they lack the necessary domain knowledge. This hypothesis was not supported as the novice entrepreneurs in my sample were clearly able to engage with the think aloud protocol. Contrary to expectations, in the pilot study the eight participants completed the

protocol in such a manner that they behaved more like the experts than the published results for MBA students (Dew et al., 2009). These findings were reinforced by the results of the larger sample. As far as the author is aware, this is the first time that a think aloud research protocol has been administered with a broadly cross-sectional sample of representative ‘de novo’ novice entrepreneurs, where the sample has been rigorously formed and studied in depth. The following sections will cover the findings of the analysis covering the different decision-making models that were evaluated.

7.3.1.1 Effectual and Causal Logic

Although observing novice entrepreneurs applying effectual logic seems a surprising result, there has been recent work that suggests that young firms, 2 to 5 years, are already using effectual logic at a relatively early-stage of business (Chandler et al., 2011). This find considerably extends the work of Sarasvathy (2001, 2008) who argues that applying effectual reasoning is a particular skill that expert entrepreneurs develop over time. The Chandler study also included experienced entrepreneurs who had run other businesses. Therefore the results for these novices with their businesses from 0 to 2 years could be already showing signs of the effectual reasoning. The comparison with the validated metrics provided by Chandler et al. (Chandler et al., 2011) showed a significant difference for the novices at the <5% level, however the most surprising result was that the novice sample were both more effectual and more causal, whereas the literature would predict that entrepreneurs would use both but have only one predominant decision-making style. The most probable explanation is that the method of data collection has influenced the results for the novice entrepreneurs as they were pre-primed by conducting the verbal think aloud protocol first. This would suggest areas for future research in that more participants could be recruited to conduct the research, however obtaining the survey in advance (APPENDIX B: PART 3) and check for difference with the results in section 6.4.2 Effectuation and Causal Decision-making for comparison (Chandler et al., 2011).

It is possible that, unwittingly, the sample frame for this study has introduced such a bias. All of the, randomly selected, participants had received funding from BFS, a government supported business finance scheme. There is the possibility that the loan approval process implicitly selects business founders that are able to make decisions that are appropriate to the uncertain new business context i.e. backing novice entrepreneurs that are seen as thinking effectually. Such criteria are certainly not made explicit by BFS but observation of their

approval decision process could possibly reveal an implicit bias in this direction?

Alternatively, the process of the think aloud protocol is priming novices' to be aware and value the approaches of effectuation when they are discussing them during the protocol activity.

7.3.1.2 Feedback and Linear Thinking

The feedback and linear hypothesis is that, novices will infrequently use feedback loops in their decision-making thinking unlike experts which will predominantly use a feedback style (Winch & Maytorena, 2009). The research findings provide evidence that, contrary to the hypothesis, many of the true novice entrepreneurs in this sample use feedback loops in reaching decisions. In addition, for more than half of the sample (18/30 – 60%) they display a predominantly feedback style.

These results for novice entrepreneurs indicate that decision-making styles may be more diverse than currently predicted in the literature in two particular ways. First, novice entrepreneurs may use feedback as well as linear thought processes. Second, decision-making styles may be influenced both by the context of the decisions and the nature of the issues under consideration as shown by the variation in response to the uncertain and major issue questions. So, the novice entrepreneurs' cognition depends upon the context that they operating in and bearing in mind the nature of the decisions that they are making, because there is considerable variability in responses and even within this sample of 30.

In summary, the hypothesis is rejected as the novices showed more of a feedback style and the results in detail of true novices are much more diverse than the literature indicates.

7.3.1.3 Adept at Switching – Coping with Flexibility

Experts are also predicted to be more adept at switching between the different styles of analogical and heuristic sense-making when referring to their experiences (Jones & Casulli, 2014) which provided the null hypothesis that novices would not be adept at switching. This finding was not supported as the novices used a number of both analogical and heuristic reasoning during the think aloud protocol, both reflecting on their experiences and returning to decisions as well as pattern matching in responses to the case study questions.

7.3.1.4

Salient Experiences & Coping with Negative Feedback

The literature explores the issue of salient experiences influencing entrepreneurs and acquiring knowledge from negative feedback (Mathias et al., 2015; Hayward et al., 2010; Katre & Salipante, 2012). This provides the null hypotheses that the novice entrepreneurs will be less likely to identify with salient experiences, either emotionally or cognitively, and less likely to acquire knowledge from negative feedback. The findings for this were particularly focused on the area of the think aloud protocol that concerned decisions related to uncertainty and major challenges. The hypotheses were not supported as the novices' engaged with both of these issues and concerns. In particular, there was evidence of the novice building specifically on negative experiences and having a range of cognitive and emotional engagement.

7.3.2

Experiences

The hypotheses from the literature suggested that the novice entrepreneurs would struggle to have appropriate experiences that they could draw upon in the early stages of their first business. However this result was disproven as the novices engaged extensively with the experimental protocol and had a variety of experiences. The results showed that for these novices they had quickly built up a range of experiences that they considered relevant and useful for reference to in their decision-making. The dominant experience that was referred to, greater than half the time, was from their own business that they had recently started. Although, they also used experiences from prior work experience; experiences as a consumer; and experiences of other businesses. Interestingly the experiences were mostly those that were direct and personal to the novice that they had done. This is in contrast to the alternatives of knowing second-hand which may have been a possibility in consideration that they were all first time 'de novo' novices. These types of experiences covered a breadth of different areas of business functionality, however the emphasis was on the front end of getting the sales, knowing the customer and using the product, which is understandable in terms of the both the protocol questions and the stage of their business start-up. In contrast there was less emphasis on the finance requirements and buying of purchases, which fits with the literature (BusinessFinanceMonitor, 2015), their situation in having received start-up loan funds. Finally, the experiences that they mentioned were the ones that were relatively directly related to them

as they had previously done them or knew about them, rather than more distant esoteric examples that they could have selected.

In summary, these insights about the experiences that novice entrepreneurs draw upon are a contribution as they did not struggle, but had a range of personal and relevant experiences even at this early stage, in contrast to the literature. In addition, the experiences were not limited when they were considering the more uncertain issues and serious problems. The entrepreneurship literature has researched the experiences of resilience and the more extreme of business failure (Arora et al., 2013; Holland & Shepherd, 2011; Uy et al., 2013) but perhaps these results suggest that the engagement with these more difficult and salient issues occurs very early in the business development and for the novices source of experiences.

7.3.3 Emotions

Emotions are an increasingly hot topic in the entrepreneurship literature but also a very complex area to research. This is because the literature has conflicting approaches and the issues are difficult to define and identify, after all it is 'fraught with emotions'. Therefore it is important to provide a rigorous framework and transparency for the analysis, as well as where possible connect the results to the wider tested measures. The main hypothesis is that the novice entrepreneurs would be overconfident and optimistic (Koellinger et al., 2007; Ucbasaran et al., 2010). However, the findings using the internationally validated Positive and Negative Affect (PANAS) scale (Thompson, 2007), were that for the sample they were not significantly different either in the positive (PA) emotion or the negative (NA) emotion from the UK population results. The results were not significantly different for gender or for the more recent or less recent novices.

However, the findings showed that the novice entrepreneurs engaged emotionally which was not predicted. Interestingly, this engagement of emotions during the protocol also reflected their underlying emotions of PANAS which is reflected in the literature in that Baron argues that entrepreneurship is an emotional journey (Baron, 2008). Although there is limited published results for emotions and entrepreneurship generally, the novices' showed a relationship between their positive affect (PA) and their weighted confidence rating in their decision during the protocol. This differs from the literature which argues that novices will not

be able to manage their emotions as well, however this result suggests that perhaps it is related to the current emotional state. There are possible explanations in that more optimistic novices may be willing to take more risky decisions as argued by Foo (Foo, 2011) and perhaps that the more optimistic novices may have more resilience or emotional coping.

7.4 Contribution to Literature on Novice Entrepreneurs

The primary contribution of my thesis is that, after extensive research, it was found that there were very few existing studies that focused on the true novice entrepreneur population. The sample of 32 novice entrepreneurs was constructed using an appropriate randomized sampling method and, notwithstanding the potential bias of the intermediary organization's selection processes, is a broadly representative sample of UK entrepreneurs. In addition, the novices, who are by definition busy, were fully engaged in an extensive and challenging think-aloud research experiment. This method combined both concurrent and retrospective aspects of verbal protocol analysis providing insights into the processes of new business formation and the background experiences that informed the participants' decision-making. Due to the extent of this research I have not included all of the data that has been collected, to date. However, the findings presented here have provided appropriate conclusions and interesting results. In addition, the work has been researched with significant rigour and forethought.

7.4.1 Decision-making

The contribution to the decision-making literature has been presented above in Chapter 6 and the results suggest that the novices behave differently than predicted by current entrepreneurial the decision-making models. The relevance of expert decision-making frameworks provided applicable and useful structures for understanding novice entrepreneurs. There is the possibility that future work combining the results from the different frameworks could help to understand and construct an integrated decision-making approach. In addition, by correlating the different results it may be possible to identify surrogate results that are easier to administer and collect than the time intensive think aloud protocol. The literature on patterns of effectuation seem appropriate and therefore there is a strong theoretical basis for Sarasvathy's arguments (2008). However, with these early 'de novo' novices showing both effectual and causal behaviours,

perhaps the effectuation model is more complex for expert entrepreneurs. The experts have broader experiences to draw upon or may be more selective on their use of the different logics.

