Resource constraints and sustainable entrepreneurship in sub-Saharan Africa: An effectual view

by

Samuel G. Dawa

Submitted in partial fulfilment of the requirements for the degree

of Doctor of Philosophy

at the Gordon Institute of Business Science,

University of Pretoria

2018-05-21

Supervisor: **Dr. Jonathan Marks**

Declaration

I declare that this thesis is my own work and it is submitted to the Gordon Institute of Business Science, University of Pretoria in partial fulfilment of the requirements for the award of the Doctor of Philosophy (PhD) degree of the University of Pretoria. This thesis has not been submitted before for any degree or examination in any other institution.

I further declare that all necessary authorization and consent was duly sought and obtained to carry out this research.

Samuel Gary Dawa

Student Number: 14372119

2018-05-21

Acknowledgements

This thesis is a result of the good will and selflessness of a number of people.

I am forever thankful to my supervisor Dr. Jonathan Marks for his expertise in guiding this study.

I am extremely grateful to my Wife; a true scholar and a perfect sounding board, whose patience, critique and understanding has been a constant source of suggestion and inspiration.

To my kids, family and friends, I am unequivocally humbled by your encouragement, concern and assistance throughout the PhD journey.

I am also most appreciative of the help and direction provided at all levels of the research process by the Director Research Prof. Helena Barnard and the Doctoral office team of Viv Spooner, Lerushka Barath and Mamello Ngwenya.

I am thankful to Prof. Balunywa and the rest of the MUBS team for assistance rendered during the PhD program.

My gratitude also goes out to International Development Research Council without whose generous scholarship this PhD would not have been possible.

Dedication

To Rebecca, Samuela, Ethan and Shiloh,

For and with unconditional love

Table of Contents

Declaration 2

Acknowledgements 3

Dedication 4

Abstract 8

Chapter 1 - Introduction 9

1.1 Background to the study 9

1.2 Research problem 13

1.3 Statement of purpose and research question 14

1.4 Sub-Saharan Africa context 15

1.5 Research approach 16

1.6 Rationale and significance 17

1.7 Limitations of the study 18

1.8 Chapter summary 19

Chapter 2 – Literature review 20

2.0 Chapter introduction 20

2.1 Entrepreneurship 20

2.2 Resource constraints 22

2.3 Sustainable entrepreneurship 24

2.3.1 The sustainable entrepreneur 29

2.3.2 The context for sustainable entrepreneurship 30

2.3.3 The sustainable entrepreneurship process 31

2.3.4 Sources of sustainable entrepreneurship opportunities 31

2.3.5 Sustainable entrepreneurship and innovation 32

2.4 Passion 33

2.5 The theory of effectuation 35

2.5.1 Effectuation constructs 39

2.6 Related theories 46

2.6.1 Causation 46

2.6.2 Bricolage 47

2.7 Sustainable entrepreneurship and qualitative research 47

2.8 Chapter summary 49

Chapter 3 – Methodology 50

3.0 Chapter introduction 50

3.1 Research question 51
3.2 Research paradigm 52
3.3 Rationale for a qualitative research design 52
3.4 Rationale for case study methodology 54
3.5 Information needed to conduct the study 57
3.6 Overview of research design 57
3.6.1 Literature review 58
3.6.2 Research proposal committee approval 58
3.7 The research sample 58
3.7.1 Case selection 61
3.7.2 Data collection 64
3.7.3 Methods for data analysis and synthesis 69
3.8 Ethical considerations 77
3.9 Trustworthiness of the research 78
3.9.1 Construct validity 79
3.9.2 Internal validity 80
3.9.3 External validity 80
3.9.4 Reliability 80
3.10 Chapter summary 81
Chapter 4 – Results 83
4.0 Chapter introduction 83
4.1 Model description 83
4.2 Resource constraints 89
4.3 Formation of alliances 90
4.3.1 Formation of alliances and tolerance for failure 91
4.3.2 Formation of alliances and willingness to change 92
4.3.3 Formation of alliances and adaptation 93
4.4 Tolerance for failure 95
4.4.1 Tolerance for failure and willingness to change 95
4.4.2 Tolerance for failure and adaptation 96
4.5 Willingness to change 97
4.6 Adaptation 98
4.7 Passion 100
4.8 Sustainable entrepreneurship 102

4.9 Chapter summary 105
Chapter 5 – Discussion 106
5.0 Chapter introduction 106
5.1 Resource constraints 107
5.1.1 Resource constraints and formation of alliances 107
5.2 Formation of alliances 109
5.2.1 *Formation of alliances and tolerance for failure* 110
5.2.2 *Formation of alliances and willingness to change* 112
5.2.3 *Formation of alliances and adaptation* 114
5.3 Tolerance for failure 115
5.3.1 Tolerance for failure and willingness to change 115
5.3.2 Tolerance for failure and adaptation 116
5.4 Willingness to change 118
5.4.1 *Willingness to change and adaptation* 118
5.5 Adaptation 120
5.6 Passion 122
5.7 Sustainable entrepreneurship 124
5.8 Chapter summary 125
Chapter 6 – Conclusion 126
6.0 Chapter introduction 126
6.1 Synthesis of empirical findings 127
6.2 Theoretical contribution 127
6.3 Recommendations and practical implications 130
6.4 Policy implications 132
6.5 Areas for further research 133
References 134
Appendix: Practical considerations 154
Budget 154
Appendix: Interview guide 155
Appendix: Case descriptions 165
Time frame 192

Abstract

The study seeks to explain how sustainable entrepreneurship occurs in a resource constrained setting. This is important as it improves our understanding of how entrepreneurs respond to adversity and develop opportunities that jointly address the social, environmental and economic dimensions of entrepreneurship.

Previous research has discussed the antecedents, outcomes and contextual conditions that drive sustainable entrepreneurship. However, what is absent from this growing research body is knowledge of the mechanisms through which individuals engage in this type of entrepreneurship.

The study seeks to answer the following research question: "How do individuals faced with resource constraints engage in sustainable entrepreneurship?" Using effectuation as a lens, a multi-method qualitative approach based on multiple case studies was adopted in this research and a mix of inductive and deductive analyses, also referred to as abductive analysis was employed. A sample of 5 sustainable enterprises were purposively selected in Uganda, located in sub-Saharan Africa.

The results show that resource constraints compel the entrepreneurs to seek expertise and resources from others with mutual goals while controlling expenses. In the process the entrepreneur learns and adapts to the emergent opportunity. The entrepreneur's actions are further influenced by passion that sustains the activity in the face of challenges. In this research, sustainable entrepreneurship is further explicated showing that the social, economic and environmental objectives exist in a state of shifting, supportive interaction of one another.

The study clarifies our understanding of how entrepreneurs cope with inadequate resources. It explains the mechanisms through which individuals contending with resource constraints employ control as opposed to prediction strategies to exploit entrepreneurship opportunities. In this way the study contributes to the literature by proposing the fusion of cognitive and affective dimensions in realizing sustainable entrepreneurship goals. The study further suggests that the multiple objectives that typify the pursuits of sustainable entrepreneurs serve as supportive mechanisms and this puts into question arguments that these firms face comparatively larger challenges than those that singularly pursue economic objectives.

Keywords

Sustainable Entrepreneurship, Effectuation, Resource Constraints, Passion, Qualitative Case-study, Abductive analysis, Sub-Saharan Africa

Chapter 1 - Introduction

1.1 Background to the study

Scholarly interest in understanding the non-economic motivations and outcomes that exist in many entrepreneurial decisions has grown (Thompson, Kiefer, & York, 2011) resulting in the development of sustainable entrepreneurship as a research field. Derived from the two research areas of entrepreneurship and sustainable development (Shepherd & Patzelt, 2011), sustainable entrepreneurship is perceived as a form of entrepreneurship that ensures the current and future economic survival of the enterprise, the community and the environment.

Existing literature acknowledges that sustainable entrepreneurship research is still in its infancy (Shepherd & Patzelt, 2017) and therefore currently dominated by conceptual work (Dean & McMullen, 2007; Shepherd & Patzelt, 2011). A number of scholars have worked towards defining the phenomenon (Hockerts & Wüstenhagen, 2010; Shepherd & Patzelt, 2011); while others have tried to distinguish it from the related concepts of entrepreneurship, social entrepreneurship and environmental entrepreneurship (Dean & McMullen, 2007; Thompson, Kiefer, & York, 2011). Additionally, a few studies have focused on the broad motivations for engaging in sustainable entrepreneurship (Choi & Gray, 2008; Parrish, 2010). However, what is lacking is an understanding of how individuals engage in sustainable entrepreneurship. Further to this, there remains limited knowledge of how sustainable entrepreneurship's multiple facets present in practice.

Recent literature shows that the sustainable entrepreneurship phenomenon is not clearly understood (Munoz & Cohen, 2017). A number of efforts have been made towards proposing a process model and understanding the ambiguities and complexities that typify the phenomenon (Belz & Binder, 2017). Other research has surfaced constructs such as prior knowledge, orientation and entrepreneurial self-efficacy (Shepherd & Patzelt, 2017) as central explanatory variables. Another study has gone further to describe the antecedents of these explanatory variables as previous experiences and personal circumstances (Hanohov & Baldacchino, 2017). However, elements outside the control of the entrepreneur have not received a lot of attention. These elements are referred to as contextual factors and they include the risks that entrepreneurs perceive (Munoz & Cohen, 2017) and the relationships they cultivate with stakeholders. It is in this regard that resource scarcity occasioned by the context that the entrepreneur operates in informs the focus of this study.

The central motivation for this thesis is to understand how individuals faced with resource constraints engage in sustainable entrepreneurship. To this end, the role of inadequate resources is explored. This is because research on the nexus of individuals and opportunities (Shane, 2003) suggests that entrepreneur's perceptions of resource constraints influence the actions undertaken to achieve venture outcomes.

This study therefore sought to answer the following research question:

"How do individuals faced with resource constraints engage in sustainable entrepreneurship?".

Defined as "an innovative, market-oriented and personality-driven means of creating economic and societal value via break-through environmentally or socially beneficial market or institutional innovations" (Schaltegger & Wagner, 2011, p. 226), previous research has noted that sustainable entrepreneurship research is biased towards the developed world (Kuckertz & Wagner, 2010) limiting the contextual range of theory development in this research area.

Because the sub-Saharan context is largely under-studied, it presents an opportunity to elucidate and extend theory in entrepreneurship research. Across the continent, economies remain largely agrarian, underpinned by natural resource-driven growth and dominated by the informal sector (George, Corbishley, Khayesi, Haas, & Tihanyi, 2016). Poor road infrastructure, shallow financial systems, low school completion rates and inadequate energy supply typify the sub-Saharan Africa context. These result in entrepreneurs encountering enhanced levels of resource constraints which presents opportunities to better understand entrepreneurial action.

Resource constraints are defined as "the entrepreneur's reports about important shortfalls including descriptions of being forced to make sub-optimal choices because of inadequate resources" (Powell & Baker, 2014, p. 1409). While it is acknowledged that all entrepreneurial activity around the world has to contend with some form of resource constraints, it is argued in the literature (George et al., 2016) that the levels are relatively higher in sub-Saharan Africa. As a result, firms in this region tend to be smaller, less structured and are more affected by these resource constraints (Manolova, Carter, Manev, & Gyoshev, 2007). While previous research has shown that new and small firms perform well in environments where they are faced with a lack of resources (George, 2005; Katila & Shane, 2005; Keupp & Gassmann, 2013), explanations for how organizations cope with these constraints are inadequate (Hmieleski & Corbett, 2008; Holland & Shepherd, 2013).

The limited resources available to firms in developing countries lead to different forms of networking between entrepreneurs and others, including suppliers and government officials, to obtain needed resources (Le & Nguyen, 2009). Similarly, in catering to the social, environmental and economic objectives, sustainable entrepreneurship requires the involvement of a number of stakeholders. This multi-stakeholder approach obviates the applicability of a planning approach (Reuber, Fischer, & Coviello, 2016) rendering effectuation as an appropriate lens to examine this type of entrepreneurship. Thompson *et al.* (2011) call for further exploration of the sources of opportunities that can offer simultaneous positive outcomes for social, economic and environmental benefits. In differentiating the modes of opportunity recognition of social, environmental and sustainable entrepreneurship from those for commercial for-profit businesses, they argue that these enterprises employ distinct logics and strategies to attain their objectives. Their work thus opens space to investigate the effectual logic that characterises entrepreneurial behaviour as non-linear.

Arend, Sarooghi, & Burkemper (2015) argue that effectuation begins when an entrepreneur confronts the uncertain and resource-restricted context. It is in this regard that it has been stated that developing country contexts are ideal laboratories to examine the impact of effectuation on entrepreneurial outcomes (Runping, 2016). By embracing these challenging situations effectuation offers new insights into the theory and practice of entrepreneurship (Read, Sarasvathy, Dew, & Wiltbank, 2016; Welter & Kim, 2018). The logic underlying effectuation is that to the extent the future can be controlled there is no need to predict it (Sarasvathy, 2001). The involvement of a number of stakeholders in enacting sustainable entrepreneurship increases the likelihood of the applicability of control as a strategy to mitigate uncertainty. This is achieved by obtaining the commitment of stakeholders who provide resources in exchange for involvement in the undertaking (Sarasvathy, 2001). It is this that endows effectuation with its current theoretical interest and meaningfulness. Effectuation is therefore used in this study to improve our understanding of how individuals faced with resource constraints engage in sustainable entrepreneurship.

The study's primary finding is that when an individual is faced with resource constraints, he/she may engage in sustainable entrepreneurship through opting to control the future by jointly undertaking action with a number of stakeholders that results in learning and the co-creation of an artefact that may not have been initially envisaged. The actions are sustained by the exhibition of passion that enables the entrepreneur persist in the face of challenges. Another finding is that in the occurrence of sustainable entrepreneurship the social, environmental and economic objectives influence one another in a synergistic interactive manner.

The study is therefore beneficial to the understanding of how sustainable entrepreneurs cope with limited resources. It clarifies the mechanisms through which individuals faced with resource constraints employ control as opposed to prediction strategies to exploit sustainable entrepreneurship opportunities. In so doing, the study contributes to entrepreneurship theory by proposing the integration of cognitive and affective dimensions in realizing sustainable entrepreneurship goals. The study further suggests that the multi-faceted objectives associated with sustainable entrepreneurship serve as supportive mechanisms and this challenges the logic that individuals engaging in sustainable entrepreneurship experience greater challenges than other types of entrepreneurs.