7.4.2 Experiences and Emotions

There is limited pre-existing research on novice entrepreneurs, so these preliminary findings regarding the experiences that novice entrepreneurs draw upon and the influence of their emotions on cognitions, provide useful results to better understand the extent of these considerations. These results, including the combined methodological approach provide interesting areas for future research, particularly as “emotions” is a topic of increasing interest to scholars (Cardon et al., 2012; Cardon et al., 2013). In addition, this research did not measure the appropriateness or quality of the experiences that the survey participants drew upon, which suggests important opportunities future research. The research highlighted the areas of experiences that the novices’ referred to when making their decisions showing that, contrary to postulations in the literature review, they did not struggle to draw upon appropriate experiences even at these early stages of their first business. In addition, the novices identified with salient experiences from both their current own business start-up and their previous work experiences. The emotions expressed by participants connected to their underlying trait “positive affect” as they were observed to engage emotionally with the protocol.

7.5 Contribution to Practice

In addition to theory, the contribution to practice is an important consideration for a doctoral thesis in business administration. The findings provide insight into novice entrepreneurs, as well as entrepreneurs more generally, in terms of how they make decisions. It appears that novices have more affinity with “effectual reasoning” than previously anticipated as Sarasvathy’s seminal research concluded that effectual reasoning was a trait that could only be predominantly observed in the decisions of expert entrepreneurs (2001, 2008). This result extends the theoretical implications in the literature by showing that theories relating to expert decision-making may also provide useful frameworks for understanding choices made by novice entrepreneurs. This conclusion has implications for individual entrepreneurs wishing to emulate “expert” entrepreneurs and for government policy makers responsible for directing

support and resources (e.g. training) to encourage novice and other early-stage entrepreneurs.

7.5.1 Entrepreneurs

This finding would suggest that for people who are considering entrepreneurial career options there may be a wider range of experiences that they can draw upon, that they already have. These experiences would come from their work and start-up activities which could quickly provide a context of experiences that they could then draw upon as they build up their new firm. It could be that support networks, educational establishments and government bodies should provide more support directed at informing students of business and nascent entrepreneurs about the effectuation framework, and encouraging feedback thinking and switching between algorithmic and heuristic sense-making of the situation. Entrepreneurs can do many things and future work may provide more clarity for potential novice entrepreneurs on what are the most appropriate skills for survival and growth. Therefore novices that actively engage with their experiences and understand the need to manage their emotions, may find these results useful. A better understanding of the processes of decision-making may help to provide limits to the negative impact of their experiences, with these aspects an important element for future decision-making. Therefore novices could be encouraged to understand the benefits of encountering negative feedback, leading to potential coping and resilience skills for the future.

7.5.2 Entrepreneurial Support Network

In addition, an area for further relates to the need for greater understanding of the role that the intermediary organization's selection process may have had on these findings. There is the possibility that BFS may have unwittingly selected entrepreneurs with effectual skills that are predicted to increase success. These results would be of interest to the broader entrepreneurial support network including the government that financed the Start-Up Loan scheme as well as other financiers, such as banks, angel investors and venture capitalists. Similarly for individuals, support networks should find the results regarding experiences useful for understanding the benefits of the early-stage activities in developing the skills and capabilities

of novices. In particular, currently support networks focus on positive past experiences when this research suggests that decision-making arising from negative experiences can provide equally important salient events (Mathias et al., 2015; Hayward et al., 2010; Katre & Salipante, 2012). A balanced and realistic approach to undertaking activities that may have potential negative outcomes, could lead to an appreciation of the beneficial knowledge to be gained from these negative experiences, in order to improve future decision-making.

7.6 Strengths and Limitations

There are strengths and limitations for any research and although the aim is to have a methodology that addresses the needs of the research question as far as possible, inevitably some limitations remain.

The use of think aloud protocols has been called for in the literature and there are now many examples of research using this (Sarasvathy, 2008; Gustafsson, 2006). However it is appropriate to ask how accurately can such a hypothetical scenario represent the environment of the novice entrepreneur? Think aloud protocols do provide an opportunity of reducing the retrospective bias of decision-making recall and has been used more widely for this purpose (Ericsson & Simon, 1993; Ericsson & Simon, 1980). It also provides a means for obtaining more in-depth data for the issues concerned, unlike the self-report survey results. In addition, this thesis has used both concurrent and retrospective think aloud reports as a means of providing more complete data by having both aspects (Banks et al., 2014). The mixed methods approach of accessing both quantitative and qualitative results, as well as triangulating these results to wider externally published scales, also tries to address the limitation of the protocol. However, the case study scenario was a realistic business start-up issue as shown by the level of engagement of the participants and therefore it can be argued that for this novice sample it provided a realistic situation with suitable issues for decision-making. The variety in results of the novice entrepreneurs also highlighted that the research methodology identified the different patterns in decision-making of this sample.

The size of the sample is always a concern when trying to both uncover new and unique findings but also provide for generalizability to the population of the study. In this research the difficulty of conducting a time consuming experiment with a busy novice entrepreneur during start-up phase, cannot be underestimated. The sample size of 32 participants allowed for some measures

of statistical analysis, in particular to connect the results to more widely published data, such as PANAS and the effectuation indicators (Thompson, 2007; Chandler et al., 2011). In addition, the sample itself was a randomized selection from a much larger population of start-up entrepreneurs. Therefore the sample is reflective of the current novice entrepreneurs in the North West and evaluating the underlying measures suggested that it was representative. This also raises the limitations of the sample that occur because of the selection processes of the intermediary organization, which may influence the generalizability of the results. As discussed the selection process means that it reflects entrepreneurs that are obtaining small sized loans so there are limits in terms of more capital intensive type industries and also for businesses that do not require early stage finance (such that they do not need it or they already have access to alternative sources of finance. This area of early stage business start-up novices has had very limited research especially as the participants are difficult to identify at the earliest stages (and when identified later, at years 2 plus, the limitation of retrospective bias mentioned previously then becomes a major concern). Overall, the sample does represent a novice population and provides new insight into this under studied group.

The limitations of early and external measures of success is an on-going problem in the entrepreneurship literature and this study also has this issue. The debate continues as the problem is complex, particularly as entrepreneurs consider both financial and non-financial measures of success. However, at the early stage of business start-up survival is also considered a measure of success due to the high levels of early closure or failure. The triangulation of self-report measures to other external indicators could address this, or more likely it suggests the use of future results in the form of a longitudinal study to understand the success over time. This is particularly important for novice entrepreneurs as the earlier the business makes progress the less stressful the business environment for them.

Finally, although there are limitations, the use of different measures of differing decision-making models indicated consistent results within these different frameworks, therefore providing robustness to the results. This area of research into the novice entrepreneur population is limited and yet makes a useful contribution to the overall business population.

7.7 Summary Conclusion

In conclusion, this thesis supports the hypothesis that, contrary to some findings in the existing scholarly literature, the current models of entrepreneurial decision-making and cognitive coping are relevant to true novice entrepreneurs. Current models of decision-making are useful frameworks for understanding the detail of the decision-making of novice entrepreneurs. In particular novices frequently use feedback loops, would use both causal and effectual logic in their approaches and were adept at switching between analogical and heuristic sense-making. In addition, this research has highlighted some interesting findings for the decision-making results that should be useful for future developments. The research results were compared to existing published studies to provide this detail, however future analysis could bring these individual elements together to potentially integrate the different expert decision-making frameworks e.g. between novice and expert entrepreneurs and potentially between entrepreneurs and business managers operating in uncertain environments.

In consideration of the emotional influences on decision-making the findings are interesting, however this area remains extremely complex. The results showed that the sample of novice entrepreneurs were drawing on a variety of experiences at the early stage of their business. Over half of these were from recent events in their own start-up businesses, showing both how important these early experiences are in shaping the business model and also how rapidly entrepreneurial learning takes place. Contrary to expectations, novices were not overly optimistic compared to the general population. In addition, they were able to engage in a consistent emotional approach to their underlying positive and negative trait affect, based upon the widely validated PANAS scale. The novice entrepreneurs were able to identify with salient experiences, including those laced with uncertainty as well as potential major challenges. In addition they connected with both from their own experiences and their emotions. This would suggest that an integrative approach, drawing emotions and cognitions together, to suggest and support novice's decision-making would be valuable, particularly as their environment is frequently uncertain, risky and fraught with potential losses. The aim would be to provide recommendations regarding cognitive coping and resilience, which suggests many potential areas for future research.