A qualitative approach based on a multi-case study of five firms was adopted for this research. This approach, past literature has shown, is useful to illustrate and emphasise the key elements and relationships in a theory (Doz, 2011). A number of qualitative methods including in-depth interviews, document reviews and observations were used to gather data from sustainable entrepreneurs in Uganda. Considering that in deductive analysis inspiration is drawn from some form of input and in inductive analysis some *a priori* ideas guide the process, real theorizing happens as a result of this mix (Davidsson, 2016). A combination of deductive and inductive styles of theorizing (Alvesson & Karreman, 2007; Lee, Mitchell, & Sablynski, 1999) was done, which is appropriate for a research area in its early stages because it involves identifying pre-existing conceptions about the study area and extrapolating these through empirical findings. The study was therefore developed based on a pre-defined theoretical framework listening to the data for surprises (Eisenhardt, 1989; Yin, 2009). Uganda is an appropriate geographic setting to use effectuation in the study of sustainable entrepreneurship. Weak institutions are unable to protect the fragile ecosystems (National Environment Management Authority, 2008) which has led to encroachment on wetlands and plunder of natural forests. The country has a fast-growing population and a national poverty rate of almost 20% (Population Secretariat, 2011). The most likely source of livelihood for this populace is entrepreneurship as the unemployment levels grow. Entrepreneurial rates are therefore some of the highest in the world despite the enhanced resource scarcity (Namatovu, Balunywa, Kyejjusa, & Dawa, 2011). All these factors put together create the uncertainty typified in effectuation and the vulnerability that sustainable entrepreneurship seeks to address.

This thesis proceeds as follows: subsequent to this background the research problem is articulated along with a statement of purpose, rationale and limitations of the study. In this first chapter the context of the study is also described. A review of the literature is then undertaken and a gap is identified in explanations of how individuals faced with resource constraints engage in sustainable entrepreneurship. Subsequently, the research question, design and methodology are outlined where in-depth interviews, observations and document review are demonstrated to be appropriate methods to enable the answering of the research questions. The type of analysis undertaken which is described as abductive is also discussed in this chapter. The subsequent chapter contains the findings where the outputs of the data analysis are discussed. The penultimate chapter contains an analysis and interpretation of the findings. The last chapter contains the recommendations, implications and conclusion.

1.2 Research problem

Research on sustainable entrepreneurship has gained prominence in recent years with the firm's interests perceived as being broader than the singular economic benefit that existing economic theories have described (Zahra, Gedajlovic, Neubaum, & Shulman, 2009). This stream of research incorporates social and environmental issues as objectives of the firm. However, there is little understanding of how entrepreneurs are motivated, incentivised; and how they discover and develop opportunities beyond the pull of existing markets (Hall, Daneke, & Lenox, 2010). Sustainable entrepreneurship is a "black box," as "simply stating that economic, social and environmental aims are combined within the firm's organizational logic and practices does not get at how (and if) this is achieved" (Gibbs, 2009, p. 65). While a few studies e.g. Choi and Gray (2008) have focused on the motivations for the engagement in sustainable entrepreneurship the need for empirically based studies in diverse contexts is evident. The role of context is under studied (Munoz & Cohen, 2017) yet this would provide a better understanding of the phenomenon. Further, there is need for more conceptualization beyond definitions to explanations of the mechanisms through which it occurs.

The sub-Saharan Africa context is associated with enhanced resource constraints. The adversity entrepreneurs have to contend with in this context requires novel approaches that may be different from those used in the developed world. Furthermore, the fragility of the rich ecosystems and the levels of poverty demand conscientiousness from the entrepreneur to challenges beyond the pursuit of profit. These together imply the engagement of a number of actors in entrepreneurial pursuits. Such pursuits therefore rely less on predictive strategies and more on the logic of control typified in effectuation theory.

Therefore, locating effectuation in relation to the emergent field of study of sustainable entrepreneurship (Muñoz & Dimov, 2015; Shepherd & Patzelt, 2011) in the under-studied and contextually appropriate sub-Saharan Africa, enhances the opportunities for extending conceptual development and empirical grounding. The effectuation framework is drawn from cognitive science and framed around the works of March (1982). Its utility in entrepreneurship research derives from the way it restores the individual entrepreneur to the centre of focus (Baumol, 1989), dealing with concerns about the neglect of this aspect. Effectuation theory is therefore an appropriate lens to examine how individuals faced with resource constraints engage in sustainable entrepreneurship.

1.3 Statement of purpose and research question

The purpose of this study is to explain how individuals faced with resource constraints engage in sustainable entrepreneurship. In this thesis it is argued that the sub-Saharan Africa context presents tremendous challenges to the undertaking of entrepreneurship. Yet despite these challenges and the inherent resource constraints, individuals are able to engage in sustainable entrepreneurship. The theory of effectuation is used to explain this. The study therefore seeks to improve the understanding of sustainable entrepreneurship explaining the mechanisms through which it occurs and is sustained. To achieve this, the study is guided by the following research question: *"How do individuals faced with resource constraints engage in sustainable entrepreneurship?"*.

1.4 Sub-Saharan Africa context

There is a dearth of entrepreneurship research in Africa compared to the rest of the world (George et al., 2016), yet multiple policies are formulated for the African continent that entail dependence on the growth of entrepreneurship. Between 1980 and 2005 fewer than 500 publications on African entrepreneurship were recorded, with almost two thirds of these reporting entrepreneurship studies in South Africa. Seventy percent of this research was published between 1990 and 2001 (Naudé & Havenga, 2005). The studies focused most heavily on education, skills, constraints, opportunities and the contribution of entrepreneurship. A recent review shows that research on sustainable entrepreneurship in Africa accounts for a small fraction of existing studies (Munoz & Cohen, 2017),which limits the contextual range of theorizing about this phenomenon.

Several scholars have suggested that context contributes to explaining why some entrepreneurs might recognise opportunities while others do not, and why the outcomes of entrepreneurial activities might vary between contexts (Baker, Gedajlovic, & Lubatkin, 2005; Jack & Anderson, 2002). It is in this regard that scholars have called for a thorough theoretical understanding of opportunities in sub-Saharan Africa a region characterised by severe resource constraints (George et al., 2016; Vermeire & Bruton, 2016). In sub-Saharan Africa, sudden and unpredictable changes in national leadership can impact strongly on entrepreneurship, with weak institutions providing limited protection (Misangyi, Weaver, & Elms, 2008; Platteau, 2009). The strength of these contextual factors suggests the inadequacy of the proposition that a simple lack of access to resources is a major determinant of entrepreneurial choice in sub-Saharan Africa. In support of this, a previous study found that social context is important as an enabling environment for sustainable entrepreneurship (O`Neill, Hershauer, & Golden, 2009).

The importance of context is best demonstrated when we study contexts that are not familiar (Welter, 2011). Sub-Saharan Africa offers a context distinct from the developed world that dominates entrepreneurship research. The resource-constrained nature of the region, the high population growth rates, the high entrepreneurial rates, the weak institutional framework, the poor infrastructure, the unpredictable political arrangements and the embeddedness of individuals in close-knit communities (Asongu, 2013; Estrin, Mickiewicz, & Stephan, 2013; Khayesi & George, 2011; Xavier, Kelley, Kew, Herrington, & Vorderwülbecke, 2013) provide reasons to believe that the nature of entrepreneurship practised in this context is different and therefore asserts a need to build theory relevant to this context. These conditions provide insight into the skills and attitudes necessary to start and sustain a business in the face of enhanced adversity.

In this study, it is argued that effectuation has robust explanatory power, amenable to unpicking why and how despite the perception of enhanced resource constraints a brand of entrepreneurship hospitable to the social, environmental and economic issues of the entrepreneur is developed. In essence this study finds common ground with previous research, (for example, Gibbert, Hoegl, & Valikangas, 2014) in stating that constraints such as those of the sub-Saharan African context have an enabling aspect relating to entrepreneurship: they create a need for tinkering, bootstrapping and other creative approaches such as effectuation to solve pressing problems. The application of a theory such as effectuation to an understudied setting such as sub-Saharan Africa, expands the theory's contextual range (Whetten, 2009) and improves the use of the theory as an explanation for interesting phenomena. Sub-Saharan Africa therefore provides the contextual uncertainty (Smolka, Verheul, Burmeister-lamp, & Heugen, 2016) necessary for the employment of effectual strategies.

Overall research in entrepreneurship in less developed contexts may expand the boundaries of theories originating from the west (Khavul, Bruton, & Wood, 2009) by providing an explanation for the role of contextual elements.

1.5 Research approach

With the approval of the Ethics Committee, the candidate sourced information from entrepreneurs, employees, suppliers, customers and community members within and in the locales surrounding five sustainable enterprises. While the entrepreneur was the primary respondent and the study's unit of analysis, the other respondents were important in illuminating the pre-commitment and flexibility constructs while also enhancing the construct validity and reliability of the study.

This investigation, carried out in Uganda, represented a multiple-case study using qualitative research methods. A qualitative research design is deemed appropriate as it facilitates interaction between the researcher and respondents, adopts an interpretive stance and maintains design flexibility. In-depth interviews were the primary method of data collection and were supplemented with document review and observations. The process began with a categorization exercise. The researcher consulted with the Ministry of Energy and Makerere University’s Faculty of Engineering and Natural Resource Management to identify categories based on sectors of sustainable enterprises. These sectors were recycling, renewable energy, eco-conservation, energy conservation and sustainable resource use.

In each firm, the entrepreneur was interviewed and was then asked for permission and the contact details of other interviewees. The information obtained formed the basis of the overall findings. Each interviewee was identified by a pseudonym, and all interviews were tape recorded and transcribed verbatim. To support the findings emerging from the in-depth interviews, a document study considered organizational documents and material from external media such as newspapers and websites. These resources were further supplemented by field notes of observations made by the researcher. This all helped with the triangulation of data.

Coding categories were developed and continuously refined, guided by the study's research question. In addition, various strategies to increase validity were employed (see Methodology), including a search for dissonant evidence.

1.6 Rationale and significance

The rationale for this study arises from the need to explain how individuals faced with resource constraints engage in sustainable entrepreneurship. This will facilitate better understanding and measurement of the predictors and mechanisms of sustainable entrepreneurship. It will in turn facilitate development of typologies, and an improvement in the definition of sustainable entrepreneurship. The need to understand determinants and processes of sustainable entrepreneurship has increased in recent years (Muñoz & Dimov, 2015) mostly because the underlying logic of pursuing opportunities in this regard challenges traditional assumptions of entrepreneurship. Research in sustainable entrepreneurship may therefore provide a more detailed understanding of entrepreneurial action as a mechanism for generating gains for society, improving our understanding of entrepreneurship beyond the profit motive. Entrepreneurs are challenged by calls to find a sustainable approach in the current circumstances of finite natural resources, increased population growth rates and varying climate conditions. The study will ultimately inspire practical interventions to mitigate adverse actions related with entrepreneurship.

1.7 Limitations of the study

The study was limited by some conditions inherent in the methodology and others associated with the design of the study. The researcher endeavoured to curb the effects of these limitations.

A limitation associated with qualitative studies was potential researcher subjectivity. A researcher's background and position will affect what he/she chooses to investigate, the angle of investigation, the methods judged most adequate for this purpose, the findings considered most appropriate, and the framing and communication of conclusions. Since the researcher himself is an entrepreneur with environmental sensibilities, the possibility of passing judgement on unfolding insights, existed. To address this potential limitation, extensive discussion of emerging insights with peers and the doctoral supervisor took place at various stages.

Another limitation was that field study data collection in this type of study is normally conducted retrospectively and is therefore subject to recall biases (Eisenhower, Mathiowetz, & Morganstein, 2004). Further, the responses are based on self-reporting, raising the possibility of a potential social desirability response bias which is commonplace in developing countries (Bernardi, 2006). To mitigate this, the additional extensive use of historical materials through the document review was helpful.

Entrepreneurs are known to have an exaggerated view of their situation and thus provide responses that elevate their status. The triangulation process served as a tool to limit this effect.

These findings are also limited by the use of a cross-sectional design where chronological associations are not clear. To mitigate this, the study relies on a number of data collection methods.

Another limitation entailed the relationship between the participants and the researcher. The researcher was personally known to at least one participant, creating the risk that respondents might offer responses that they imagined were 'right'. The position of PhD researcher may have created the need to appear 'knowledgeable', because respondents were informed that they were purposely selected because of the nature of the enterprises they were running. To mitigate this, the researcher informed the respondent that they were the source of information and in essence an expert from whom the researcher was seeking information.

Another limitation relates to the sample size. While generalizability to the population was not sought in this study, transferability through thick description and context description was ensured.

1.8 Chapter summary

In this chapter, the study problem has been outlined and located in the current literature. A justification for the pursuit of the study has been provided showing what the study contributes to improving our understanding of entrepreneurship. The chapter provides a rationale for studying sustainable entrepreneurship in resource constrained environments showing the mechanisms and explaining how its facets unfold. The appropriateness of the sub-Saharan Africa context is described showing that planning approaches may be inadequate to explain entrepreneurial activity in these circumstances. How the study was undertaken is also outlined and the limitations of the study and mitigation approaches discussed.

Chapter 2 – Literature review

2.0 Chapter introduction

The purpose of this study is to explain how individuals faced with resource constraints engage in sustainable entrepreneurship. To do this, a review of the literature was one of the activities undertaken. True to the tradition of the case study approach, this has been an ongoing review, from the time the study was conceived, throughout data collection and analysis up to the writing of the final manuscript. This literature review explores how scholars have dealt with the nature of sustainable entrepreneurship to locate this study within current debates, identify gaps, highlight contested areas and explore those areas amenable to further development. As a result, it can be seen how the present study advances knowledge in the field. The review begins with a broad discussion of the field of entrepreneurship providing a brief overview of the research area. It continues with a discussion of resource constraints showing the advances in research in this area. The review then moves on to a discussion of sustainable entrepreneurship. In this regard the review highlights the absence of explanations of the mechanisms by which sustainable entrepreneurship occurs. The literature on passion is then reviewed positioning it in the entrepreneurial realm and discussing its relationships with entrepreneurial outcome variables. The review then delves into a discussion of effectuation theory, dwelling on the constructs and other related theories. The review establishes that there is a need for empirical testing of the study phenomena and that qualitative methods are appropriate for a theory at this stage of development. Throughout this review, past and recent research is referred to and gaps in this research are identified to situate the current study. Besides providing a theoretical framework for the problem to be investigated, this literature review demonstrates how this study advances what is already known in the field.

2.1 Entrepreneurship

Entrepreneurship has attracted attention from practitioners, policy makers and scholars, as evidenced by the number of journals dedicated to entrepreneurship, the growth rate of the entrepreneurship division of the Academy of Management, and the number of entrepreneurship-related conferences, as well as a policy focus among donors and governments on the implementation of entrepreneurship projects. This interest may derive from the promise entrepreneurship holds to better the lives of people, but may also be related to a persistent lack of robust theoretical grounding.

The field of entrepreneurship is defined as the "study of the sources of opportunities and the processes of discovery, evaluation, and exploitation of opportunities; as well as the set of individuals who discover, evaluate, and exploit them" (Shane & Venkataraman, 2000, p. 218). Some scholars have concentrated their research on the process, while others have sought a better understanding of the individual. Others again focus on the opportunities. All these have become important and legitimate research streams in entrepreneurship scholarship.

It is the focus on opportunity-recognition that has helped position entrepreneurship research as distinct from the fields of management and strategy (Short, Ketchen, Shook, & Ireland, 2010). And it is this focus on opportunities and the consequent debate on the sources of opportunities that has led to the inclusion of effectuation as one explanation for opportunity recognition. This theory has shifted the focus of entrepreneurship research from business planning to include enactment (Arend *et al.*, 2015).

A number of methodological approaches have been utilised in the field, with the positivist quantitative paradigm currently showing dominance (Leitch, Hill, & Harrison, 2010). Nonetheless, there have been calls to increase the qualitative focus (Bygrave, 2007) to illuminate contextual issues that may have eluded previous studies.