The methodology that was developed and tested for this research provided a rigorous

framework allowing for mixed methods to be implemented that represented the novice entrepreneur's experiences. The method made it possible to analyse the decisions within the different expert frameworks, by allowing both concurrent and retrospective recall of participants' decision-making. The approach developed will allow for future analysis to integrate the differing results to highlight particular patterns or markers of decision-making behaviour. In addition, the development of the think-aloud protocol method to use both concurrent and retrospective aspects is a new approach in the entrepreneurship literature, building upon the work of other scholars (Winch & Maytorena, 2009; Banks et al., 2014). The implications of this research are therefore valuable to theory and, as the results are grounded in the experiences of novice entrepreneurs, are also useful to practice. This is especially the case for government and industry in the UK where scarce resources have been targeted through investment backed by the government where the longer-term outcomes cannot be known for many years.

REFERENCES

- Arora, P., Haynie, J.M. & Laurence, G.A., 2013. Counterfactual Thinking and Entrepreneurial Self-Efficacy: The Moderating Role of Self-Esteem and Dispositional Affect. *Entrepreneurship Theory and Practice*, 37(2), pp.359–385.
- Åstebro, T. & Chen, J., 2014. The entrepreneurial earnings puzzle: Mismeasurement or real? *Journal of Business Venturing*, 29(1), pp.88–105.
- Baker, S.E. & Edwards, R., 2012. *How many qualitative interviews is enough ? Expert voices and early career reflections on sampling and cases in qualitative research*, National Centre for Research Methods Review Paper, Economic & Social Research Council.
- Baker, T. & Nelson, R.E., 2005. Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage. *Administrative Science Quarterly*, 50(2005), pp.329–366.
- Baldacchino, L., 2013. *Entrepreneurial Experience and Opportunity Identification: The Role of Intuition and Cognitive Versatility*. University of Warwick.
- Banks, V.A., Stanton, N.A. & Harvey, C., 2014. What the drivers do and do not tell you: using verbal protocol analysis to investigate driver behaviour in emergency situations. *Ergonomics*, 57(3), pp.332–42.
- Baron, R.A., 2008. The Role of Affect in the Entrepreneurial Process. *Academy of Management*, 33(2), pp.328–340.
- Baron, R.A. & Tang, J., 2011. The role of entrepreneurs in firm-level innovation: Joint effects of positive affect, creativity, and environmental dynamism. *Journal of Business Venturing*, 26(1), pp.49–60.
- Baron, R.A. & Ward, T.B., 2004. Expanding Entrepreneurial Cognition's Toolbox : Potential Contributions from the Field of Cognitive Science. *Entrepreneurship Theory and Practice*, pp.553–574.
- BIS, 2015. *Business Population Estimates UK and regions 2014*,
- Bluedorn, A. & Martin, G., 2008. The time frames of entrepreneurs. *Journal of Business Venturing*, 23(1), pp.1–20.

- Blume, B.D. & Covin, J.G., 2011. Attributions to intuition in the venture founding process: Do entrepreneurs actually use intuition or just say that they do? *Journal of Business Venturing*, 26(1), pp.137–151.
- Bosma, N., Wennekers, S. & Amorós, J.E., 2012. Entrepreneurs and Entrepreneurial Employees Across the Globe 2011 Extended Report : Entrepreneurs and Entrepreneurial Employees.
- British Chamber of Commerce, 2013. *The Workforce Survey, June 2011*, London.
- Brush, C.G., Manolova, T.S. & Edelman, L.F., 2008a. Properties of emerging organizations: An empirical test. *Journal of Business Venturing*, 23(5), pp.547–566.
- Brush, C.G., Manolova, T.S. & Edelman, L.F., 2008b. Separated by a Common Language? Entrepreneurship Research Across the Atlantic. *Entrepreneurship Theory and Practice*, (781), pp.249–267.
- Burmeister-Lamp, K., Lévesque, M. & Schade, C., 2012. Are entrepreneurs influenced by risk attitude, regulatory focus or both? An experiment on entrepreneurs' time allocation. *Journal of Business Venturing*, 27(4), pp.456–476.
- BusinessFinanceMonitor, 2015. *SME Finance Monitor Q2 2015*,
- Cardon, M.S., Foo, M.-D., Shepherd, D.A. & Wiklund, J., 2012. Exploring the Heart: Entrepreneurial Emotion Is a Hot Topic. *Entrepreneurship Theory and Practice*, 36(1), pp.1–10.
- Cardon, M.S., Gregoire, D. a., Stevens, C.E. & Patel, P.C., 2013. Measuring entrepreneurial passion: Conceptual foundations and scale validation. *Journal of Business Venturing*, 28(3), pp.373–396.
- Cassar, G., 2014. Industry and startup experience on entrepreneur forecast performance in new firms. *Journal of Business Venturing*, 29(1), pp.137–151.
- Champney, R.K. & Stanney, K.M., 2007. Using Emotions in Usability. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 51(17), pp.1044–1049.

- Chandler, G.N., DeTienne, D.R., McKelvie, A. & Mumford, T. V., 2011. Causation and effectuation processes: A validation study. *Journal of Business Venturing*, 26(3), pp.375–390.
- Churchill, N. & Lewis, V., 1987. The Five Stages of Small Business Growth. *Harvard Business Review*.
- Chwolka, A. & Raith, M.G., 2012. The value of business planning before start-up — A decision-theoretical perspective. *Journal of Business Venturing*, 27(3), pp.385–399.
- Cope, J., 2010. Entrepreneurial learning from failure: An interpretative phenomenological analysis. *Journal of Business Venturing*, 26(6), pp.604–623.
- Cope, J. & Watts, G., 2000. Learning by doing: an exploration of experience and reflection in entrepreneurial learning. *International Journal of Entrepreneurial Behaviour & Research*, 6(3).
- Corbett, A.C., 2005. Experiential Learning Within the Process of Opportunity Identification and Exploitation. *Academy of Management Review*, pp.473–491.
- Covin, J.G. & Lumpkin, G.T., 2011. Entrepreneurial Orientation Theory and Research: Reflections on a Needed Construct. *Entrepreneurship Theory and Practice*, 35(5), pp.855–872.
- Covin, J.G. & Miller, D., 2014. International Entrepreneurial Orientation: Conceptual Considerations, Research Themes, Measurement Issues, and Future Research Directions. *Entrepreneurship Theory and Practice*, 38(1), pp.11–44.
- Covin, J.G. & Wales, W.J., 2012. The Measurement of Entrepreneurial Orientation. *Entrepreneurship Theory and Practice*, 36(4), pp.677–702.
- Cressy, R., 1996. Pre-entrepreneurial Income, Cash-flow Growth and Survival of Startup Businesses: Model and Tests on U.K. Data. *Small Business Economics*, pp.49–58.
- Davidsson, P., 2005. *Researching Entrepreneurship*, NY: Springer.
- De_Meza, D. & Webb, D., 1999. Wealth, Enterprise and Credit Policy. *The Economic Journal*, 109(455), pp.153–163.

- Dess, G.G., Pinkham, B.C. & Yang, H., 2011. Entrepreneurial Orientation: Assessing the Construct's Validity and Addressing Some of Its Implications for Research in the Areas of Family Business and Organizational Learning. *Entrepreneurship Theory and Practice*, 35(5), pp.1077–1090.
- Dew, N., Read, S., Sarasvathy, S.D. & Wiltbank, R., 2009. Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices. *Journal of Business Venturing*, 24(4), pp.287–309.
- Dew, N. & Sarasvathy, S.D., 2011. Innovations , Entrepreneurship Stakeholders. *Journal of Business*, 74(3), pp.267–283.
- Dimov, D., 2011. Grappling With the Unbearable Elusiveness of Entrepreneurial Opportunities. *Entrepreneurship Theory and Practice*, 35(1), pp.57–81.
- Disney, R., Haskel, J. & Heden, Y., 2003. Restructuring and productivity growth in UK manufacturing. *Economic Journal*, 113(489), pp.666–694.
- Douglas, E.J., 2013. Reconstructing entrepreneurial intentions to identify predisposition for growth. *Journal of Business Venturing*, 28(5), pp.633–651.
- Douglas, E.J. & Shepherd, D.A., 2002. Self-employment as a Career Choice: Attitudes, Entrepreneurial Intentions, and Utility Maximization. *Entrepreneurship Theory and Practice*, 26(3), pp.81–90.
- Easterby-Smith, M., Thorpe, R. & Jackson, P.R., 2008. *Management Research* Third., London: Sage Publications Ltd.
- Ericsson, K.A. & Simon, H.A., 1993. *Protocol analysis: verbal reports as data* Revised Ed., Cambridge, MA: MIT Press.
- Ericsson, K.A. & Simon, H.A., 1980. *Verbal reports as data*. Revised., Cambridge, Massachusetts: MIT Press.
- Fayolle, A. & Wright, M., 2014. *How to get Published in the best Entrepreneurship Journals*, Cheltenham, UK: Edward Elgar.
- FederationSmallBusiness, 2014. *FSB Quarterly Index*,

- Fisher, G., 2012. Effectuation, Causation, and Bricolage: A Behavioral Comparison of Emerging Theories in Entrepreneurship Research. *Entrepreneurship Theory and Practice*, 36(5), pp.1019–1051.
- Fitzsimmons, J.R. & Douglas, E.J., 2011. Interaction between feasibility and desirability in the formation of entrepreneurial intentions. *Journal of Business Venturing*, 26(4), pp.431–440.
- Foo, M.-D., 2011. Emotions and Entrepreneurial Opportunity Evaluation. *Entrepreneurship Theory and Practice*, 35(2), pp.375–393.
- Frese, M., Rousseau, D.M. & Wiklund, J., 2014. The Emergence of Evidence-Based Entrepreneurship. *Entrepreneurship Theory and Practice*, 38(2), pp.209–216.
- Ganguly, P., 1985. *UK small business statistics and international comparisons*, Paul Chapman Pub.
- Greene, F.J., Mole, K.F. & Storey, D.J., 2008. *Three Decades of Enterprise Culture? Entrepreneurship, Economic Regeneration and Public Policy*, London: Palgrave Macmillan Ltd.
- Grégoire, D.A., Noël, M.X., Déry, R. & Béchar, J., 2006. Is there conceptual convergence in entrepreneurship research? A co-citation analysis of Frontiers of Entrepreneurship Research, 1981-2004. *Entrepreneurship: Theory and Practice*, pp.333–373.
- Gustafsson, V., 2006. *Entrepreneurial Decision-Making: Individuals, Tasks and Cognitions*, Cheltenham: Edward Elgar Publishing Limited.
- Hart, M., 2015. The Millennial 2000 Insights into 16 years of Survival and Growth; ERC State of Small Business Britain.
- Hart, M. & Levie, J., 2011. *Global Entrepreneurship Monitor: United Kingdom Monitoring Report 2010*, Birmingham.
- Haynie, J.M., Shepherd, D.A., Mosakowski, E. & Earley, P.C., 2010. A situated metacognitive model of the entrepreneurial mindset. *Journal of Business Venturing*, 25(2), pp.217–229.
- Hayward, M.L., Forster, W.R., Sarasvathy, S.D. & Fredrickson, B.L., 2010. Beyond hubris: How highly confident entrepreneurs rebound to venture again. *Journal of Business Venturing*, 25(6), pp.569–578.

- Holland, D. V. & Shepherd, D.A., 2011. Deciding to Persist: Adversity, Values, and Entrepreneurs' Decision Policies. *Entrepreneurship Theory and Practice*, 37(2), pp.331–358.
- Jenkins, A.S., Wiklund, J. & Brundin, E., 2014. Individual responses to firm failure: Appraisals, grief, and the influence of prior failure experience. *Journal of Business Venturing*, 29(1), pp.17–33.
- Jennings, J.E., Edwards, T., DevereauxJennings, P. & Delbridge, R., 2014. Emotional arousal and entrepreneurial outcomes: Combining qualitative methods to elaborate theory. *Journal of Business Venturing*, 30(1), pp.113–130.
- Jones, M. V. & Casulli, L., 2014. International Entrepreneurship: Exploring the Logic and Utility of Individual Experience Through Comparative Reasoning Approaches. *Entrepreneurship Theory and Practice*, 38(1), pp.45–69.
- Jones, M. V., Coviello, N. & Tang, Y.K., 2011. International Entrepreneurship research (1989–2009): A domain ontology and thematic analysis. *Journal of Business Venturing*, 26(6), pp.632–659.
- Kahneman, D., 2011. *Thinking, Fast and Slow*, London: Penguin Books Ltd.
- Kahneman, D. & Tversky, A., 1979. Kahneman & Tversky (1979) - Prospect Theory - An Analysis Of Decision Under Risk.pdf. *Econometrica*, 47(2), pp.263–292.
- Katre, A. & Salipante, P., 2012. Start-Up Social Ventures: Blending Fine-Grained Behaviors From Two Institutions for Entrepreneurial Success. *Entrepreneurship Theory and Practice*, 36(5), pp.967–994.
- Kickul, J., Gundry, L.K., Barbosa, S.D. & Whitcanack, L., 2009. Intuition Versus Analysis? Testing Differential Models of Cognitive Style on Entrepreneurial Self-Efficacy and the New Venture Creation Process. *Entrepreneurship Theory and Practice*, (212), pp.439–454.
- Kirsch, D., Goldfarb, B. & Gera, A., 2009. Form or substance: The role of business plans in venture capital decision making. *Strategic Management Journal*, 30(5), pp.487–515.
- Knight, F.H., 1957. *Risk, Uncertainty and Profit*, NY: Dover Publications.

- Koellinger, P., Minniti, M. & Schade, C., 2007. "I think I can, I think I can": Overconfidence and entrepreneurial behavior. *Journal of Economic Psychology*, 28(4), pp.502–527.
- Kuechle, G., 2011. Persistence and heterogeneity in entrepreneurship: An evolutionary game theoretic analysis. *Journal of Business Venturing*, 26(4), pp.458–471.
- Mathias, B.D., Williams, D.W. & Smith, A.R., 2015. Entrepreneurial inception: The role of imprinting in entrepreneurial action. *Journal of Business Venturing*, 30(1), pp.11–28.
- Maxwell, A.L., Jeffrey, S.A. & Lévesque, M., 2011. Business angel early stage decision making. *Journal of Business Venturing*, 26(2), pp.212–225.
- Maytorena, E., Winch, G.M., Freeman, J. & Kiely, T., 2007. The influence of experience and information search styles on project risk identification performance. *IEEE Transactions on Engineering Management*, 54(2), pp.315–326.
- McKelvie, A., Haynie, J.M. & Gustavsson, V., 2011. Unpacking the uncertainty construct: Implications for entrepreneurial action. *Journal of Business Venturing*, 26(3), pp.273–292.
- Meek, W.R., Pacheco, D.F. & York, J.G., 2010. The impact of social norms on entrepreneurial action: Evidence from the environmental entrepreneurship context. *Journal of Business Venturing*, 25(5), pp.493–509.
- Miller, D., 2011. Miller (1983) Revisited: A Reflection on EO Research and Some Suggestions for the Future. *Entrepreneurship Theory and Practice*, (1983), p.no–no.
- Minniti, M. & Levesque, M., 2008. Recent developments in the economics of entrepreneurship. *Journal of Business Venturing*, 23(6), pp.603–612.
- Mitchell, R.K., Busenitz, L.W., Lant, T., Mcdougall, P.P., et al., 2004. The Distinctive and Inclusive Domain of Entrepreneurial Cognition Research. *Entrepreneurship Theory and Practice*, pp.505–519.

- Mitchell, R.K., Smith, J.B., Morse, E.A., Peredo, A.M., et al., 2002. Are Entrepreneurial Cognitions Universal ? Assessing Entrepreneurial Cognitions Across Cultures.
- Moroz, P.W. & Hindle, K., 2012. Entrepreneurship as a Process: Toward Harmonizing Multiple Perspectives. *Entrepreneurship Theory and Practice*, 36(4), pp.781–818.
- Morris, P., Pinto, J. & Soderlund, J., 2011. *The Oxford Handbook of Project Management*, Oxford University Press.
- Mueller, S., Volery, T. & von Siemens, B., 2012. What Do Entrepreneurs Actually Do? An Observational Study of Entrepreneurs' Everyday Behavior in the Start-Up and Growth Stages. *Entrepreneurship Theory and Practice*, 36(5), pp.995–1017.
- Oakey, R., 2012. *High Technology Entrepreneurship*, Routledge.
- Parker, S.C., 2013. Do serial entrepreneurs run successively better-performing businesses? *Journal of Business Venturing*, 28(5), pp.652–666.
- Perry, J.T., Chandler, G.N. & Markova, G., 2012. Entrepreneurial Effectuation: A Review and Suggestions for Future Research. *Entrepreneurship Theory and Practice*, 36(4), pp.837–861.
- Podoyntsyna, K., Van der Bij, H. & Song, M., 2012. The Role of Mixed Emotions in the Risk Perception of Novice and Serial Entrepreneurs. *Entrepreneurship Theory and Practice*, 36(1), pp.115–140.
- Politis, D., 2005. The Process of Entrepreneurial Learning: A Conceptual Framework. *Entrepreneurship Theory and Practice*, pp.399 – 424.
- Poutziouris, P., Chittenden, F. & Michaelas, N., 1999. Evidence on the tax and investment affairs of small firms. *Journal of Small Business and Enterprise Development*, 6(1), pp.7–25.
- Poutziouris, P., Chittenden, F., Watts, T. & Soufani, K., 2003. A comparative analysis of the impact of taxation on the SME economy: The case of UK and US - New York State in the year 2000. *Environment and Planning C: Government and Policy*, 21(4), pp.493–508.