One main direction in current literature is the relationship between entrepreneurship and economic development (Van Stel, Carree, & Thurik, 2005). Significant studies have highlighted entrepreneurship's importance for economic development via enterprise growth and consequent job creation (Delmar & Wiklund, 2008; Wiklund, Davidsson, & Delmar, 2003).

Additional research streams have studied the failure of entrepreneurial firms and learning from failure for subsequent enhanced efficiency (Mueller & Shepherd, 2014); as well as the role of entrepreneurial education (Martin, Mcnally, & Kay, 2012). This latter focus has given rise to the creation of entrepreneurship teaching programmes at both undergraduate and postgraduate levels. All these directions demonstrate the current breadth of entrepreneurship research, its diversity and atmosphere of lively debate – including but not limited to - the sources of entrepreneurial opportunity and entrepreneurial goals beyond economic gain.

Recognising business opportunities is amongst the most important abilities of a successful entrepreneur (Stevenson, Roberts, & Grousbeck, 1985). An understanding of how entrepreneurial opportunities develop is therefore important given the growth and role of entrepreneurship today (Tang, Kacmar, & Busenitz, 2012). In their seminal paper, Shane and Venkataraman (2000) make a compelling argument that entrepreneurial opportunity recognition and exploitation are what make entrepreneurship a distinctive research field, and thus present this area as a key focus for studies.

Entrepreneurs pursue opportunities using a unique set of scarce resources. Resources therefore play an important role in the development of ventures. For ventures with objectives broader than the profit-motive, resource constraints can severely affect the firm's survival and the well-being of other stakeholders.

2.2 Resource constraints

Research in cognitive psychology and creative cognition shows that thinking within a frame of reference facilitates the creation of new ideas (Finke, Ward, & Smith, 1992; Stokes, 2007) such that individuals tend to be more creative when limited by constraints.

Since the works of Penrose (1959) the importance of resources in firm activities has been exhaustively discussed in the academic literature. Resources are converted into outputs that the firm takes to the market. It is therefore argued that the more resources available the better the performance of the firm. The resource based view of the firm proposes that firm performance is contingent upon the availability of inimitable resources that enable competitive advantage (Barney, 1991). Research in this regard has identified a number of resources that are considered crucial to a firm's competitiveness. It has been ascertained that these resources are unique to the industry and the location of the firm. The literature has advanced to the discussion of slack resources which are described as potentially usable resources that can be redeployed for the achievement of organizational goals (George, 2005). As the literature has grown in this direction, it has sparked an interest in the outcomes of limited resources. Limited resources are a reality for entrepreneurial firms the world over which makes an understanding of how firms contend with this very important.

Studies on resource constraints show that the absence of resources has mixed entrepreneurial outcomes. On the one hand this absence leads to negative outcomes (Voss, Sirdeshmukh, & Voss, 2008); including smaller profit margins, staff layoffs and outright closure. Conversely, resource scarcity studies have shown that it may lead to positive organizational outcomes (Katila & Shane, 2005), such as innovation and rapid growth. A number of explanations have emerged for these mixed outcomes. In one of the explanations, it is argued that the level of resources determines the outcome (Bourgeois, 1981). In another explanation it is proposed that individual and team level characteristics such as knowledge vary this outcome (Hoegl, Gibbert, & Mazursky, 2008). A third explanation is that the type of resource constraint has different effects on identifying new ideas (Mellahi & Wilkinson, 2010). Resource constraints it is therefore argued, result in a frugal mind-set reflected in the use of less costly resources (Scopelliti, Cillo, Busacca, & Mazursky, 2014). This may be explained by resource constraints resulting in business model adaptation that involves a process of continuous search, selection and improvement in value creation, value proposition and value capture based on the surrounding environment (Dopfer, Fallahi, Kirchberger, & Gassmann, 2017). In this way resource constraints force the firm to seek resources while seeking knowledge on how to operate within the limited available resources (Eshima & Anderson, 2017).

Businesses such as those run by sustainable entrepreneurs often contend with a distinct scarcity of resources (Austin, Stevenson, & Wei-Skillern, 2006). This may be explained by the fact that sustainable entrepreneurs are committed to values that focus on conservation rather than consumption of resources. In a study on sustainable entrepreneurs, Burg, Podoynitsyna, Beck and Lommelen (2012) show that resource constraints direct entrepreneurs towards opportunities related to the constraints they are experiencing. The authors further assert that entrepreneurs are as much attracted to opportunities that are in line with their available resources as they are to those that align with their resource deficiencies.

Resource constraints have also been identified as a moderator in the realization of sustainable entrepreneurship (Pinkse & Groot, 2015). The authors further propose that resource constraints require the entrepreneurs to use collective action. However, while their paper provides the basis for theorization that resource constraints induce the engagement in business partnerships, the study focus was on the outcomes of sustainable entrepreneurship.

The issue of resource constraints has therefore been the subject of interest in sustainable entrepreneurship research and been shown to determine the path of opportunity development in sustainable entrepreneurship. Two paths have been proposed. The insurgent path operates against an establishment that is not suitable for sustainability ideals which is typical of resource constrained contexts. The conformist path on the other hand operates in an enabling context (Muñoz & Dimov, 2015). While these paths do not specify the specific mechanisms undertaken to realise sustainable entrepreneurship, they provide insights on what could be expected in different contexts.

In a recent paper with a specific focus on sub-Saharan Africa, social embeddedness is advanced as a variable that enables the recognition of sustainable development opportunities in the face of exogenous shocks (Juma, James, & Kwesiga, 2017). However, while this focus on embeddedness may advance the understanding of sustainable entrepreneurship in sub-Saharan Africa an explanation of the mechanisms involved in realizing sustainable venture outcomes in this resource scarce context is still needed.

In summary, research on resource constraints continues to fascinate entrepreneurship scholars as to date there is no agreement on how resource constraints may influence entrepreneurial outcomes. The multiple objectives that sustainable entrepreneurs seek to pursue broadens the scope of resource constraints providing the opportunity for interesting insights on the creative processes of entrepreneurial action. This scarcity may well present opportunities for sustainable entrepreneurship development and growth.

2.3 Sustainable entrepreneurship

Entrepreneurship has both positive and negative effects on society. Negative effects are most often seen in the environment and the community through pollution, over-exploitation of resources and unfair compensation of employees, among others. Positive impacts may be on individual livelihoods or national economic growth (Wright & Zahra, 2011). The tension between these different impacts has given rise to calls for consideration of the goal of 'sustainability', which preserves the positives while attempting to mitigate the negatives. Sustainability is defined in a number of ways, but a frequently used definition is that produced by the World Commission on Environment and Development (WCED). This expands the concept of sustainability to include sustainable development: "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p. 43). The

WCED defines sustainable development as constituted of environmental, economic and socio-political sustainability.

That this concern is current and urgent is evidenced by leading research journals such as the Academy of Management Review (1995), Academy of Management Journal (2000) and Journal of Business Venturing (2010), all of which have published special issues on an interpretation of entrepreneurship that extends beyond the profit motive. However, the focus of these publications has been on the role of entrepreneurs in developed rather than impoverished developing communities from developing economies. While a key foundation of sustainable development is the recognition that social pressures, especially those within communities, are a major hindrance to environmental improvement, few studies have empirically explored this relationship (Hall *et al.*, 2010). In addition, previous literature has considered realised instances of sustainable entrepreneurship, rather than the mechanisms by which this genre of entrepreneurship emerges. What existing literature on sustainable entrepreneurship does not yet do is explain how it occurs amidst resource constraints.

The practice of sustainable entrepreneurship requires the entrepreneur to possess a value system consistent with underlying principles of sustainability. Larson (2000) calls these the altruistic values found among social and environmental entrepreneurs which put the needs of others, nature, and the community ahead of one’s own. Conventional entrepreneurs view enterprises as a means of profiting from the exploitation of resources to generate maximum financial returns in the shortest possible time. Sustainable entrepreneurs view enterprises as a means of perpetuating resources, with the underlying logic of using human and natural resources in a way that enhances and maintains the quality of their functioning for the longest possible time (Parrish, 2010).

Entrepreneurial activity leads to changes in the society within which it occurs (Welter, 2011; Wright & Zahra, 2011). These changes result from the exploitation of resources and the consumption of entrepreneurial products. Enterprises in sub-Saharan Africa, which are predominantly small, exist in vulnerable environments susceptible to potentially harmful action, such as over-exploitation and pollution, by the activities of the entrepreneur. Whole communities are vulnerable due to lack of knowledge, weak institutions and poor infrastructure (Pietrobelli & Rabellotti, 2011). Yet entrepreneurship can assist the environment through, for example, discovering novel methods and products that reduce waste and improve quality of life (Dean & McMullen, 2007). This has the potential to improve lives. Sustainable entrepreneurship is growing as a research field partly because of the need to understand entrepreneurial activity within these circumstances (Shepherd & Patzelt, 2011).

Sustainable entrepreneurship is characterised by activities less oriented towards management systems or technical procedures, and more towards the initiative and skills of the entrepreneurial person or team in realising large-scale market success and societal change through environmental or societal innovations (Schaltegger & Wagner, 2011). The triple bottom line is the term used for an accounting framework that can gauge and calculate performance equally against economic, social and environmental dimensions (Elkington, 1998). The three factors are conceived to be mutually dependent, with sustainable entrepreneurs managing to the ”triple bottom line” when they balance economic health, social equity and environmental resilience through their entrepreneurial behaviour (Kuckertz & Wagner, 2010, p. 524). Indeed, most definitions allude explicitly or implicitly to the triple bottom line.

Sustainable entrepreneurship is a relatively new area for academic research and has been defined in a number of ways (Hockerts & Wüstenhagen, 2010; Kuckertz & Wagner, 2010). Many of the definitions have drawn on the definition of entrepreneurship as the study of sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate, and exploit them (Shane & Venkataraman, 2000). But more recently, the definition of sustainable entrepreneurship has taken on new dimensions. These include its nature as an innovative, market-oriented and personality driven form of creating economic and societal value via break-through environmentally or socially beneficial market or institutional innovations (Schaltegger & Wagner, 2011). Other authors have added a focus on different aspects such as innovative behaviour (Gerlach, 2003); future generations as beneficiaries of the activities of sustainable entrepreneurs (Crals & Vereeck, 2004); or market failures as opportunities to be discovered by sustainable entrepreneurs (Dean & McMullen, 2007; Hockerts & Wüstenhagen, 2010). Some scholars have added psychological consequences to the social, economic and environmental outcomes (Cohen & Winn, 2007): an approach consistent with a broad embrace of future outputs (Choi & Gray, 2008; Pacheco, Dean, & Payne, 2010; Patzelt & Shepherd, 2011; Shepherd & Patzelt, 2011).

A recent definition by Pinkse and Groot (2015), highlights the discovery, creation and exploitation of entrepreneurial opportunities that contribute to sustainability by generating social and environmental gains for others in society. From this definition, it can be argued that uncertainty is perverse in the context of sustainable entrepreneurship, since there is precariousness around social and environmental problems along with the gains from action on these problems. Ultimately sustainable entrepreneurship is recognised as a sub-set of entrepreneurship (Thompson et al., 2011).

However, most definitions of sustainable entrepreneurship pay limited or no attention to operationalization in the context of resource-constrained environments. A persuasive argument in favour of broadening the definition of entrepreneurship to include these contexts has been advanced by Bruton, Ketchen and Ireland (2013).

In developing countries resource constraints pose a threat to entrepreneurs, their communities and the environment (Naudé, 2011) making why and how they may engage in sustainable entrepreneurship, a priority question. Limited existing resources, such as forests and cultural sites, may be plundered in the search for a livelihood. Further, current literature concerning sub-Saharan African entrepreneurial activity concentrates largely on the setting up of enterprises and how livelihood is derived (Kiss, Danis, & Cavusgil, 2012). Much remains unknown about whether and how entrepreneurship can contribute towards a socially just and ecologically sustainable society (Hall *et al.*, 2010).

Scholars have already identified this lack and called for more research on sustainable entrepreneurship including the need for more qualitative studies (Hockerts & Wüstenhagen, 2010); the need to identify the characteristics of sustainable entrepreneurs (Shepherd & Patzelt, 2011); the need to distinguish sustainable entrepreneurial intention from general entrepreneurial intention (Kuckertz & Wagner, 2010); the conditions necessary for sustainable entrepreneurship; and the need to interrogate the non-pecuniary incentives driving these entrepreneurs (Hall *et al.*, 2010). Some authors have looked at the broad motivations for engaging in sustainable entrepreneurship (Parrish, 2010). In this regard, research in a resource constrained context has highlighted the role of knowledge of natural and communal environments, the need to develop gains for the entrepreneur and others, and the possession of entrepreneurial knowledge as factors that influence the identification of sustainable entrepreneurship opportunities (Hanohov & Baldacchino, 2017). However, an intensive understanding of how entrepreneurs engage in sustainable entrepreneurship remains a gap. The small but growing literature on sustainable entrepreneurship historically focused on system-level factors providing little explanation of the type of entrepreneur or entrepreneurial process most likely to lead to the recognition of sustainable opportunities (Patzelt & Shepherd, 2011).

These authors propose more analysis at the level of the individual entrepreneur, suggesting that a person's knowledge of the natural/communal environment increases the likelihood of their engaging in sustainable entrepreneurship. This comes as a result of the uncertainty associated with environmental problems (York & Venkataraman, 2010). This uncertainty causes the entrepreneur to rely less on predictive mechanisms opting to engage more stakeholders as a measure to increase control and enact a future they prefer. Read, Sarasvathy, Dew and Wiltbank (2016, p. 5) are emphatic in stating that "effectuation is most useful where traditional notions of optimality and bias break down or simply do not apply". It is against this background that effectuation serves as an appropriate lens to clarify the underlying mechanisms in the realization sustainable entrepreneurship.

Recent research on sustainable entrepreneurship is advancing the domain in a number of directions, providing the field with the breadth and depth for interesting and insightful scientific inquiry. The role of emotions is taking centre stage in the most recent studies.
For example, it is shown that while pursuing the aim of achieving social impact, sustainable entrepreneurs seek legitimacy by influencing the business community and government officials through actively building awareness (Stubbs, 2017).

Other recent work has focussed on the social legitimacy as a stimulus to develop sustainability ideas, actions and exchange relationships. In one of these studies Muñoz and Dimov (2015) propose that sustainable entrepreneurs either react to social legitimacy (insurgent) or use it as an enabler (conformist). In another study, Kibler, Fink, Lang and Muñoz (2015) highlight the importance of territorial embeddedness distinguishing between emotional and instrumental place attachment. Social cultural embeddedness has also been identified as a condition for the occurrence of sustainable entrepreneurship (Gray, Duncan, Kirkwood, & Walton, 2014).

Another interesting direction in sustainable entrepreneurship research is work that focusses on the outcomes of sustainable entrepreneurship. It would be expected that for such a fast growing phenomenon researchers would have found value in studying the outcomes of the phenomenon. However, this seems not be the case. An exception though may be found in a study on how these entrepreneurs overcome market barriers. This research highlights corporate political activity as an outcome of sustainable entrepreneurship (Pinkse & Groot, 2015).
Overall, the focus on sustainable entrepreneurship reflects the growth of scholarly interest in understanding the non-economic motivations and outcomes that exist in many entrepreneurial decisions (Thompson *et al.*, 2011). Like many other research phenomena, studies of

antecedents and outcomes tend to dominate the field's research agenda. However, research on related concepts also contribute to enriching the study area.