- Rauch, A., Wiklund, J., Lumpkin, G.T. & Frese, M., 2009. Entrepreneurial Orientation and Business Performance: An Assessment of Past Research and Suggestions for the Future. *Entrepreneurship Theory and Practice*, 33(3), pp.761–787.
- Read, S., Dew, N., Sarasvathy, S.D., Song, M., et al., 2009. Marketing Under Uncertainty: The Logic of an Effectual Approach. *Journal of Marketing*, 73(3), pp.1–18.
- Read, S., Song, M. & Smit, W., 2009. A meta-analytic review of effectuation and venture performance. *Journal of Business Venturing*, 24(6), pp.573–587.
- Renko, M., 2013. Early Challenges of Nascent Social Entrepreneurs. *Entrepreneurship Theory and Practice*, 37(5), pp.1045–1069.
- Rhodes, C., 2015. *Business Statistics Briefing Paper 06152*,
- Ritchie, J., Lewis, J., McNaughton Nicholls, C. & Ormston, R., 2014. *Qualitative research practice: A guide for social science students and researchers* Second Edi., London: Sage Publications Ltd.
- Saldaña, J., 2013. *The Coding Manual for Qualitative Researchers* Second., London: Sage Publications Ltd.
- Sarasvathy, S.D., 2001. Causation and effectuation: Toward a theoretic shift from economic inevitability to entrepreneurial contingency. *Academy of Management*, 26(2), pp.243–263.
- Sarasvathy, S.D., 2008. *Effectuation: elements of entrepreneurial expertise*, Cheltenham, UK: Edward Elgar.
- Sarasvathy, S.D., 2003. Entrepreneurship as a science of the artificial. *Journal of Economic Psychology*, 24(2), pp.203–220.
- Sarasvathy, S.D. & Dew, N., 2008. Effectuation and Over-Trust : Debating Goel and Karri. *Entrepreneurship Theory and Practice*, (408), pp.727–738.
- Schindehutte, M. & Morris, M.H., 2009. Advancing Strategic Entrepreneurship Research: The Role of Complexity Science in Shifting the Paradigm. *Entrepreneurship Theory and Practice*, (315), pp.241–277.

- Schlaegel, C. & Koenig, M., 2014. Determinants of Entrepreneurial Intent: A Meta-Analytic Test and Integration of Competing Models. *Entrepreneurship Theory and Practice*, 38(2), pp.291–332.
- Scott, M. & Bruce, R., 1987. Five stages of growth in small business. *Long Range Planning*, 20(3), pp.45–52.
- Shane, S.A., 2000. Prior Knowledge and the Discovery of Entrepreneurial Opportunities. *Organization Science*, 11(4), pp.448–469.
- Shane, S.A. & Venkataraman, S., 2000. The Promise of Entrepreneurship as a Field of Research. *The Academy of Management Review*, 25(1), p.217.
- Shepherd, D.A., 2015. Party On! A call for entrepreneurship research that is more interactive, activity based, cognitively hot, compassionate, and prosocial. *Journal of Business Venturing*, 30(4), pp.489–507.
- Shepherd, D.A., Haynie, J.M. & McMullen, J.S., 2012. Confirmatory search as a useful heuristic? testing the veracity of entrepreneurial conjectures. *Journal of Business Venturing*, 27(6), pp.637–651.
- Singer, S., Amorós, E. & Moska, D., 2015. *Global Entrepreneurship Monitor - 2014 Global Report*,
- Singh, S., Corner, P.D. & Pavlovich, K., 2015. Failed, not finished: A narrative approach to understanding venture failure stigmatization. *Journal of Business Venturing*, 30(1), pp.150–166.
- Slevin, D.P. & Terjesen, S. a., 2011. Entrepreneurial Orientation: Reviewing Three Papers and Implications for Further Theoretical and Methodological Development. *Entrepreneurship Theory and Practice*, 35(5), pp.973–987.
- Stam, W., Arzlanian, S. & Elfring, T., 2014. Social capital of entrepreneurs and small firm performance: A meta-analysis of contextual and methodological moderators. *Journal of Business Venturing*, 29(1), pp.152–173.
- StartUpLoans LTD, 2015. Start Up Loans Website. Available at: <https://www.startuploans.co.uk/faqs/>.

- Stinchfield, B.T., Nelson, R.E. & Wood, M.S., 2013. Learning From Levi-Strauss' Legacy: Art, Craft, Engineering, Bricolage, and Brokerage in Entrepreneurship. *Entrepreneurship Theory and Practice*, 37(4), pp.889–921.
- Storey, D., 1994. *Understanding the Small Business Sector*, London: Thomson.
- Suddaby, R., Bruton, G.D. & Si, S.X., 2015. Entrepreneurship through a qualitative lens: Insights on the construction and/or discovery of entrepreneurial opportunity. *Journal of Business Venturing*, 30(1), pp.1–10.
- Thompson, E.R., 2007. Development and validation of an internationally reliable short-form of the positive and negative affect schedule (PANAS). *Journal of Cross-Cultural Psychology*.
- Townsend, D.M., Busenitz, L.W. & Arthurs, J.D., 2010. To start or not to start: Outcome and ability expectations in the decision to start a new venture. *Journal of Business Venturing*, 25(2), pp.192–202.
- Ucbasaran, D., Westhead, P. & Wright, M., 2009. The extent and nature of opportunity identification by experienced entrepreneurs. *Journal of Business Venturing*, 24(2), pp.99–115.
- Ucbasaran, D., Westhead, P., Wright, M. & Flores, M., 2010. The nature of entrepreneurial experience, business failure and comparative optimism. *Journal of Business Venturing*, 25(6), pp.541–555.
- Unger, J.M., Rauch, A., Frese, M. & Rosenbusch, N., 2011. Human capital and entrepreneurial success: A meta-analytical review. *Journal of Business Venturing*, 26(3), pp.341–358.
- Uy, M.A., Foo, M.-D. & Song, Z., 2013. Joint effects of prior start-up experience and coping strategies on entrepreneurs' psychological well-being. *Journal of Business Venturing*, 28(5), pp.583–597.
- Vaghely, I.P. & Julien, P.-A., 2010. Are opportunities recognized or constructed? An information perspective on entrepreneurial opportunity identification. *Journal of Business Venturing*, 25(1), pp.73–86.
- Watson, D., Clark, L. a. & Tellegan, A., 1988. Development and validation of brief measures of positive and negative affect: The

PANAS scales Worksheet 3.1 PANAS Schedule Questionnaire.
Journal of Personality and Social Psychology, 54(6), pp.1063–1070.

Weiten, W., 2008. *Psychology: Themes and Variations* Seventh Ed., Belmont, CA, USA: Thomson Wadsworth.

Wiklund, J., Davidsson, P., Audretsch, D.B. & Karlsson, C., 2011. The Future of Entrepreneurship Research. *Entrepreneurship Theory and Practice*, 35(1), pp.1–9.

Wiklund, J. & Shepherd, D. a., 2011. Where to From Here? EO-as-Experimentation, Failure, and Distribution of Outcomes. *Entrepreneurship Theory and Practice*, 35(5), pp.925–946.

Wiltbank, R., Read, S., Dew, N. & Sarasvathy, S.D., 2009. Prediction and control under uncertainty: Outcomes in angel investing. *Journal of Business Venturing*, 24(2), pp.116–133.

Winch, G.M. & Maytorena, E., 2009. Making Good Sense: Assessing the Quality of Risky Decision-making. *Organization Studies*, 30(2-3), pp.181–203.

Young, L., 2013. *A Report on Growing Micro Businesses*, London, The National Archives, UK.

Young, L., 2012. *Make Business Your Business: Supporting the Start-up and Development of Small Businesses*, London, The National Archives, UK.

APPENDIX A: Pilot Phase Verbal Protocol Guide

Research Instrument – Introduction

In the following experiment, you will solve two decision problems. These problems arise in the context of building a new company for an imaginary product. A detailed description of the product follows this introduction.

Although the product is imaginary, it is technically feasible and financially viable. The data for the problems have been obtained through realistic market research—the kind of market research used in developing a real world business plan.

Before you start on the product description and the problems, I do need one act of creative imagination on your part. I request you to put yourself in the role of an entrepreneur building a company — i.e., you have a little money of your own to start this company, and whatever experience you have to date.

Throughout the experiment you should talk aloud the thoughts you are having.

Please start by reading aloud the following instructions.

Description of the product

You have created a computer game of entrepreneurship. You believe you can combine this game with some educational material and profiles of successful entrepreneurs to make an excellent teaching tool for entrepreneurship. Your inspiration for the product came from several reports in the newspapers and magazines about increasing demand for entrepreneurship education; and the fact that a curriculum involving entrepreneurship even at the junior high or high school level induces students to learn not only business-related topics but math and science and communication skills as well.

The game part of the product consists of a simulated environment for starting and running a company. There are separate sub-simulations of markets, competitors, regulators, macroeconomic factors and a random factor for “luck”. The game has a sophisticated multi-media interface—for example, a 3D office where phones ring with messages from the market, a TV that will provide macroeconomic information when switched on, and simulated managerial staff with whom the player (CEO) can consult in making decisions.

At the beginning of the game, the player can choose from a variety of businesses the type of business he/she wants to start (For example: manufacturing, personal services, software etc.) and has to make decisions such as which market segment to sell to, how many people to hire, what type of financing to go for, etc. During the game, the player has to make production decisions such as how much to produce, whether to build new warehouses or negotiate with trucking companies, etc.; marketing decisions such as which channels of distribution to use, which media to advertise in and so on; management decisions involving hiring, training, promoting and firing of employees, and so on. There is an accounting subroutine that tracks and computes the implications of the various decisions for the bottom line. The simulation's responses to the player's decisions permit a range of possible final outcomes — from bankruptcy to a “hockey stick” (slow start then rapid growth).