2.3.1 The sustainable entrepreneur

The sustainable entrepreneur is the individual who engages in the development of the sustainable enterprise (Munoz & Cohen, 2017). While often times the activity of this individual involves a number of people he/she bears the vision and binds the various communities of interest together. The sustainable entrepreneur forms opportunities, brings innovations to the market and transforms societies (Johnson & Schaltegger, 2016). A number of variables personal to the sustainable entrepreneur have been the focus of recent research. The most prominent of these are knowledge and skills (Patzelt & Shepherd, 2011), entrepreneurial self-efficacy (Shepherd & Patzelt, 2011), motivation and intention (Schaltegger & Wagner, 2011; Stubbs, 2017) and moral cognition (Muñoz & Dimov, 2015; Shepherd, Patzelt, & Baron, 2012). Research on motivations has attracted a lot of attention though beyond identifying the most likely actors and the emergence of specific business forms, the literature is thin on addressing these motivations (Carsrud & Brännback, 2011; Edelman, Brush, Manolova, & Greene, 2010). Noticeably absent is a discussion of motivations in the face of challenges.

The role of moral cognition has recently attracted attention (Baron, Zhao, & Miao, 2015). Morals tend to provide a compass that fuels passion to pursue causes. A focus on morality therefore provides explanations for how sustainable entrepreneurs may sustain their interest in their ventures beyond the accomplishment of set-targets.

A number of variables are recognised as antecedents of entrepreneurial action and sustainable entrepreneurship specifically. These include entrepreneurial self-efficacy (Drnovšek, Wincent, & Cardon, 2010; Shepherd & Patzelt, 2011) which drives the decision to start and sustain the venture. Knowledge and skills are other known antecedents of entrepreneurial action (Baum & Locke, 2004). These competences are required for the successful engagement in sustainable entrepreneurship. However, what is absent is how these skills are acquired and how they are used to realise the sustainable objectives.

2.3.2 The context for sustainable entrepreneurship

Defined as elements outside the control of the entrepreneur that affect a venture's development, the contextual factors that have been the focus of recent sustainable entrepreneurship research include formal and informal institutions (York & Venkataraman, 2010), relationships with other stakeholders (Hockerts & Wüstenhagen, 2010; Schlange, 2007) and the embeddedness of the entrepreneur in the community they operate within (Kibler et al., 2015).

Based on institutional theory the role of institutions has been shown to be pre-eminent. Weak institutions it is argued discourage the engagement in this type of entrepreneurship (Bruton, Ahlstrom, & Li, 2010). However, it is also shown that coping mechanisms are derived to mitigate the circumstances (Bruton, Ahlstrom, & Puky, 2009). It is in this regard that two pathways are defined, the insurgent path that dominates the highly uncertain context with weak institutions as opposed to the conformist path that typifies the more developed country context (Muñoz & Dimov, 2015). Other literature shows that for sustainable entrepreneurs to be successful they need to be able to change the institutional framework (Cohen & Winn, 2007; Pinkse & Groot, 2015). This thesis contributes to this line of inquiry by explaining inherent mechanisms.

The role of relationships with other stakeholders is crucial in defining sustainable entrepreneurship. However, the nature of these relationships has not received adequate attention with the literature limited to acknowledging the existence of partners. This limits the understanding of the mechanisms and the content of interaction that would provide conceptual clarity in distinguishing this type of entrepreneurship from other forms of entrepreneurship.

Closely related to the aforementioned is the role of embeddedness of the entrepreneur in the community within which he/she is active. While the current literature shows the importance of place attachment (Kibler et al., 2015), it also highlights the role of emotions and the likelihood of passion in explaining the occurrence of sustainable entrepreneurship.

2.3.3 The sustainable entrepreneurship process

Research on the entrepreneurship process continues to attract a lot of interest (McMullen & Dimov, 2013). Relatedly, research on the sustainable entrepreneurship process has likewise enjoyed increased attention from researchers (Choi & Gray, 2008; Muñoz & Dimov, 2015). Interestingly research on the sustainable entrepreneurship process has garnered insights on entrepreneurship theory through identifying social and ecological problems as sources of entrepreneurial opportunities (Belz & Binder, 2017). The role of exchange relationships has been highlighted in this literature. However, the nature and mechanisms in these relationships are not made explicit. In other research a two pathway process model has been developed (Belz & Binder, 2017). However, this discovery does not articulate the role of economic opportunity recognition in the realization of sustainable entrepreneurship. Further to this, while the entrepreneurship process involves a number of stages hardly any known study has addressed anything more than the opportunity exploitation stage (Choi & Gray, 2008) in sustainable entrepreneurship. Nonetheless, this research on the sustainable entrepreneurship process surfaces the role of passion in explaining how the challenges in the pursuit of multiple objectives may not deter the sustainable entrepreneur. However, the understanding of the opportunity recognition phase is inadequate and yet this will shed more light on the sustainable entrepreneurship process.

2.3.4 Sources of sustainable entrepreneurship opportunities

Opportunity recognition in a sustainable development context, where entrepreneurs are motivated by goals beyond economic gain, adds further complexities. Patzelt and Shepherd (2011), focusing on third-person opportunities, demonstrate how entrepreneurs' knowledge of the natural and communal environments is key to creating awareness and attachment towards others, although their study did not address the intentions and decisions of the entrepreneur, the main focus of the current study. Yet because they propose that the entrepreneur's knowledge of the natural and communal environment informs the recognition of opportunities for sustainable development, their work can be related to the 'means' dimension of effectuation, described as 'what you know', 'who you know' and 'who he/she is'.

Market imperfections and failure have been the dominant explanations for sources of opportunities in sustainable entrepreneurship (Cohen & Winn, 2007; Dean & McMullen, 2007). This typifies the sub-Saharan Africa context where conditions are ideal to explain the realization of sustainable entrepreneurship.

2.3.5 Sustainable entrepreneurship and innovation

Innovation is classified in a number of ways. One of the more used classifications is the explorative and exploitative categorization. In this classification, exploitative innovation builds on improvements of skills and processes and leads to incremental changes aimed at penetrating existing markets while exploratory innovation involves the challenging of existing approaches and includes search, discovery, experimentation and risk taking (Mcgrath, 2001) resulting in superior new products which may enable the firm to create new markets (He & Wong, 2004). The nascent nature of sustainable entrepreneurship relates to explorative innovation. This is supported by previous literature such as Rosenkopf and Nerkar (2001) where it is argued that when firms deal with exploration they cannot rely on existing familiar knowledge. Mueller, Rosenbusch and Bausch (2013) further state that exploratory innovators have to move into unfamiliar territory as they try to create novel products, services or methods that create new demands with unpredictable outcomes. These all typify sustainable entrepreneurship in sub-Saharan Africa.

In their descriptions of sustainable entrepreneurship, Cohen and Winn (2007) and Shepherd and Patzelt (2011) highlight future innovations with a focus on long-term solutions to environmental, social and economic problems. In sustainable entrepreneurship research innovation is not limited to advancements in science and technology that foster environmental protection, social wellbeing and financial benefit but also innovations in the formation of new markets and the distribution of information to consumers (Dean & McMullen, 2007).

Previous literature such as Lichtenstein, Carter, Dooley and Gartner (2007) showed that the emergence of innovations occurs in nonlinear and temporally complex manners. In this regard Brettel, Mauer, Engelen and Küpper (2012) demonstrated that effectual dimensions offer ways to deal with innovative projects. The authors suggested that the effectual sustainable enterprise would deliberately seek exposure through dealing with unexpected events as a source of opportunity and use for example open innovation tools in order to create fertile ground for contingencies to occur. These authors perceived the potential for effectuation to add explanatory value to the discussion of the reasons that non-linear and interdependent processes, such as those in early or uncertain innovation stages, occur.

The nature of problems sustainable entrepreneurship seeks to address are intractable and therefore demand a novel approach.

2.4 Passion

Sustainable entrepreneurship should not be perceived as a dispassionate and coolly rational phenomenon (Krueger, Hansen, Michl, & Welsh, 2011). Consideration of the wellbeing of the environment and others as part of entrepreneurial intentions requires the enactment of deep mental models. Passion can be considered as an emotional resource for coping with entrepreneurial challenges. The review of passion in this section was occasioned by by its strong occurrence in the data which caused the researcher to cycle back to undertake this review. The relevance of passion in answering this study's research question is that it explains how entrepreneurs identify sustainable entrepreneurship opportunities, withstand the challenges they encounter and how they make the connection with the environment and the wellbeing of other individuals. Previous research shows that sustainable entrepreneurship is motivated and generally linked to personal values and passion for sustainable products (Choi & Gray, 2008; Hockerts & Wüstenhagen, 2010).

The role of emotions in entrepreneurial activity is fast gaining prominence. In an editorial on the 30th anniversary of the Journal of Business Venturing Dean Shepherd calls for more research work on emotions such as passion and concern for others and their influence on entrepreneurial activity beyond profit maximization. Passion specifically concerns intense positive feelings for activities that are central and meaningful to an individual's self-identity (Cardon, Wincent, Singh, & Drnovšek, 2009). Through identity theory passion has been related to entrepreneurial outcomes (Murnieks, Mosakowski, & Cardon, 2014). Other recent work has shown how passion for founding changes over time (Collewaert, Anseel, Crommelinck, De Beuckelaer, & Vermeire, 2016).

In integrating the research on passion with entrepreneurship, it is shown that passion energises and inspires individuals to overcome challenges (Murnieks et al., 2014). Passion's influence on entrepreneurship is most remarkable in situations of uncertainty and where resources are scarce. This it can be argued occurs through facilitating the fortitude to overcome significant obstacles. In addition it has been stated that passion for an activity is likely to lead an individual to undertake it more often, in which case the individual is likely to develop a competency, adding not only to his/her ability to perform the task, but also to their sense of self-efficacy (Cardon et al., 2009).

Previous research has linked passion to the ability to overcome resistance, obtain resources, coordinate activity, and motivate key people, all of which require high levels of persistence (Bierly III, Kessler, & Christensen, 2000). Passion can therefore be considered a critical factor influencing entrepreneurial action. It can be an inner force that helps entrepreneurs to overcome the barriers they meet along their way, to persist in the face of challenges and failures, and to commit the necessary effort to succeed at their own ventures (Cardon, Grégoire, Stevens, & Patel, 2013). In addition, passion may enable the identification of trends important for the creation and discovery of entrepreneurial opportunities (Baron, 2008). Similarly, it is also known to foster creativity and the recognition of new information patterns critical to the discovery and exploitation of promising opportunities (Baron, 2008).

Interest in passion research has fostered a focus on the outcome behaviour, however an interesting study by Gielnik, Spitzmuller, Schmitt, Klemann and Frese (2015) stated that rather than passion leading to action, action led to passion. This causal uncertainty relating to research on passion signifies the need to further understand the construct’s relationships with a number of relevant entrepreneurship related variables.

In summary, while Patzelt and Shepherd (2011) propose the role of emotions in the development of altruistic motivations for sustainable entrepreneurship, there is a marked shortage of passion studies in the domain of sustainable entrepreneurship. The nature of sustainable entrepreneurship in resource constrained environments may be better understood by studying the exhibition of passion by the entrepreneur.

2.5 The theory of effectuation

Prominent entrepreneurship scholars such as Zahra (2007), point out that the discipline tends to rely on theories derived from economics, sociology and psychology, without due regard for the distinctiveness of the entrepreneurial phenomenon. Four recent theories –effectuation, entrepreneurial bricolage, the creation perspective, and user entrepreneurship – have emerged to describe the logic and behaviour underlying the processes of entrepreneurship (Fisher, 2012). However, this study focuses on one of these: effectuation.

Effectuation theory can be a useful lens for improving our understanding of sustainable entrepreneurship because the multiple objectives that typify sustainable entrepreneurship imply that it occurs under conditions of enhanced uncertainty. Furthermore, enhanced resource constraints and threats to survival in the sub-Saharan Africa context reduce the ability to plan and predict future actions making effectuation a useful tool to interpret entrepreneurial activity. In addition, the need to rely on a number of stakeholders also makes effectuation an appropriate lens for better explaining the occurrence of sustainable entrepreneurship. Therefore, the resource constrained context along with the multi-stakeholder nature of sustainable entrepreneurship and the novelty of the sustainable entrepreneurship phenomenon make effectuation an appropriate lens to investigate how individuals faced with resource constraints engage in sustainable entrepreneurship. Further to this the focus of the theory on a number of stakeholders resonates with the concept of sustainable entrepreneurship that also involves a number of stakeholders.

Sarasvathy (2001, p. 245) describes it as follows: “effectuation takes a set of means as given and focuses on selecting between possible effects that can be created with that set of means”. The overall objective is not clearly envisioned at the beginning and the actor remains flexible, taking advantage of environmental contingencies as they arise, learning in the process. Effectuation is “about moulding and enhancing initiatives, formulating new goals and creating new opportunities, rather than positioning oneself within environments largely outside one’s control or taking opportunities as exogenously given” (Wiltbank, Read, Dew, & Sarasvathy, 2009).

Effectuation has its roots in cognitive psychology, particularly the work which emphasises entrepreneurial framing — how entrepreneurs view inputs (relevant or not), make inferences, perceive alternatives, and attend to constraints (Dew, Read, Sarasvathy, & Wiltbank, 2009).

Built on the works of Herbert Simon, it has been described by Sarasvathy (2001) as the way of thinking of expert entrepreneurs. The cognitive approach to entrepreneurship is a response to the limitations of and contradictory results from approaches that focus on the characteristics of the individual entrepreneur, known as the traits approach. Because of these limitations, the role of cognitions in the entrepreneurship process has now come to the fore. The cognitive approach therefore lends prominence to the role of the individual in the entrepreneurship process (Baumol, 1990).

Entrepreneurial cognitions have been defined as "the knowledge structures that people use to make assessments, judgements or decisions involving opportunity evaluation and venture creation and growth" (Mitchell *et al.*, 2007, p. 97). Yet although the research area has grown, it still suffers from narrow theoretical articulation and weak conceptual foundations which limit its contribution (Grégoire, Corbett, & McMullen, 2011). In a bid to advance the theory, this study therefore seeks to build on these conceptual foundations, explaining the mechanisms through which the constituent constructs of the theory operate.

Process theory is attracting interest from entrepreneurship researchers interested in context-rich, complex and dynamic phenomena (Moroz & Hindle, 2012). Effectuation theory emerged from a process perspective as it sought to understand how economic artefacts came to be (Sarasvathy, 2001). Effectuation meets the criterion of a process theory in that it explores "how" questions (Langley, Smallman, Tsoukas, & Van de Ven, 2013). It is in this regard that Gupta, Chiles and McMullen (2016) critique the growing number of effectuation based studies and evaluation criteria calling for more qualitative and time based studies. This study therefore sought rich data that paid attention to the context in which the events were unfolding.

In an attempt to focus entrepreneurship researchers on how vital cognition research is in framing entrepreneurship issues, Baron (2004) proposed three questions: why do some people become entrepreneurs?; why do some people recognise entrepreneurial opportunities?; and why are some people more successful than others at entrepreneurship? Effectuation holds the potential to provide answers to these and similar questions. This is because the principles of effectuation bring together consideration of the cognitive patterns of decision-making that form the basis of the deciding that precedes action (Mauer, 2014).

In contrast to the more traditional model of entrepreneurial behaviour, broadly referred to as the "emerging theoretical perspectives" for entrepreneurship research (Beckman, Eisenhardt, Kotha, Meyer, & Rajagopalan, 2012), the theory of effectuation proposes that the entrepreneur creates rather than discovers opportunities (Sarasvathy, 2004), preferring opportunities that offer future options to those that can maximise current returns (Goel & Karri, 2006). The assumptions underlying effectuation are that the environment is dynamic, nonlinear, unpredictable and immeasurable, while entrepreneurial opportunities are subjective, socially constructed, and created through a process of enactment (Fisher, 2012).

Effectuation builds on the decision-theory literature that suggests that if decision-makers believe they are dealing with relatively unpredictable phenomena, they will try to gather information about future trends through experimental and iterative learning (Ries, 2011).
Thus, it differs from theories derived from economics, which perceive entrepreneurship as a predictive activity rather than an emergent one (Dew & Sarasvathy, 2002). It challenges the notions of "utility maximization in the individual, profit maximization in the firm, and welfare maximization in the economy" (Sarasvathy, 2002, p. 95) and introduces an alternative perspective, highlighting entrepreneurial imagination and associating entrepreneurship with creating "the society we want to live in from the society we have to live in" (Sarasvathy, 2002, p. 110).

According to effectuation theory, to the extent the future cannot be predicted, the entrepreneur seeks to control it (Sarasvathy, 2001). Control is therefore a viable alternative when faced with the difficulties that uncertain situations may present. In exercising control, decisions are made that facilitate future action. Through these actions, effectuation assumes that an opportunity may result (Wiltbank, Dew, Read, & Sarasvathy, 2006).

Within the current study, effectuation holds that in an uncertain environment, entrepreneurs operate within their means (including who the entrepreneur knows, what he knows and who he is). These means determine the course of action towards sustainable entrepreneurship, via an iterative, interactive, emergent process containing elements of experimentation and risk within acceptable limits. For these reasons, the theory of effectuation potentially offers insight into the conception of sustainable entrepreneurship, the challenges such entrepreneurs face, and how these challenges are overcome.

Drawing from Sarasvathy (2008), effectuation can be explained through the four principles that follow. Firstly, it begins by considering means, rather than establishing end goals. In this context, 'means' refers to personal preferences, accumulated knowledge and experiences and person-specific network contacts. Secondly, it applies the criterion of affordable loss rather than expected return when evaluating options. Thirdly, it leverages relationships rather than applying competitive analysis when assessing relationships with other individuals and organisations. Finally, it entails exploiting rather than avoiding contingencies. Flexibility and experimentation introduce subtleties in the conception of contingency and means (Mauer, 2014).

Boundary conditions for these principles have been proposed as follows: only those means that are relevant to the venture constitute effectual means; only those partnerships in which both parties share the risk and benefits of the venture constitute effectual partnerships; what matters in affordable loss is whether the entrepreneur manages that risk by attempting to measure upside opportunity potential or effectually considering the worst case scenario; the entrepreneur's willingness to change when confronted with new information, means or surprises (Read, Song, & Smit, 2009). While effectuation has been used to explain the activities of firms with profit objectives, this study joins the few existing studies such as Corner and Ho (2010) and Lehner and Kaniskas (2012), to explain the dilemmas and processes of firms with additional non-pecuniary objectives. The association of sustainable enterprises with multiple objectives, experimentation and opportunity creation and the lack of emphasis on rational self-utility maximization are highly consistent with effectual approaches, making these enterprises appropriate for this study.

Sarasvathy (2001) has proposed that successful early entrants in a new industry are more likely to have used effectuation. Because sustainable entrepreneurship is a relatively new phenomenon (Hockerts & Wüstenhagen, 2010) occurring in industries, both old and new, but spawning new firms and types of industrial activity (for example, the renewable energy industry), this context is especially appropriate for the study of effectuation. In addition, drawing on Sarasvathy (2008), who recommends the operationalization of effectuation in uncertain environments, it is appropriate to study the uses of effectuation in the relatively less predictable circumstances of the developing country context (Leys, 2011) as well as the individual initiatives associated with entrepreneurial activity (Rauch & Frese, 2007). The collectivist nature of the society coupled with the high entrepreneurial rates bear promise for novel theory development. While the theory of effectuation developed from the study of the constraints faced by entrepreneurs, Sarasvathy (2001) recommends the need to test this theory in a context where resources, too are constrained, such as a developing country. Further to this, while the study conducted by Chandler *et al.*, (2011) begins to move effectuation research from a nascent to an intermediate field, it has been argued that "efforts in quantitative measurement must be seen only as first steps and as important parts to an iterative process that incorporates theoretical discussions, analyses of rich qualitative data and careful refinement of condensed quantitative instruments" (Mauer, 2014, p. 121).

2.5.1 Effectuation constructs

The creation view of entrepreneurship argues that rather than being discovered, opportunities are "effectuated" (Sarasvathy, 2001) or "instantiated" (Sarason, Dean, & Dillard, 2006) through iterative activity within economic structures in which the entrepreneur exhibits the agency to influence those structures. It is the actions and perceptions of the entrepreneur that creates these opportunities (Alvarez & Barney, 2007; Chiles, Bluedorn, & Gupta, 2007; Sarason, Dillard, & Dean, 2008; Sarasvathy, Dew, Velamuri, & Venkatraman, 2003).

The essential agent of entrepreneurship is an effectuator: an imaginative actor who seizes contingent opportunities and exploits any and all means at hand to fulfil multiple current and future aspirations, many of which are shaped and created through the very process of economic decision making and not given *a priori*. The effectuator pursues an aspiration and visualises a set of actions for transforming the original idea into the generalised aspiration of a firm (Sarasvathy, 2001). This description of the effectuator mirrors that of Anderson's (1998) and Gibbs' (2009) sustainable entrepreneurs who proactively seek opportunities to reap higher yields using alternative methods and practices.

In this study the focus is on four established constructs of effectuation, that is, pre-commitments, affordable loss, flexibility and experimentation. These have been singled out in most recent studies on effectuation as being the most robust conceptual and statistical pillars on which to advance effectuation as a theory (Chandler et al., 2011; Deligianni, Voudouris, & Lioukas, 2015).

2.6.1.1 Pre-commitments

Pre-commitments are resources and promises committed prior to the entrepreneur's offerings being produced (Arend *et al.*, 2015). They may include an undertaking to supply at a specific price, acceptance to work at a certain wage, or commitment to buy certain quantities, offer of training, and in the case of sustainable entrepreneurship, the promise of responsible entrepreneurship towards the community and environment in return for support from stakeholders. These pre-commitments and the presence of co-creator alliances reduce uncertainty by providing information (Arend et al., 2015; Jansen, Mauer, & Brettel, 2016). Mutual commitment from stakeholders creates an initial network that provides the basis for transforming existing reality into a new market (Sarasvathy & Dew, 2005).

Pre-commitments may also be generalised to refer to the partnership dimension of effectuation, because pre-commitments made by partners expand means. These 'partners' need not be bound by formal contracts; they comprise all relevant 'others' including customers, suppliers, competitors, as well as government and community members. Involving partners in innovative projects can be complex, time-consuming and costly (Nakata & Sivakumar, 1996). Transaction cost economics explains that the costs of coordination, supervision and intellectual property protection may be especially pronounced (Williamson, 1979) for the types of new and small firms that are the focus of this research. Rosenbusch *et al.* (2011) suggest such firms should carefully evaluate the cost of external liaisons. Belderbos, Carree and Lokshin (2004) recommend that small firms collaborate with smaller external partners as the competitive dynamics of such interactions may be more favourable.

This observation is consonant with the effectual logic concept of "initial customers as partners and vice versa" (Sarasvathy, 2008). When entrepreneurs have access to a broad base of people interested in their work on a new product or service, they have an advantage over those entrepreneurs operating in isolation. Sharing a new product with an interested community provides early feedback, facilitating better and faster product development. If community members act as evangelists for the new product, sales will increase at a higher rate than in a venture where no such community exists, producing a higher level of growth in ventures that are embedded in a community (Fisher, 2012).

Pre-commitments are vital for effectuation precisely because the effectuation is purposeful and driven by high level goals that are shaped and embodied into opportunities through advance interactions with self-selected stakeholders (Sarasvathy & Dew, 2005). Read *et al.* (2016) argue additionally that partnerships are central to effectual logic.

However, while the effectuation literature has highlighted the importance of this construct, it has dwelt a lot on describing the construct and distinguishing its existence in effectual and causal circumstances.

2.6.1.2 Affordable loss

Future expectations may be unreliable not only because they are made in the absence of historical data, but also because there is no way of anticipating how planned actions will interact with other market players (Dew, Sarasvathy, Read, & Wiltbank, 2009). Lacking a feasible way to calculate the expected return from a given course of action, the entrepreneur selects based on loss affordability (Chandler *et al.*, 2011) rather than analysing alternatives to select that with the highest expected return. These are the conditions in which sustainable entrepreneurs in a developing country predominantly operate.

Affordable loss is the benchmark employed by an entrepreneur to estimate what he/she is willing to forego in pursuing an action. It guides investment decisions, manages highly variable commitments and limits the challenges created by overspending (Mauer, 2014).

In seeking to explore how sustainable entrepreneurs are able to reconcile their sustainability-driven values and motives with the organizational imperatives for an enterprise to survive in a competitive market context, five principles that guide the design process of these entrepreneurs, are proposed. They include resource perpetuation, benefit stacking, strategic satisficing, qualitative management, and worthy contribution. Strategic satisficing, which means identifying levels of outcomes that are deemed satisfactory and ensuring these targets are achieved on continuous basis (Parrish, 2010), resonates with the concept of affordable loss.

Affordable loss involves decision makers estimating what they might be able to put at risk and determining what they are willing to lose to follow a course of action. This principle provides the entrepreneur with the resolve to move forward but also the emotional backup required to quit when the time comes (Dew, Sarasvathy, *et al.*, 2009). Setting an affordable loss threshold places emphasis on the downside of a venture and can result in the entrepreneur underinvesting.

However, in case of failure, those relying on the affordable loss principle are likely to lose less (Ucbasaran, Shepherd, Lockett, & Lyon, 2013).

In relating affordable loss to the partnership dimension, the affordable loss principle makes over-trust acceptable if spread over multiple trust contexts suggesting that previous failure from over-trust becomes part of the acceptable risk (Goel & Karri, 2006). These authors further propose that entrepreneurs considering over-trust an inevitable cost of doing business and occasional failures as positive signs of entrepreneurial qualities, may risk over-trusting if the size of the gamble is relatively small and does not evoke a ruin situation.

Affordable loss is exhibited in a number of ways. For example, Fisher (2012) found that entrepreneurs took action to overcome constraints by devoting small chunks of time or resources to a solution while working on other jobs. He further asserted that entrepreneurs who operate under significant resource constraints tend to demonstrate higher levels of creativity in the creation of their product and their ventures. The concept of affordable loss has been extended to include loss of reputation, time and access to information (Mauer, 2014). In this way it has been generalised beyond financial loss to include even more subjective dimensions. Affordable loss is further exhibited in 'small step' investments where available resources in the local environment are mobilised (Reymen *et al.*, 2015). It entails finding the cheapest way to produce through using less planning time and without bearing the cost of competitive analyses (Sarasvathy, 2001, 2008).

Affordable loss encourages entrepreneurs to incorporate the possible downside in evaluating alternatives so that opportunity failure will not result in greater venture or personal failure (Read, Song, *et al.*, 2009). While the affordable loss principle may have the advantage of spreading risk it may also result in under-investment in attractive options or quickly descending non-attractive paths, comfortable in the view that one can recover from failure (Read, Dew, Sarasvathy, & Song, 2009). Decisions based on affordable loss however enable a 'fail fast' mentality which facilitates learning and the adoption of lessons learned towards subsequent endeavours. Current literature has laboured to describe the construct and distinguish it as a criterion for decision-making. This study takes the description further, highlighting the centrality of the construct in effectuation theory and demonstrates how it manifests its purpose in eliciting this theory.

2.6.1.3 Flexibility

Thomke (1997) defined flexibility as the incremental cost and time of modifying a design in response to exogenous or endogenous changes during the design process. Flexibility entails fathoming the unexpected and manoeuvring this understanding into opportunities. For the effectuating sustainable entrepreneur, flexibility matters because high flexibility enables tolerance of high risk levels whereas low flexibility results in higher resource investments aimed at minimizing the risk of design changes (ibid.). Firms with low flexibility are more likely to invest resources in early market research activities aimed at reducing the risk of changes through a better understanding of customer needs. In rapidly changing environments characterised by fierce competition, high flexibility is needed; firms can invest less time and fewer resources on minimizing risk, seeing change rather as an opportunity to continuously adapt and improve products. Rosenbusch *et al.* (2011) argue that the flexibility of new firms may enable them to both adapt to changing environments and induce those environmental changes. Upton (1995) distinguished between two types of flexibility: the potential ability to produce a range of products and the ability to quickly change between products. To benefit from flexibility, investment in product development technology, skills and knowledge is required. However, this may be small in relation to potential gains. It may simply require new ways of thinking about the organization and structure of product design: the cognitions typical of effectuation.

This research situates sustainable entrepreneurship in the sub-Saharan African contexts as characterised by uncertainty deriving from information asymmetry and resource scarcity. Loch *et al.* (2008) suggests that flexibility facilitates a venture's ability to withstand and even thrive in unforeseen circumstances. Wernerfelt and Karnani (1987) argue that flexibility is more attractive under such a high degree of uncertainty, making the construct relevant to both the context and the content of the research.

Previous literature has highlighted the importance of flexibility in adapting to changing circumstances and yet how this occurs and what happens when this occurs is taken to be obvious. The current study exposes the workings of this construct showing how it connects with the other constructs in the theory. The study moves beyond stating that the construct is important to showing how this importance is manifested.

2.6.1.4 Experimentation

Experimentation may be defined as a series of empirical adjustments over a short period of time, through which an entrepreneur develops an understanding of context in the quest for competitiveness (Nicholls-Nixon, Cooper, & Woo, 2000). Such actions are central to a venture: a "competence building experiment involving a degree of trial-and-error learning" (Mcgrath, 1995, p. 122). Sull (2004) situates such trials firmly within the ambit of effectuation theory when he describes their purpose as risk management.

A cluster of related concepts – exploration, exploitation and innovation – bear discussion at this point. Many scholars (e.g. Ireland, Kuratko & Morris (2006)), have equated experimentation and innovation, describing a firm as possessing an innovative culture when it regularly experiments with new alternatives or approaches by exploring new resources, breaking through existing norms, and creating new products to improve its performance. Exploration and exploitation are typically used as contextualising terms. Experimentation with new knowledge has been viewed as a manifestation of exploration (Lavie, Stettner, & Tushman, 2010).