You have taken all possible precautions regarding intellectual property. The name of your company is *Entrepreneurship Company*. The name of the product is *Venturing*.

Problem 1: Identifying the market

Before we look at some market research data, please answer the following questions — one at a time: (Please continue thinking aloud as you arrive at your decisions)

1. Who could be your potential customers for this product?
2. Who could be your potential competitors for this product?
3. What information would you seek about potential customers and competitors — list questions you would want answered.
4. How will you find out this information — what kind of market research would you do?
5. What do you think are the growth possibilities for this company?

[NOTES – The following second part was printed on a new page.]

Problem 2: Defining the market

In this problem you have to make some marketing decisions. Based on secondary market research (published sources, etc.), you estimate that there are three major segments who are interested in the product:

Segment	Estimated total size
Young adults between the ages of 15 and 25	20 million
Adults over 25 who are curious about entrepreneurship	30 million
Educators	200,000 institutions

The estimated dollar value of the instructional technology market is \$1.7 billion.

The estimated dollar value of the interactive simulation game market is \$800 million.

Both are expected to grow at a minimum rate of 20% p.a. for the next 5 years.

The following are the results of the primary (direct) market research that you have completed

Survey #1

Internet users were allowed to download a scaled down version (game stops after 15 min of playing) of the prototype and were asked to fill out a questionnaire.

You get 600 hits per day. 300 actually download the product. You have 500 filled out questionnaires.

Willing to pay (\$)	Young adults (%)	Adults (%)	Educators (%)
50–100	45	26	52
100–150	32	38	30
150–200	15	22	16
200–250	8	9	2
250–300	0	5	0
Total	100	100	100

Survey #2:

The prototype was demonstrated at 2 Barnes & Noble and 3 Borders Bookstores

Willing to pay (\$)	Young adults (%)	Adults (%)	Educators (%)
50–100	51	21	65
100–150	42	49	18
150–200	7	19	10
200–250	0	8	7
250–300	0	3	0
Total	100	100	100

Survey #3:

Focus Group of educators (high school and community college teachers and administrators)
The educators who participated in the focus group find the product exciting and useful — but want several additions and modifications made before they would be willing to pay a price of over \$150 for it. As it is, they would be willing to pay \$50–80 and would demand a discount on that for site licenses or bulk orders.

Both at the bookstore demo and the focus group, participants are very positive and enthusiastic about the product. They provide you good feedback on specific features and also extend suggestions for improvement. But the educators are particularly keen on going beyond the “game” aspect; they make it clear that much more development and support would be required in trying to market the product to them. They also indicate that there are non-profit foundations and other funding sources interested in entrepreneurship that might be willing to promote the product and fund its purchase by educational institutions.

Based on your market research, you arrive at the following cost estimates for marketing your product.

Internet	\$20,000 upfront+\$500 per month thereafter
Retailers	\$500,000 to 1 M upfront and support services and follow-up thereafter
Mail order catalogs	Relatively cheap — but ads and demos could cost \$50,000 upfront
Direct selling to schools	Involves recruiting and training sales representatives except locally

Competition

None of the following four possible competitors combine a simulation game with substantial education materials—you are unique in this respect.

Company	Product	Description	Price per unit	Sales (\$)
Maxis	Sim City	Urban planning simulation	29.95	30 M
Microprose	Civilization	Civilization building simulation	50.00	20 M
Sierra On-Line	Caesar	City building simulation	59.95	18 M
Future Endeavours *	Scholastic Treetop	CD-ROMs of Scholastic Books	n / a	1 M

* (New Company not yet 1 yr. old)

The game companies are making a net return of 25% on sales.

At this point, please take your time and make the following decisions: (please continue thinking aloud as you arrive at your decisions)

1. Which market segment/segments will you sell your product to?
2. How will you price your product?
3. How will you sell to your selected market segment/segments?

END of exercise

APPENDIX B: Verbal Protocol Guide

PART 1

Research Instrument and Verbal Protocol Guide - Introduction

In the following experiment we are interested in the thinking processes of developing a business and experiences that you use to make your decisions. You will explore and resolve decision problems. These problems are in the context of building a new company for an imaginary product/service. There is no right or wrong answer. A detailed description of the opportunity follows this introduction.

Before you start on the business description and the problems, I need one act of creative imagination on your part. I request you to put yourself in the role of an entrepreneur building this company, drawing upon your previous experiences and your more recent start-up experiences. You can ask for extra available information.

Throughout the experiment you should talk aloud the thoughts you are having. I do not want you to plan out what you say or to try to explain to me what you are saying. It is important that you just keep talking, if you are silent for any period of time I will ask you to talk. Do you understand what I want you to do?

Please start by reading aloud the following instructions.

Description of the situation

You have been given a computer game created and written by a friend, who has moved overseas, but wants you to do what you can with it. Your friend created this game around entrepreneurship and you think you can combine this game with some educational materials and profiles of successful entrepreneurs to make an excellent teaching tool for entrepreneurship. Your friend will be gone for many years and has said that it is yours completely, although you both agreed that if you make profits then they could get a small amount, eventually.

The technology of the game consists of a simulated environment for starting and running a company. There are elements of the markets, competitors, regulators, economic factors and a random factor for "luck". The game has an interesting multi-media interface—for example, a shop-front where sales and customers interact, a back-office where messages arrive from operations and accounts, and simulated managerial staff with whom the player (CEO) can consult in making decisions. The educational materials that you have complement this technology by providing entrepreneurship skills and thinking.

At the beginning of the game, the player can choose from a variety of businesses that they want to start (For example: manufacturing, customer services, software etc.) and has to make decisions such as which market segment to sell to, how many people to hire, what type of financing to go for, etc. During the game, the player has to make production decisions such as how much to produce, whether to build new warehouses or negotiate with distribution companies, etc.; marketing decisions such as which channels of distribution to use, which media to advertise in and so on; management decisions involving hiring, training, promoting and firing of employees, and so on. There is an accounting routine that tracks and computes the various decisions for the financial profit (or loss). The game has a range of many different outcomes — from bankruptcy, to stable business, to rapid growth.

The name of your company is *Entrepreneurship Company*. The name of the product is *Business Smart*.

You are trying to think and talk-aloud about any decisions that you may need to make or decide not to make and the likelihood of those decisions. (You can ask questions that you would like answers for. You can ask for extra information that your friend may have left behind. Please continue thinking aloud as you arrive at your decisions) **Please answer the following questions – one at a time.**

1. Who could be your potential customers for this business?
2. Who could be your potential competitors for this product?
3. Which market segment will you sell to?
4. How could you sell to your customers?
5. How will you price your product/service?
6. You meet someone who may need what you are going to offer but you are not ready yet... If it is ready next week, it won't be quite right but you could sell it, although you don't have a price so what do you do?
7. You come to realise that the software has a major flaw and will need some serious work. What are your options and what will you do?

END

[NOTE – A separate final open question was asked “Is there anything else you would like to add/say about this?”]

[NOTE – The additional information provided below was in a separate and clearly labelled pack of ‘Additional Information’.]

Additional Info to give, each on separate cards, if requested

- **Secondary Market Research**

Based on secondary market research (published sources, etc.), you estimate that there are three major segments who are interested in the product:

Segment	Estimated total size
Young adults between the ages of 15 and 25	8.2 million
Adults over 25 who are curious about entrepreneurship	13.4 million
Educators	21,000 institutions

The estimated value of the UK education market is £10 billion, the further education share is £620 million.

The estimated value of the interactive simulation game market is £3.3 billion.

Both are expected to grow at a rate of 20% p.a. for the next 5 years.

- **Direct market research that your friend completed online**

Internet users were allowed to download a scaled down version (game stops after 15 min of playing) of the prototype and were asked to fill out a questionnaire.

You get 600 hits per day. 300 actually download the product. You have 500 filled out questionnaires.

Willing to pay (£)	Young adults (%)	Adults (%)	Educators (%)
5–10	45	26	52
10–15	32	38	30
15–20	15	22	16
20–25	8	9	2
25–30	0	5	0
Total	100	100	100

- **Direct market research that your friend completed in stores**

Your prototype was demonstrated at 2 Waterstones and 2 Virgin stores

Willing to pay (£)	Young adults (%)	Adults (%)	Educators (%)
5–10	51	21	65
10–15	42	49	18
15–20	7	19	10
20–25	0	8	7
25–30	0	3	0
Total	100	100	100

At the store demos the participants are very positive and enthusiastic about the product.

- **Direct market research that your friend completed to a focus group**

Focus Group of educators (high school and community college teachers and administrators)

The educators who participated in the focus group find the product exciting and useful — but want several additions and modifications made before they would be willing to pay a price of over £15 for it. As it is, they would be willing to pay £5–8 and would demand a discount on that for site licenses or bulk orders.

At the focus group, participants are very positive and enthusiastic about the product. They provide you good feedback on specific features and also extend suggestions for improvement. But the educators are particularly keen on going beyond the “game” aspect; they make it clear that much more development and support would be required in trying to market the product to them. They also indicate that there are non-profit foundations and other funding sources interested in entrepreneurship that might be willing to promote the product and fund its purchase by educational institutions.