March (1991, p. 71) embodies exploitation activities in the terms "refinement, choice, production, efficiency, selection, implementation and execution," contrasting them with exploration, which involves "search, variation, risk-taking, experimentation, play, flexibility, discovery, and innovation". This suggests that effectuation represents activities very close to March's exploration category.

Experimentation begins with the creation of multiple possible solutions, which may not include the best possible one. Through trial and error, the experimenter is able to discover what was previously unknown, employing this information to refine the solution under development. The strategies and modes of experimentation employed can impact on innovation and a firm's competitiveness (Thomke, von Hippel, & Franke, 1998). Much of the literature describes experimentation as an iterative process, halted when a satisfactory result is obtained, but continued, with modifications in design, conditions or desired goal, if it is not.

Every solution is derived through a number of experiments, but scholars have proposed two alternative strategies of experimentation: parallel and serial experimentation. Serial experimentation describes a process where a satisfactory solution is identified after multiple consecutive attempts, with the information gained from each previous experiment serving as an important input to the design of the next one. Parallel experimentation describes a concurrent process of multiple experiments, with the experimental design remaining unmodified despite the findings from other experiments (Muehlfeld, Urbig, & Weitzel, 2015). Both types of experimentation may employ the same number of trials, but since its experiments run concurrently, parallel experimentation may consume less time. However, it is not necessarily more efficient, since it does not build on information about failure in subsequent iterations. Serial experimentation consumes more development time but may save on materials, since each iteration incorporates previous learning. In the real world, scholars conclude, experiments often incorporate a mix of serial and parallel approaches (Thomke et al., 1998).

Adopting more effective experimental methods and thus developing new products and services can create significant competitive advantage, especially if the resultant innovations are not easily copied by competitors. From a resource-based firm perspective, firms with inimitable resources tend to be more competitive (Barney, 1991). Newer and more effective experimental methods can be a source of long term competitive advantage for innovators. To adopt them, competitors may need to reorganise and take on new skills in ways that are uniquely embedded in the originator and not easily transferable. An entrepreneur employing effectuation is implicitly employing a serial experimentation strategy. Rather than embarking on experiments designed to reach a specific goal or outcome, effectuators employ open-ended testing and pursue its outcomes to see what else they can learn.

Previous literature has focused mostly on the short term outcomes of experimentation and why entrepreneurs tend to experiment. This study advances the knowledge by showing that, driven by general aspirations, the entrepreneur uses these small experiments to learn and improve the product or service it offers.

Research on effectuation has progressed on a number of fronts. It has been related to a number of variables such as innovation, performance and new market creation (Brettel et al., 2012; Deligianni et al., 2015; Sarasvathy & Dew, 2005); it has been compared to related and rival theories such as bricolage and causation (Domenico, Haugh, & Tracey, 2010; Reymen *et al.*, 2015; Welter *et al.*, 2016); and it has also been applied in diverse contexts such as international entrepreneurship (Sarasvathy, Kumar, York, & Bhagavatula, 2014).

Developments in effectuation research have tended to juxtapose it with competing theories, seeking clarification and advancing the whole gamut of related enactment theories. The following section singles out two theories: one that has been useful in distinguishing effectuation and another that belongs to the category of enactment theories.

2.6 Related theories

2.6.1 Causation

In the causal view of entrepreneurship, markets and entrepreneurial opportunities within the markets are assumed to pre-exist (Shane & Venkataraman, 2000). The aim of the entrepreneur is therefore to capture as many opportunities as possible (Kotler, 1991). Similar causal action has been proposed as a factor in setting up sustainable enterprises (McMullen & Shepherd, 2006). Causation is defined as “processes that take a particular effect as given and focus on selecting between means to create that effect” (Sarasvathy, 2001, p. 245). While this may suggest a contrary analytical framework to that of effectuation, Sarasvathy (2001) states that the two can occur simultaneously.

The traditional model of entrepreneurship relies on rational economic models where opportunities are sought in circumstances where demand exceeds supply. Interrogating this dominant logic, Sarasvathy (2001) repurposed the term causation to reflect the tensions inherent in entrepreneurial processes. She states that "both causation and effectuation are integral parts of human reasoning that can occur simultaneously" (p. 261). Other scholars, while recognizing the existence of these logics, similarly do not perceive them to be mutually exclusive. One meta-analysis (Chandler *et al.*, 2011) found that the formation of partnerships referred to as pre-commitments and alliances in the effectuation literature, was equally important in causation and effectuation. In effectuation, pre-commitments are used to reduce uncertainty, minimise the cost of experimentation, and maintain flexibility. In the causation approach they are used as a way to acquire essential resources and implement plans. Fisher (2012) explicitly stated that behaviours associated with causal and effectual models can be enacted simultaneously in the same venture. He asserts that "there were no cases where only the behaviours associated with causation were responsible for the development of the venture"(p. 1039). Yet despite these points of commonality, Mauer (2014) has proposed that this duality is less useful than a more concentrated focus on effectuation alone.

2.6.2 Bricolage

Bricolage is defined as making do by applying combinations of the resources at hand to new problems and opportunities (Baker & Nelson, 2005). The bricoleur rejects any constraints and persists through trying new combinations using available resources. The theory can be traced back to the works of Levi Strauss in anthropology and has enjoyed increasing use in entrepreneurship research in recent times. It is a practical and experiential approach in which entrepreneurs organise and reorganise resources to adapt to market and environmental shifts (Senyard, Baker, Steffens, & Davidsson, 2014).

Through use of resources at hand for purposes they were not initially intended for, bricolage explains a survivalist approach to entrepreneurship. Bricolage has been described as the pursuit of opportunities through close regard to resources at hand couching it in the enactment theories of the creation perspective of opportunity recognition.

Effectuation and bricolage theories have been associated with behaviours entrepreneurs are likely to use to build their businesses (Fisher, 2012). This study however leans towards the lens of effectuation that has enjoyed a lot more attention and yet needs further development. Compared to bricolage, the scope of application of effectuation theory extends beyond resource mobilization and permits holistic explanation of other firm activities including marketing, staffing, innovation and growth strategies.

2.7 Sustainable entrepreneurship and qualitative research

It has been argued that the theoretical basis for research should be aligned with the empirical methods employed (Chandler & Jansen, 1997). The puzzle surrounding the source of opportunities is one of the factors defining entrepreneurship as a separate and legitimate field of study. However Suddaby (2014) has suggested that reliance on quantitative methods may have constrained entrepreneurship research, leading to the failure to develop an indigenous theory. Qualitative methods capture context richness and diversity and seem to be appropriate to the advancement of entrepreneurship research (Hindle, 2004). The novelty associated with sustainable entrepreneurship and passion research, the scarcity of explanatory frameworks for resource constraints, along with the creation perspective to which effectuation is aligned, provide an epistemological impetus to drive qualitative research.

The field of entrepreneurship is diversified and highly fragmented, and there is a lack of agreement on core concepts and the definitions of key constructs (Rauch, van Doorn, & Hulsink, 2014). To account for this diversity, these authors suggest broadening the area to accommodate knowledge that has become available from qualitative case study research. Their justification for case study methodology in entrepreneurship is that it enables the pursuit of research questions systematically, facilitating the study of small samples that are part of a distinct and critical population and exploring new concepts that are generally understudied. This resonates with the need for advancement in understanding phenomena at the nascent stage of development such as sustainable entrepreneurship and new theories in entrepreneurship such as effectuation. The authors further argue that case study research is important in under-researched contexts such as sub-Saharan Africa since it "allows researchers to address and interpret complex and/or unique phenomena embedded in different contexts through an explorative orientation, by making observations, specifying constructs and measurements, and identifying patterns and regularities" (p. 335).

Research in sustainable entrepreneurship continues to focus on definitions and development of typologies with a few efforts geared towards distinguishing it from related fields. A recent review (Gast, Gundolf, & Cesinger, 2017) showed that while a variety of methodological approaches are being employed to study this phenomenon, the vast majority are of the qualitative kind. This it is argued is because the field is still young and deserves more qualitative and conceptual research. Sustainable entrepreneurship scholars are therefore advised to utilise a variety of methodological approaches to capture the essence of the emotionally charged, value-laden processes they study (Poldner, Shrivastava, & Branzei, 2017).

There is therefore a need for a qualitative approach in sustainable entrepreneurship research to facilitate the description, decoding and advancement of understanding of the phenomenon. Through rich qualitative accounts, evidence will be adduced of how individuals faced with resource constraints engage in sustainable entrepreneurship.

2.8 Chapter summary

In this section current debate in the study of sustainable entrepreneurship, related phenomena and applicable theories have been discussed. The review shows how previous studies have been inadequate in explaining sustainable entrepreneurship and highlighted the appropriateness of effectuation theory in contributing to this. Gaps in the literature have been highlighted and the study has been situated in the current discourse, demonstrating its importance. In the discussion, the primacy of resource constraints, the role of passion and the usefulness of effectuation in explaining an emerging field such as sustainable entrepreneurship, has been discussed. The importance of the context for this study has been explained, with both the dearth of similar studies in sub-Saharan Africa and related socio-economic factors underlining the need for additional contributions to the extant body of literature.

Through this review we conclude that when jointly considering effectuation (with its assumptions that the firm is operating in a dynamic, nonlinear environment, where the future is unknowable and not measurable and that assumes that entrepreneurial opportunities are subjective, socially constructed, and created through a process of enactment (Fisher, 2012)) and the existing work on sustainable entrepreneurship (with the views that environmental and social parameters present greater uncertainties (Hall et al., 2010)), it can be argued that resource constraints present the need to devise creative mechanisms that facilitate the seizing of sustainable entrepreneurship opportunities.

Chapter 3 – Methodology

3.0 Chapter introduction

The primary aim of this multi-case-study research is to explain how individuals faced with resource constraints engage in sustainable entrepreneurship. When theory is at an intermediate stage of development, a new study may allow openness to unexpected insights by drawing primarily from qualitative data (Edmondson & Mcmanus, 2007). In this way, qualitative research may be used to help elucidate a theory by illustrating and emphasizing the key elements and relationships in the theory (Doz, 2011). Research in sustainable entrepreneurship is at the nascent stage of development (Shepherd & Patzelt, 2017) with a number of papers in the descriptive and prescriptive domains of conceptual models rather than based on empirical evidence (Thompson et al., 2011). Effectuation research is also considered to be between the nascent and intermediate stages of development (Perry, Chandler, & Markova, 2012). These together inform the methodological and analytical approach undertaken in this study.

The object of this section is to describe how the research was undertaken through detailing the method that was used to collect and analyse the data. Ontological and epistemological issues are discussed. In the former the researcher's view of what constitutes reality is outlined while in the latter case the researcher's view of what valid knowledge is and how it can be obtained is discussed. Further to this, the research question is re-stated and a rationale made for the qualitative approach used. The case study method used in this study is also justified. Furthermore, the research sample is discussed explaining how participants were selected and describing the cases. Analytical methods are also described and the trustworthiness criteria of the data discussed. Ethical considerations are also discussed in this section.

To answer the research question, a multi-method research approach based on qualitative case study research was adopted in this study. The methods included in-depth interviews and document reviews. Theoretical sampling was employed to access information from specific respondents who met the research criteria. Theoretical sampling entails choosing cases based on the ability to illuminate and extend relationships among constructs (Eisenhardt & Graebner, 2007). For a relatively new research area where ‘how’ and ‘why’ questions need to be clarified, this type of sampling is recommended as generalizability to the population is not being sought. 5 cases were selected and they included a sustainable tourism firm, a firm that makes fashion and household accessories from used drinking straws, a manufacturer of energy efficient stoves, a manufacturer of bio-degradable sanitary pads, a manufacturer of solar powered stoves. In each of these cases, a number of interviews were carried out to enable internal validity. Yin (2009) uses the term internal validity to evaluate case study research. He states that multiple interviews carried out in each case contributes to increasing internal validity of a qualitative study. Further to this, maximum variation was sought in selecting the firms. In this regard, size, age and representation of the whole gamut of sustainable enterprises, were considered.

The essence of case study research is that the theory is emergent in the sense that it is situated in and developed by recognizing patterns of relationships among constructs within and across cases and their underlying logical arguments (Eisenhardt & Graebner, 2007). As the research is on an area at the nascent stage of development a central concern is to create theoretical propositions that are deeply grounded in the experiences of the participants rather than detached, analytical abstractions. An abductive approach to theory development was pursued (Alvesson & Karreman, 2007). This involves a combination of deductive and inductive styles of theorizing (Lee *et al.*, 1999). The process consists of three steps: (1) the application of an established interpretive rule, the theory, (2) the observation of a surprise in light of the theory and (3) the imaginative articulation of new theory that resolves the surprise (Peirce, 1978). This process is appropriate for a research area in its early stages because it involves identifying pre-existing conceptions about the study area and extrapolating these through empirical findings.

3.1 Research question

The overall research question shaping this inquiry was as follows:

"How do individuals faced with resource constraints engage in sustainable entrepreneurship?"

3.2 Research paradigm

A paradigm is "a loose collection of logically held together assumptions, concepts, and propositions that orients thinking and research" (Bogdan & Biklen, 1982, p. 30). In order to develop new perspectives on entrepreneurship, greater experimentation, engagement and debate is required to move beyond the predominantly positivist paradigm on which entrepreneurship research is based (Grant & Perrin, 2002). This study is aligned to a post-positivist paradigm, the ontology for which is that "reality is assumed to exist but to be only imperfectly apprehendable because of basically flawed human intellectual mechanisms and the fundamentally intractable nature of phenomena" (Guba & Lincoln, 1994, pp. 110–111). The aim of post-positivism is an explanation that ultimately enables the prediction and control of phenomena. The post-positivist approach to qualitative research is one that characterises knowledge as neither conclusive, verifiable, or external to the human psyche. Instead it assumes knowledge to be socially and individually constructed (Reimer, 1996). Post-positivism has been described in close alignment with constructivism as "intuitive and holistic, inductive and exploratory with findings that are qualitative in nature" (O'Leary, 2004, pp. 6–7). Because knowledge is viewed as tentative, hypotheses are not proved but simply not rejected (Guba & Lincoln, 1994). Post-positivists assume that all research is influenced by existing theories including the one under study (Cook & Campbell, 1979). In essence theories are thought to be continuous works in progress with the possibility of new insights emerging.

In order to affirm theoretical propositions that are deeply grounded in the experiences of the participants, case study reports allow for drawing on the research participant's experience, which is an important mechanism for transfer of knowledge from one setting to another (Guba & Lincoln, 1994).

3.3 Rationale for a qualitative research design

For scholars in the early stages of a domain, it is necessary to lay the foundation through qualitative research because there is a need to build theory and to identify questions that scholars should ask (Bruton *et al.*, 2013). In the same vein, it has been posited that many important questions in entrepreneurship can only be addressed through qualitative methods (Gartner & Birley, 2002).

There have been a number of calls for more qualitative studies in entrepreneurship (Neergaard & Ulhøi, 2007). This, it can be argued, will enable the development of theory in entrepreneurship rather than having to borrow theories from related disciplines. Qualitative inquiry is defined as a means of exploring and understanding the subjective nature of what one can term “lived experience” from the perspective of those who have experienced, seeking to make sense of the explanations and meanings which individuals assign to their experiences (Higgins, McGowan, & Trehan, 2013). Qualitative research is concerned with how the complexities of the sociocultural world are experienced, interpreted, and understood in a particular context and at a particular point in time. This reflects a post-positivist to constructivist philosophical stance. Qualitative research is based on the idea that meaning is socially constructed by the interactions of individuals with their world. These multiple interpretations that are always in flux are the interest of the qualitative researcher (Merriam, 2014).

Qualitative methods are appropriate for imposing conceptual order on new, relatively undefined phenomena (Suddaby, Bruton, & Si, 2015) such as sustainable entrepreneurship. Sustainable entrepreneurship research is still in its infancy and there is a need to develop frameworks and a deeper understanding of the underlying causes and the process through which it unfolds. Qualitative methods possess the methodological fit for a research field at this stage of development. Further to the aforementioned, a proper understanding of sustainable entrepreneurship requires inquiry from a number of data points as this phenomenon entails the engagement of a diverse set of individuals. Qualitative methods provide the tools to collect, collate and harmonise the large amounts of data that are likely to be generated in this process. It therefore has been proposed that inductive theorizing is required to advance the field in its emergent state before engaging in testing causal relationships (Munoz & Cohen, 2017). Sustainable entrepreneurship scholars are encouraged to embrace a diverse methodological approach to capture the emotionally charged, value-laden processes they study (Poldner et al., 2017). It is in this regard that the use of rigorous qualitative methodologies that allow for theory building is encouraged in sustainable entrepreneurship research (Schaefer, Corner, & Kearins, 2015).

The nature of this study emphasises discovery and description and the interpretation of the meaning of experience. Therefore, with intent to explain how individuals faced with resource constraints engage in sustainable entrepreneurship while facilitating interaction between the researcher and respondents and maintaining design flexibility, a qualitative design was deemed most appropriate.

3.4 Rationale for case study methodology

The choice of methodology should reflect a particular epistemological stance (Fletcher, 2006). This is important because, "the procedures and techniques we use to study social phenomena influence the substantive questions we ask, the information we obtain, and the answers we are willing to accept" (Stokes & Miller, 1985, p. 546). Through doing inquiry in more natural settings, collecting more situational information and reintroducing discovery as an element in inquiry, the methodology aims to determine the meanings and purposes that people ascribe to their actions.

The case study methodology is a valuable research tool and its major strength is that it measures and records behaviours appropriately answering "how" or "why" questions (Yin, 2009). Case study is a research methodology that focuses on understanding the dynamics present in a management situation (Eisenhardt, 1989). A number of authors (for example Eisenhardt, 1989; Yin, 2009) base their approach to case study on a post-positivist paradigm.
Yin (2009) provides the criteria for the use of a case study approach: (a) the focus of the study is to answer "how" and "why" questions; (b) you cannot manipulate the behaviour of those involved in the study; (c) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and context. This study sought to investigate how individuals faced with resource constraints engage in sustainable entrepreneurship. The phenomena and the context in this case are intricately intertwined making it impossible to control for context in such a study. It is therefore impossible for one to understand these processes without considering the context within which they occur.

The case study approach relies on continuous comparison of data and theory beginning with data collection. Furthermore, it emphasises both the emergence of theoretical categories solely from evidence and an incremental approach to case selection and data gathering (Eisenhardt, 1989). Case studies have been used widely to create knowledge. Over the years they have gained popularity in business and management research, being used to study the individual, the firm and business processes. This research method is important in developing research areas and it results in novel and testable theory (Eisenhardt, 1989). It therefore promises to advance research in effectuation. Case studies comprise a variety of approaches and involve a range of data-collection techniques and analysis. Because there are normally more variables of interest than data points, use of multiple data sources, known as triangulation, is employed (Perren & Ram, 2004).

There are a number of case-study methods ranging from single to multiple case studies to intensive, comparative and action research cases. In this study, I use multiple case studies of the intensive genre. Intensive case studies are used to develop a deep understanding of the events, practices of a person, group or organisation with a goal to provide history, description or interpretation of unique and typical experiences or events. These become a basis for developing theory from an understanding of the context in which the events occurred (Dyer & Wilkins, 1991). The multiple-case approach encourages the researcher to study patterns common to cases and theory and to avoid chance associations (Eisenhardt, 1989).

A multiple case design which often highlights complementary aspects of a phenomenon, helps strengthen confidence in the precision, validity and stability of the result because repetition of the same procedure across a number of cases helps eliminate accidental similarities between theory and case (Neergaard, 2007). Multiple cases lead to the better development of theory because the propositions are grounded in varied empirical evidence. They also permit a broader explanation of research questions and theoretical elaboration (Eisenhardt & Graebner, 2007).

There are two popular case study approaches in qualitative research. The first is situated in a social constructivist paradigm (Merriam, 2014; Stake, 1995), whereas the second approaches case study from a post-positivist viewpoint (Eisenhardt, 1989; Yin, 2009). Scholarship from both schools of inquiry has contributed to the popularity of case study and development of theoretical frameworks and principles that characterise the methodology. An interpretive or social constructivist approach to qualitative case study research, supports a transactional method of inquiry, where the researcher has a personal interaction with the case. The case is developed in a relationship between the researcher and informants, and presented to engage the reader, inviting them to join in this interaction and in the exploration or discovery of the case (Stake, 1995). A post-positivist approach to case study research involves developing a clear case study protocol with careful consideration of validity and potential bias, which might involve an exploratory or pilot phase, and ensures that all elements of the case are measured and adequately described (Yin, 2009). The post-positivist orientation also follows from the criteria that Yin (2009) applies to evaluate case study research. He mentions four criteria for case study research: construct validity, internal validity, external validity, and reliability. These criteria are commonly used in the positivist and post-positivist paradigms. Overall, Yin's discussion is permeated by a concern for 'objectivity'. The researcher is independent of the research object and this independence is very important for objectivity.

For evolving theoretical fields such as sustainable entrepreneurship, it is necessary for scholars to engage in theory building which is possible through the use of qualitative research designs.

A contextualised approach to entrepreneurship questions the dominance of quantitative methods in entrepreneurship research, suggesting that the gap in multi-context analysis partly results from the neglect of (more) interpretivist or combined methods, which allow capturing the richness and diversity of the context (Welter, 2011). In bemoaning the absence of empirical studies in sustainable entrepreneurship, it has been stated that the main research methodologies employed remain in the prescriptive or descriptive domains of conceptual models (Kuckertz & Wagner, 2010). These limit robust theory building (Parrish, 2010), prompting the recommendation of more rigorous research designs in studying sustainable entrepreneurship. In the same vein, there have been calls for qualitative studies in sustainable entrepreneurship to get better insights of the phenomenon (Hockerts & Wüstenhagen, 2010).

The use of case study approach is therefore justified since sustainable entrepreneurship research is still in its infancy and this approach facilitates the exploration and analysis of such complex emergent social phenomena (Juma et al., 2017; Yin, 2015). Further to this the approach is appropriate for research on collaborations between different entities and is useful for providing theoretical and practical insights (Arenas, Sanchez, & Murphy, 2013; Juma et al., 2017).

It has been proposed that as effectuation research approaches an intermediate state of development, it will become important to sample subjects who are representative of the individuals who are in the process of developing not-for-profit organizations among several types of businesses and that it is appropriate to continue collecting data through interviews and relevant archival sources (Perry *et al.*, 2012). This study therefore seeks to respond to the calls of this literature, for more qualitative research in entrepreneurship studies.

3.5 Information needed to conduct the study

This multi-case study focused on 5 firms located in Kampala, Uganda. Information was gathered to understand how individuals faced with resource constraints engage in sustainable entrepreneurship. The information needed to answer the research question was determined by the conceptual framework and fell into three categories: (a) perceptual, (b) demographic, and (c) theoretical. This information included; 1) the entrepreneurs' perceptions of how they went about starting their enterprises, their interests, what they had to forego, who they had to engage with and the mechanisms they adopted in the process; 2) demographic information pertaining to respondents included age, gender, education background, previous livelihood activity and number of years involved in entrepreneurial activity. 3) an on-going literature review provided the theoretical grounding for the study. The literature queried included entrepreneurship, innovation, sustainability, strategy, general management and psychology.

3.6 Overview of research design

Below is a summary of the steps undertaken to conduct this study. Following this list, a more detailed discussion is provided of how the research was undertaken, highlighting the justification in the literature. First a literature review was undertaken to understand current research in resource constraints and sustainable entrepreneurship, that is, what other authors in the field had discovered and the gaps that still exist. The results of this review were incorporated into a research proposal. After the successful defence of the proposal, the researcher sought and acquired ethical approval from the University's Research Ethics Committee. The ethical approval process entailed completing a form that specified the procedures and processes needed to protect human subjects, confidentiality issues and matters of informed consent. A mapping exercise was then undertaken where relevant sectors were identified, major players in these sectors identified and the firms categorised. Potential respondents were then contacted via telephone and email. For those who agreed to participate, an appointment was scheduled. In-depth interviews were undertaken at the business premises of the entrepreneur. The entrepreneur was also asked to volunteer relevant documents. After the interview, the entrepreneur was asked to volunteer the name and contact information of a supplier, a customer, an employee and a leader from the local community in which the firm operates. Appointments were made with these stakeholders and the interviews carried out at their workplaces. The community member was interviewed in the office or home of the leader. After completion of the first case, within-case analysis of the data was undertaken to highlight insights that looked promising. After the completion of every case, analysis was undertaken within the case and then the insights were compared with the previous cases, in a process referred to as cross-case analysis.

3.6.1 Literature review

A literature review was conducted throughout this study. The main topics focused on were resource constraints and sustainable entrepreneurship, though as insights emerged, it became necessary to broaden this focus to the effectuation, passion, innovation, strategy, social cognition and general management literature. The aim of the literature review was to explore what the current understanding of how individuals faced with resource constraints engaged in sustainable entrepreneurship.

3.6.2 Research proposal committee approval

Following the initial literature review, a research proposal was developed and successfully defended. The proposal included: the background, problem statement and research questions outlined in chapter 1; the literature review in the second chapter, and the proposed methodological approach located in the third chapter. The procedure was that the proposal was submitted to the committee that provided feedback. Thereafter the student was required to appear before the committee and an audience of doctoral faculty and other doctoral students for an oral defence of the proposal. Success at this stage required that the student incorporated suggestions from this engagement and submitted the amended proposal to the head of the doctoral committee for final approval.

3.7 The research sample

Case studies are generalizable to theoretical propositions referred to as analytic generalization (Yin, 2009). The sample therefore does not represent a population but is generalizable to a theory. The theory in this case is effectuation which is used as a template to compare the empirical results of the case studies.

In this study a purposeful sampling strategy was undertaken. This is described as non-random ways of ensuring that particular categories of cases within a sampling universe are represented (Robinson, 2014). The strength of purposeful sampling lies in selecting information-rich cases from which one can learn a great deal about issues of central importance to the purpose of the research (Patton, 1990). Within this strategy, theory-based (selective) sampling was used where the researcher identified specific theoretical constructs and selected cases or informants on the basis of their potential to elucidate the chosen constructs (Sandelowski, Holditch-Davis, & Harris, 1992). This sampling procedure is used because cases that are selected are particularly suitable for illuminating and extending relationships and logic among constructs (Eisenhardt & Graebner, 2007).

The sustainability entrepreneur is not as prevalent or as easily identifiable as the more traditional entrepreneur (Tilley & Parrish, 2006). Therefore, in this study, snow ball sampling was undertaken since this form of sampling aims at identifying cases that are rich in information about a particular subject. Along with snow ball sampling, reference-based selection (Patton, 2002) - where the first informers were experts on the phenomena being studied - was undertaken using experts in academia, private enterprise and government departments to source potential research participants. Hence, the credibility and strength of this sample selection rests on theoretical (rather than empirical) generalizability which also facilitated the choice of cases which were likely to replicate or extend the emergent theory (Glaser & Strauss, 1967; Strauss & Corbin, 1990).

Patton (1987, p. 51) states that the choice of unit of analysis depends on "what unit it is that you want to be able to say something about". The unit of analysis in this study was the sustainable entrepreneur. The level of analysis is determined by the level on which the principal research questions are posed and analyses carried out, rather than the level at which data are collected. In this study the level of analysis was the firm.

Spence, Gherib, and Biwole (2011) provide a typology of sustainable entrepreneurship from zones A to E. Zone A they state are those who are fully committed to sustainable entrepreneurship where the three principles of sustainability voluntarily converge and are fully integrated into their business. The involvement in sustainability of those in Zones B to D is average. They implement targeted actions either in the social or the environmental fields and their strategies lack formalization or integration. They are open to sustainability but they either consider the matter as non-urgent or lack a holistic vision of the issue. Consequently, some of them have a plan but proceed through it slowly, while others take scattered actions which bear quick returns but are not fully integrated into the business strategy, either because of lack of planning, resources, or knowledge. In this study zones A-D were considered.

Each respondent was chosen for the unique story that they would bring to the study. Although some dimensions of variability were incorporated into the sample, it was recognised that a lot of variability existed at the phenomenological level and would not be discovered until the fieldwork began (Stake, 2005).

In a qualitative study sample size should not be too large as failure to extract thick rich data is more likely. It should also not be too small to achieve data saturation (Flick, 1998; Morse, 1995), theoretical saturation (Strauss & Corbin, 1990), or informational redundancy (Lincoln & Guba, 1985). Eisenhardt (1989, p. 545) asserts that “while there is no ideal number of cases, a number between 4 and 10 cases usually works well. With fewer than 4 cases, it is often difficult to generate theory with much complexity, and its empirical grounding is likely to be unconvincing, unless the case has several mini-cases within it ...With more than 10 cases, it quickly becomes difficult to cope with the complexity and volume of the data”. Cognizant of this and the need to contribute to the literature, 11 cases were selected. Confirming and disconfirming cases were selected to establish a pattern and to rule out rival explanations. Confirming cases (also referred to as typical cases) are examples which fit into the already emerging pattern and enrich the study, giving it greater depth, and increasing the trustworthiness of the study. Disconfirming cases (also referred to as extreme cases) on the other hand, are examples that do not fit the emerging pattern and constitute a source of rival explanations of the patterns, whence they delimit the explanatory power of the emerging theory (Patton, 2002).

Five cases were carefully selected to predict similar results; a literal replication. As stated by Schaltegger and Wagner (2011), the size of the firm is not an important criterion for sustainable entrepreneurship research, so the firms selected were of varying sizes. The cases were categorised into the following categories: renewable energy, recycling, tourism and energy conservation.

3.7.1 Case selection

Purposeful sampling was used to select information-rich cases that facilitate theoretical inference (Eisenhardt & Graebner, 2007). For a developing research area where 'how' and 'why' questions need to be clarified this type of sampling is recommended as generalizability to the population is not being sought but rather analytic generalization to broader theory.