- **Financial Estimates your friend made**

Based on your market research, you arrive at the following cost estimates for marketing your product.

Internet	£2,000 upfront+100 per month thereafter
Retailers	Up to £50,000 upfront and support services and follow-up thereafter
Mail order catalogs	Relatively cheap — but ads and demos could cost £10,000 upfront
Direct selling to schools	Involves recruiting and training sales representatives except locally

- **Competitors**

None of the following four possible competitors combine a simulation game with substantial education materials—you are unique in this respect.

Company	Product	Description	Price per unit	Sales (£)
Maxis	Sim City	Urban planning simulation	£14.99	15 M
Microprose	Civilization	Civilization building simulation	£21.99	9 M
Sierra On-Line	Caesar	City building simulation	£29.95	1 M
Future Endeavours *	Scholastic Treetop	CD-ROMs of Scholastic Books	n / a	0.2 M

* (New Company not yet 1 yr. old)

The game companies are making a net return of 25% on sales.

APPENDIX B: PART 2

PART 2

This is the second part of the interview to understand your prior experiences that you may have used to help inform your decision-making. This stage will be led by my questions to review any main decisions from part 1.

Indicate to what extent you feel this way right now, that is, at the present moment

For the '.....' decision in question 1/2/3/4/5/6/7

.....how probable or likely is your decision?

Impossible	Low Likelihood	50/50	High Probability	Certain
------------	-------------------	-------	---------------------	---------

.....how confident are you in your decision?

Very low confidence	Low confidence	50/50	High Confidence	Very High confidence
------------------------	-------------------	-------	--------------------	-------------------------

Thinking about the '.....' decision in question 1/2/3/4/5/6/7

What in your past experience tells you this?

This experience could have come from something you have done // heard/seen // something similar // thought before?

APPENDIX B: PART 3

PART 3 -

ID -----

Measure of your background positive/negative emotion scale

Thinking about yourself and how you normally feel (in the last months), to what extent do you generally feel:

Upset	never	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/> always
Hostile	never	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/> always
Alert	never	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/> always
Ashamed	never	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/> always
Inspired	never	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/> always
Nervous	never	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/> always
Determined	never	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/> always
Attentive	never	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/> always
Afraid	never	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/> always
Active	never	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/> always

This part is about you and your decisions

Mark each question with a single selection

1. Imagine the UK is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programmes to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programmes are as follows:

If programme A is adopted, 200 people will be saved.

If programme B is adopted, there is 1/3 probability that 600 people will be saved and 2/3 probability that no people will be saved.

Which of the two programmes would you favour?

programme A ☐ OR programme B ☐

2. If programme C is adopted 400 people will die.

If programme D is adopted there is a 1/3 probability that nobody will die, and 2/3 probability that 600 will die.

Which of the two programmes would you favour?

programme C ☐ OR programme D ☐

3. Choose between:

E. 25% chance to win £240 and 75% chance to lose £760

F. 25% chance to win £250 and 75% chance to lose £750

choose E ☐ OR choose F ☐

4. Imagine that you face the following pair of concurrent decisions. First examine both decisions, then indicate the options you prefer.

Decision (i) Choose between:

- A. a sure gain of £240
- B. 25% chance to gain £1000 and 75% chance to gain nothing

Decision (ii) Choose between:

- C. a sure loss of £750
- D. 75% chance to lose £1000 and 25% chance to lose nothing

For decision (i) choose A ☐ OR choose B ☐

For decision (ii) choose C ☐ OR choose D ☐

5. Consider the following two-stage game. In the first stage, there is a 75% chance to end the game without winning anything and a 25% chance to move into the second stage. If you reach the second stage you have a choice between:

- A. a sure win of £30
- B. 80% chance to win £45

Your choice must be made before the game starts, i.e., before the outcome of the first stage is known. Please indicate the option you prefer.

option A ☐ OR option B ☐

6. Which of the following options do you prefer?

- C. 25% chance to win £30
- D. 20% chance to win £45

option C ☐ OR option D ☐

7. Imagine that you are about to purchase a jacket for £125 and a calculator for £15. The calculator salesman informs you that the calculator you wish to buy is on sale for £10 at the other branch of the store, located 20 minutes' drive away.

Would you make a trip to the other store?

yes ☐ OR no ☐

8. Imagine that you have decided to see a play and paid the admission price of £10 per ticket. As you enter the theatre, you discover that you have lost the ticket. The seat was not marked, and the ticket cannot be recovered.

Would you pay £10 for another ticket?

yes ☐ OR no ☐

9. Imagine that you have decided to see a play where admission is £10 per ticket. As you enter the theatre, you discover that you have lost a £10 note.

Would you still pay £10 for a ticket for the play?

yes ☐ OR no ☐

10. Would you accept a gamble that offers a 10% chance to win £95 and a 90% chance to lose £5?

accept ☐ OR reject ☐

11. Would you pay £5 to participate in a lottery that offers a 10% chance to win £100 and a 90% chance to win nothing?

pay ☐ OR reject ☐

This part is about you and your current start-up business decisions

Mark each statement with a single selection from strongly disagree to strongly agree

I have analysed long run opportunities and selected what I thought would provide the best returns

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I have developed a strategy to best take advantage of resources and capabilities

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I have designed and planned the business strategy

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I have organised and implemented control processes to make sure that I meet objectives

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I researched and selected target markets and did meaningful competitive analysis

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I have a clear and consistent vision for where I want to end up

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I have designed and planned the production and marketing efforts

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I have experimented with different products and/or business models

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

The product/service that I now provide is essentially the same as originally conceptualised

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

The product/service that I now provide is substantially different than I first imagined

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I have tried a number of different approaches until I will find a business model that works

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I was careful not to commit more resources than I could afford to lose

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I was careful not to risk more money than I was willing to lose with my initial idea

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I was careful not to risk so much money that the company would be in real trouble financially if things didn't work out

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I allowed the business to evolve as opportunities emerged

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I have adapted what I was doing to the resources that I had

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I was flexible and took advantage of opportunities as they arose

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I avoided courses of action that restricted my flexibility and adaptability

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I used a number of agreements with customers, suppliers and other organisations and people to reduce the amount of uncertainty

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

I used pre-commitments from customers and suppliers as often as possible

strongly disagree ☐ disagree ☐ neither ☐ agree ☐ strongly agree ☐

APPENDIX B: Background Information

Background Information and sample check

ID -----

The following background information will be collected to support the sampling criteria for analysis of selection.

Age,
Sex (F/M),
Ethnic diversity – White, Mixed, Asian, Black British, Other

Education level to? –
GCSE, A Levels, BTEC courses, NVQs, HNDs, higher education Diploma or Degree.

Approximate years of work experience

Approximate years of managerial experience

Years of experience connected to current business? Management?

What is their new business?

When they started their new business (months)?

On your own terms, in the future how do you imagine your business success?

What is the level of innovativeness of their business in terms of novelty and usefulness?
Novelty – Not so much, Yes innovative, Very innovative
Usefulness – Not so much, Yes innovative, Very Innovative

How is their current business finance over the last months? –

- No business income yet
- Some monthly income but not enough to cover all costs
- Enough monthly income to just meet the costs
- Enough monthly income to pay myself a bit and to meet the costs
- Consistent monthly income to pay myself and make some profit

Ed: E/G/AL/D F:N/B/P 13/14

Inv: N/I/V Wk: w/2m/rw/rm

APPENDIX C: Email Invitation Document

The University of Manchester
Manchester
Business School

MANCHESTER
1824

Manchester Business School

Doctoral Entrepreneur Research:

Starting your business as a Novice Entrepreneur

Invitation to participate

I would like to invite you to participate in a research project which I am currently conducting at Manchester Business School, University of Manchester. This research concerns the decision making of people new to business start-up. If this is your first business, then I would appreciate your involvement to help understand the decision making process.

What is the purpose of the study?

Starting a new business for the first time is a new experience for people. This involves making a number of new decisions and these can be interesting and challenging. I want to better understand these decisions that you make, to help improve support for future entrepreneurs.

Why have I been chosen? Do I have to take part?

I am recruiting people who have recently started their business and I am especially looking for people starting for the first time. You are under no obligation to take part in this study.

What would participation involve?

Participation will involve a meeting with me for a single interview to talk about a hypothetical business and your thinking about this. I will guide you through the process and the meeting should take 45 minutes, at a location suitable to you, which I can organise. The entrepreneurs who participated in the pilot of this research found it to be an interesting and enjoyable experience.

Who will have access to the data?

All the data will be anonymised. Your data will be treated in strictest confidence and you would be free to withdraw at any time. You will not be asked to divulge any sensitive information about yourself or your business. You will be making a valuable contribution to research in starting-up a business. The findings of the study will be disseminated via articles published in academic journals and conference presentations. This research was reviewed and granted approval by Manchester Business School Research Ethics Committee.

What's in it for you?

Upon completion of this research, I would send you a copy of the summarised key findings and conclusions of this study.

How do you participate in this study?

If you require further information or would like to participate in this study then my contact details are;

Louise Pinfold, Email - louise.pinfold@mbs.ac.uk, Mobile – 07947131254

I look forward to hearing from you and thank you in advance for your time and support.

APPENDIX D: Consent Form



Participant Informed Consent Form

Title of Research: Doctoral Research of Novice Entrepreneurs

I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason. I also understand that I am free to ask any questions at any time.

I understand that the information provided by me will be held confidentially, such that only the Researcher can trace this information back to me individually. The information will be retained for up to five years when it will be destroyed. I also understand that, in accordance with the Data Protection Act, I can have access to the information at any time. This information will be used in research publications in both national and international domains.

I offer my full informed consent to participate in this research study and grant permission for my interview to be audio-recorded and transcribed to facilitate data analysis with the confidentiality as stated above. I may withdraw from all or part of this research at any time.

Name: _____

Signed: _____

Date: _____

APPENDIX E: Sample Analysis Spread Sheet

Participant 127

[illegible]

[illegible]

P-113 Snacks Product Company										
Part 1. Who could be your potential customers for this business?										
Uhm... I don't know much about the video game market but I imagine it's similar to IT and uhm IT and food and drink which I work down which is kind of my experience, so drawing on those two.	int	part1	relationship	source	probability	business	done	int	part2	
Uhm I guess I think of customer as the people who I'm going to directly be dealing with rather than the consumer. Although it would be nice to work directly with consumers as well I suppose, so I guess customers... yeh direct maybe selling it online directly to consumers if you can do. So whether it can be downloaded via the Internet, which kind of helps with margin.	int	part1	relationship	source	probability	business	done	int	part2	
Uhm... but then I guess the primary customers are going to be the people who carry these kind of games, so either online channels like Amazon - people like that.	int	part1	relationship	source	probability	business	done	int	part2	
Uhm... and then potentially direct with retailers, so Tesco, Sainsbury's, those kind of guys.	int	part1	relationship	source	probability	business	done	int	part2	
Uhm... then I guess the video market.	int	part1	relationship	source	probability	business	done	int	part2	
I don't know whether you deal direct with them or whether there's like a distributor network as well so, I'd probably want to... I don't know whether that's something that's in the notes, but I'd probably want to find out a bit about the channels within that, within the video games market, if we have that kind of information.	int	part1	relationship	source	probability	business	done	int	part2	
But I don't think that would change much round kind of who I view as the potential customers. I'm guessing it's going to be that kind of set up.	int	part1	relationship	source	probability	business	done	int	part2	
[LP: Your friend did some research on uhm... in stores, so the Waterstones and Virgin stores...] [given direct stores] On line. Right so this is kind of a list down of yep potential sales once we get it.	int	part1	relationship	source	probability	business	done	int	part2	
OK cool. So Waterstones, Virgin, yeh so like music, video games stores, bookstores that's interesting, yeh I guess it's more educational isn't it uhm... oh yeh that puts a bit of thinking in I guess so yeh if it's a more educational angle then you're thinking about education channels as well so bookstores, potentially kind of I guess like WHSmith travel kind of mixed with stationary and media, people going on holidays with their kids.	int	part1	relationship	source	probability	business	done	int	part2	
Uhm and then education as well so this is something that actually you could sell into kind of higher education at colleges and schools depending on I guess the level... I don't really say in here kind of what the demographic is to reach I don't think... uhm [LP: Just keep talking] Yeh sorry I'm just looking through this... I can't see anything here kind of that says... right this is the target age that my friend has a particular area around so I'd probably go for all of them and see what it says.	int	part1	relationship	source	probability	business	done	int	part2	
Hopefully it's something that appeals to all ages so you kind of take it to frustrated office workers and secondary school kids [LP: OK] Cool, alright.	int	part1	relationship	source	probability	business	done	int	part2	
Part 2. Who could be your potential competitors for this business?										
I guess I'd say anyone. A couple of things, I guess there's probably education products out there already I mean at University I did a kind of marketing simulation as part of my degree, one of my courses so I guess there's pieces of software like that out there potentially that are kind of built, maybe a bit more focused on the education sector rather than their market. Uhm... but I'd probably need to go out and do some testing stores and stuff like that. If there's any information on the education category that would be great. [LP: A focus group to education-given client] OK, so direct market research. Do I kind of need the stuff about rather than just at clarity? [LP: That's what you want basically - descriptive interview is reading out from a sheet] So this is very education focused.	int	part2	relationship	source	probability	business	done	int	part2	
So I guess that says our competitors are people who are kind of apocatasting in that market at the moment. I guess I'll crack the mass market as well. I'd be worried about people like, people who kind of make the football manager simulations and things like that who could really adapt their software to, or San City and games like that. I don't think, I guess they sound like they do similar things which is modelling a real life... and there lots of apps popping up and doing things like that as well. That another customer I suppose, don't know if you can run it as an app through Apple iTunes Store or something uhm. So that's kind of all I've got on competitors.	int	part2	relationship	source	probability	business	done	int	part2	
Part 3. Which market segment will you sell to?										
I think I've answered that through potential customers potentially so kind of retail, online, education, direct to consumer, app store I think that's possible. [LP: So which one would you sell to all at once?] All of those... [LP: Education?] Yeh definitely, but I guess it's like any new product you kind of want I think you want to establish credibility in your kind of core so you want to go for the low hanging but you don't probably focus on education to begin with and then once you kind of got the credibility or the experience that... you know that education people bought into it then that gives you more claims when you're going to talk to mass market. To say look... because I guess as an education product you're competing against football games and Grand Theft Auto... So kind of, need to provide that people buy I and it sells and it's well received when people play it. So I'd be looking there about some kind of distribution of what segments I'd go after and in what order. I'd also go for, well I guess education. I guess I'd probably think about things like online or distributors that are relatively low maintenance to begin with as well. So kind of getting two or three people to sell the product for you uhm... rather than going direct to Tesco and people like that who can tend to be tough to work with.	int	part3	relationship	source	probability	business	done	int	part2	
Part 4. How could you sell to your customers?										
Yeh so I guess the ideal there then is to have other uhm... committed to selling to education for example, maybe I don't know there might be specialist distributors to the education market. Uhm... in which case I'd want to get someone on board like that with the kind of sales skills and industry experience to help me, but if not I guess it's picking up the phone direct to people as well. So being the kind of the face of the product to begin with. I think enough on kind of how to sell it? [LP: It's as much as you want yeh] Cool...	int	part4	relationship	source	probability	business	done	int	part2	
Part 5. How will you price your product/service?										
So we've got some stuff from haven't we from... so we've got some information...? [LP: Do you want some info on?] Yeh if we've got any information on pricing in the market, given competitors can't Brilliant OK. So we've got it selling out there? At Sainsbury's, OK so we've got four possible competitors for simulation games OK. Civilization, Future Educators (I couldn't get it I'm not heard of that one, so that doesn't have a price, on it that's right OK, have completely not yet one year old, OK. The game companies are making a net return of twenty-five per cent. So fifteen pounds, twenty-two, thirty-yep and then we've got some feedback from consumers. Willingness to pay. Education, OK so educators seem to be very focused on five to ten pounds, young adults and adults kind of ten to fifteen pounds. So then people always like, they always say they want to pay less than they will do so I'd presume a little bit of a premium with a kind of promo plan to support it. So anyway that's what's going on in the market. So I guess that's going to me the market is kind of... I mean if I look at the competitors, the only one that was focused on the educational channel, if I'm looking at education	int	part5	relationship	source	probability	business	done	int	part2	
Part 6. How could you sell to your customers?										
Yeh so I guess the ideal there then is to have other uhm... committed to selling to education for example, maybe I don't know there might be specialist distributors to the education market. Uhm... in which case I'd want to get someone on board like that with the kind of sales skills and industry experience to help me, but if not I guess it's picking up the phone direct to people as well. So being the kind of the face of the product to begin with. I think enough on kind of how to sell it? [LP: It's as much as you want yeh] Cool...	int	part6	relationship	source	probability	business	done	int	part2	
Part 7. How will you price your product/service?										
So we've got some stuff from haven't we from... so we've got some information...? [LP: Do you want some info on?] Yeh if we've got any information on pricing in the market, given competitors can't Brilliant OK. So we've got it selling out there? At Sainsbury's, OK so we've got four possible competitors for simulation games OK. Civilization, Future Educators (I couldn't get it I'm not heard of that one, so that doesn't have a price, on it that's right OK, have completely not yet one year old, OK. The game companies are making a net return of twenty-five per cent. So fifteen pounds, twenty-two, thirty-yep and then we've got some feedback from consumers. Willingness to pay. Education, OK so educators seem to be very focused on five to ten pounds, young adults and adults kind of ten to fifteen pounds. So then people always like, they always say they want to pay less than they will do so I'd presume a little bit of a premium with a kind of promo plan to support it. So anyway that's what's going on in the market. So I guess that's going to me the market is kind of... I mean if I look at the competitors, the only one that was focused on the educational channel, if I'm looking at education	int	part7	relationship	source	probability	business	done	int	part2	

Participant 113b

[illegible]