Initially the researcher created a respondents' framework through first categorising the cases to ensure breadth of coverage of the phenomenon. To categorise the sustainable entrepreneurs, the researcher attended the Uganda Energy Week trade show and identified the firms that were exhibiting and formed preliminary categories. Subsequently, additional categories were created through consultation with the Faculty in Makerere University's College of Natural Resources and the College of Engineering Design, Art and Technology and technocrats in the Uganda government Ministries of Energy and Environment. Eventually five categories were distilled: energy conservation, plastics recycling, sustainable tourism, consumer products and air and water conservation. Experts are generally used in the beginning of a project to help define the boundaries of an investigation or provide ideas about what cases may be chosen (Neergaard, 2007). The researcher therefore consulted the abovementioned government officials and faculty members for likely firms that would fit these categories, electing to have one firm per category. Unfortunately, the researcher was unable to get a firm in the air and water conservation category. After the firms were identified, the researcher contacted these firms telephonically. The founders of these firms were willing to participate in the research although for three firms, this was not possible. The first was a briquette making firm where the entrepreneur, while accepting to participate, just failed to honour the appointments because his schedule was very busy. The other - a plastics recycling firm - had been sold to a soft drinks company that incorporated it into the soft drinks company's functions and therefore could no longer meet the set out criteria. The third a firm involved in the manufacture of energy saving cooking stoves had been shut down and the owner was looking to start afresh. The researcher replaced each of these with firms that were equally theoretically relevant.

The selected cases were similar on a number of criteria. First, they all were founded and operated in the same geographical region. This sub-Saharan African region is inherently unpredictable providing the necessary impetus for effectuation theory (Welter & Kim, 2018). In a previous study, this criterion has been used for selection of cases for study of sustainable entrepreneurship study (Juma et al., 2017). Second, the ventures were all sustainable enterprises catering to diverse economic, social and environmental objectives. These multiple objectives imply that the firms are faced with enhanced levels of uncertainty as the multiplicity of goals stretch the resources and add complexity to the entrepreneurial endeavour (Belz & Binder, 2017). Sustainable enterprises by their nature involve a greater number of stakeholders which demands cognisance of diverse and ever changing opinions that greatly reduce the ability to engage in long-term planning and prediction of outcomes. Thirdly, the ventures permitted the collection of detailed information from within the firm and the firm's stakeholders. This enabled a multifaceted perception of the activities of the firm, first elucidating the effectuation constructs but also permitting triangulation of findings to enable internal validity. The inclusion of multiple partners in the study enabled qualitative reliability and validity (Golafshani, 2003; Juma et al., 2017). Fourthly, the firms selected had contended with marked resource deficits at start up. There is a need to understand the impact of severe resource constraints on entrepreneurial outcomes (Webb, Tihanyi, Ireland, & Sirmon, 2009).

Within the limits of these criteria, maximum variation was sought in selecting the firms. In this regard, size, age and representation of the whole gamut of sustainable enterprises were considered in order to identify shared features that cut across cases. The heterogeneous set of sustainable enterprises provided firmer grounding of theory (Santos & Eisenhardt, 2009).
By limiting our selection to sustainable enterprises that were operating in the same geographical region we were able to ensure that observed differences were not due to sectoral or regional differences. Addition of firms to the sample stopped after theoretical saturation was attained and no substantial new inferences were being made (Strauss & Corbin, 1998).

Table 1 below provides a summary description of each enterprise. Detailed descriptions are appended to the end of this dissertation.

Table 1: Description of cases

CASE	Entrepreneur	Nature of Business	Number of Employees	Years in Operation	Main outputs	Business Category
SSAS	Celes	Sustainable tourism firm	6	2	Tours	Sustainable enterprise that protects wildlife while drawing tourists to the unprotected area and sharing revenues with local community
KWI	Bened	Maker of fashion and household accessories from used drinking straws	42	8	Mats, shoes, belts	Sustainable crafts maker who collects used plastic straws in so doing rids the environment of trash while preventing children from contracting diseases through playing with the straws
PETSD	Pulo	Manufacturer of energy efficient cooking stoves and briquettes	4	9	Energy saving stoves, briquettes	Sustainable entrepreneurs who makes improved charcoal stoves and trains in the making and buys briquettes from the local community which reduces tree destruction
Eco Stove	Ros	Manufacturer of solar stoves	15	6	Solar stoves, chicken brooders, ovens	Sustainable entrepreneur who uses both solar and volcanic rocks as an alternative to charcoal cooking stove. There is reduced indoor

CASE	Entrepreneur	Nature of Business	Number of Employees	Years in Operation	Main outputs	Business Category
						pollution and no need to travel long distances to collect firewood
TFT	Musaz	Manufacturer of biodegradable affordable sanitary towels	242	8	Sanitary pads, incinerators	Sustainable entrepreneur who makes affordable and biodegradable sanitary towels from locally available papyrus reeds using the poor and refugees as employees and suppliers

3.7.2 Data collection

It is common practice in case study research to use multiple data sources, a strategy which also enhances data credibility (Patton, 2002; Yin, 2009). Yin (2009) argues that not only is use of multiple data sources important for improving case studies but it is also "a major strength of case study data collection" (p. 97). The study employed multiple methods to enable triangulation which is critical to obtain an in-depth understanding of the phenomenon under study. This adds rigor and provides corroborative evidence of the data obtained. The study relied on in-depth interviews and document reviews. Previous research has strongly recommended these two methods of data collection for sustainable entrepreneurship research, considering that the theory in this area is at a nascent stage (Thompson et al., 2011). A data table (Table 2) has been provided to show the different data that were used. Each method is described below highlighting the strengths, weaknesses and applicability to the study.

Table 2: Data table

	No. of interviews	Respondents	No. of pages of transcripts	Documents	Sources
Case 1	5	Entrepreneur	28	Promotional material	Employee
		Employee	3	Awards, BBC news article	Entrepreneur
		Customer	2	Memorandum of understanding	Entrepreneur
		Supplier	2	Certificate of registration, patent	Entrepreneur
		Community resident	2	Newspaper clippings	Entrepreneur
				Website pages	Internet
Case 2	5	Entrepreneur	28	Awards, patent	Entrepreneur
		Employee	2	Website pages	Internet
		Customer	3	CNN article	Internet
		Supplier	3	Newspaper articles	Newspaper
		Community resident	2	Promotional flyers	Employee
Case 3	5	Entrepreneur	13	Website	Internet
		Employee	3	Newspaper articles	Newspaper
		Customer	3	Agreement	Entrepreneur
		Supplier	2	Awards	Entrepreneur
		Community resident	2	Promotional flyers	Employee
Case 4	5	Entrepreneur	22	Newspaper clippings	Newspaper
		Employee	2	Memorandum of understanding	Entrepreneur
		Customer	3	Website pages	Internet
		Supplier	3	Promotional flyers	Entrepreneur
		Community resident	2	Business plan	Entrepreneur
Case 5	5	Entrepreneur	14	Promotional flyers	Entrepreneur
		Employee	3	Website	Internet
		Customer	3	Photos	Entrepreneur
		Supplier	2	Newspaper article	Internet
		Community resident	3	Business plan, sales agreement	Entrepreneur

3.7.2.1 In-depth interviews

Interviews are the most common and important tool in social sciences when it comes to collecting data (Yin, 2009). This is because they are a highly efficient way to collect rich empirical data (Eisenhardt & Graebner, 2007). Interviews provide in-depth information pertaining to participants' experiences and viewpoints of a particular topic (Turner, 2010). The interview was selected as the primary method for data collection in this research because of its ability to elicit rich, thick descriptions of phenomena, providing the researcher the opportunity to clarify statements and probe for additional information. In-depth interviews are important because they provide a means to understand why persons act as they do, and to understand the meaning and significance they give to their actions, in such a way that they can tell the interviewer in their own terms (Jones, 1985).

If one is interested in questions of great depth, where the knowledge sought is often taken for granted and not readily articulated by most members, where the research question involves highly conflicted emotions, where different individuals or groups involved in the same line of activity have complicated, multiple perspectives on some phenomenon, then in-depth interviewing is likely the best approach (Johnson, 2001). Language is the data of in-depth interviews (Patton, 2002). It enables the researcher to capture the complexity of individuals' feelings, thoughts, and perceptions. What people have to say reveals their mental worlds and the logic they bring to experiences. In-depth interviewing for research is an observational method to develop empirical knowledge or theoretical models (Padgett, 2008). In a research field at the nascent stage such as sustainable entrepreneurship, it is highly recommended that primary data from entrepreneurs be collected along with data from strategic partners to enable the study of the relationships.

In this part of the study, an understanding of the study phenomena was sought through directly asking the entrepreneur, a supplier, a customer, an employee and community leader questions about the activities of the firm. The issue of resource constraints and sustainable entrepreneurship were discussed broadly in relation to the respondent, the firm and the business environment.

In a study that uses in-depth interviews, the researcher is informed by the paradigm, methodology and research question when he decides how structured the interview will be. Three categories exist; structured, unstructured, and in-depth interviews which are based on their predetermined levels of organization and construction (Patton, 2002). Most in-depth interviews use at least some predetermined system that places them between the extremes of structured and unstructured formats. A degree of instrumentation prevents the interviewer from collecting superfluous or irrelevant information and avoids overlooking important questions. Specific techniques enable the interviewer to maintain control over the interview with minimum instrumentation (Johnson, 2001). This informed the decision to use semi-structured interviews in this study. The interviews were pre-structured and remained highly flexible. The interviews with the entrepreneurs lasted between 60 and ninety minutes, and focused on the respondent's experience of sustainable entrepreneurship. The interviews with the other stakeholders lasted between 15 and 45 minutes and these focused on the participants' view of the nature of the relationship the stakeholder had with the sustainable enterprise. In any sustainable entrepreneurial ecosystem there exist a complex set of interactions among diverse actors including the community, employees, suppliers, customers, government and non-government institutions. For an accurate depiction of the actions in the realization of sustainable entrepreneurship an account from these communities of interest is required. Further to this, in effectuation studies it is highly recommended that primary data from entrepreneurs be collected along with data from strategic partners to enable the study of the relationships (Perry et al., 2012).

To ensure clarity of questions, theoretical language was avoided and more everyday terms were used (Patton, 1990). Each interview was conducted at the participant's place of work and was recorded on a digital recording device. Where a supplier or customer was overseas or where a respondent was uncomfortable with the use of a recording device, the interview was conducted on the phone and immediately transcribed by both the researcher and research assistant and transcripts compared for consistency.

A limitation of the interview method is that not all people are equally cooperative, articulate, and perceptive, creating a situation where despite agreeing to the interview, they only offer brief answers with elaboration despite the best effort of the researcher. Interviews also require a skill which is best taught or obtained from experience. Further to the aforementioned, interviews are not neutral tools of data gathering; they are the result of the interaction between the interviewer and the interviewee and the context in which they take place (Fontana & Frey, 2005; Schwandt, 1994).

With guidance from the doctoral supervisor the researcher used the study's research question to develop the interview questions. These were shared with the research proposal committee whose comments were incorporated before resubmitting to the supervisor for final approval. Thereafter the researcher made appointments with potential respondents. Of those that were contacted, 3 were unable to participate as mentioned earlier for a variety of reasons. They were thus replaced. The interviews took place between August and September 2014. Before the interview commenced, the respondent was asked to review and sign a university consent form required for participation in this study. All interviews were conducted face-to-face and electronically recorded except a few where the respondent was overseas or expressed reservations about being recorded. At the end of the interview the recording was transcribed verbatim. In-depth interviews rarely constitute the sole source of data in research. Alternative sources as shown below are used to triangulate findings or explore multiple meanings from the data.

3.7.2.2 Document review

Documents are important for corroborating and augmenting evidence from other sources (Yin, 2009). Documents are mostly used by researchers as supplementary sources of data enabling triangulation to increase the comprehensiveness and validity of the study (Patton, 2002). Selection strategies for qualitative research with documents are of three types: representative sampling, purposeful sampling, and purposeful but non-sampling selection. Selection strategies are structured for comprehensiveness rather than for representativeness (Jordanova, 2000). Researchers seek the most information-rich and appropriate sources in relation to the goals of the research (Howell & Prevenier, 2001; Jordanova, 2000). In this study we therefore adopted the purposeful but non-sampling method. Because the availability of documents is embedded in social processes, based on the decisions of many individuals and institutions to preserve or allow access, caution needs to be exercised against issues that stem from the social process of document exchange. Hence the selection process should take in to account what documents exist, which are accessible, and why. Obvious biases include the limited ability of disenfranchised people or institutions to create, disseminate, and preserve documents (Miller & Alvarado, 2005).

During the interview, respondents were requested to provide documents pertaining to the setup of the enterprise including business plans, agreements of sale and purchase, memoranda of understanding, patents, newspaper cuttings and website pages. Apart from website pages and newspaper cuttings, most respondents were uncomfortable with the researcher scanning or photocopying them preferring to have them read on the premises.

3.7.3 Methods for data analysis and synthesis

The challenge throughout data collection and analysis was to make sense of large amounts of data, reduce the volume of information, identify significant patterns, and construct a framework. Data analysis and data collection were a simultaneous iterative process to avoid the risk of repetitious, as well as unfocused and overwhelming data (Merriam, 2014; Miles & Huberman, 1994; Yin, 2009). This also enabled the utilization of emerging insights to modify and improve the whole process.

In the analysis, a combination of deductive and inductive techniques were employed. To this end, the data-driven inductive approach of Boyatzis (1998) and the deductive *a priori* template of codes approach outlined by Crabtree and Miller (1999) were used. This combined approach complemented the research question. Patterns in the data were documented and tentative theoretical explanations constructed using each case as a replication (Eisenhardt, 1989; Yin, 2009).

Triangulation increases the internal validity of the study and reduces the likelihood of retrospective bias (Santos & Eisenhardt, 2009). To triangulate the findings a number of analytical methods were employed (Leech & Onwuegbuzie, 2007) which included the NCT analysis and the Gioia analytic methodology . Use of two analytic methods reduced the risk of chance associations and systematic biases that could have arisen due to reliance on a single method. It also allowed for a better assessment of the generality of the explanations that were developed.

3.7.3.1 Analytical procedure

This study relied on a number of data sources and benefitted from a number of analytical methods. The overall purpose of this was to eliminate systematic biases and improve the trustworthiness of the results. The first step in the analysis was the use of the NCT (noticing things, collecting things and thinking about things) approach (described below) for the interview data that was sourced from the entrepreneur that formed the primary source of data. Thereafter, the documents that had been accessed were used as a reference point to supplement the entrepreneur's interview data. In this way the two data sources were integrated by the latter serving as a supplementary source of information to strengthen the findings in the former and improve the trustworthiness of the findings. After referring to the documents, reference was also made to the interview transcripts of the stakeholders. Findings from the stakeholder interview transcripts were integrated with those from the entrepreneur's interview transcripts by identifying codes that supported the emerging themes. Subsequent to these analytical steps the Gioia analytical method was applied as a second analytical approach to reduce biases that could occur in a single analytic method. The sections that follow offer detailed accounts of the above mentioned steps.

3.7.3.2 Data coding

Building on studies such as Sarasvathy (2001), Chandler *et al.*, (2011), Schaltegger & Wagner (2011), Thompson et al. (2011), Baker & Nelson, (2005), George (2005) and Fisher (2012), a coding scheme was created. Through iterating between the literature and the empirical data, a set of empirical indicators for each of these constructs was created.

To achieve all this, the following steps were followed:

First, the researcher proposed a collection of empirical indicators based on the literature, from which an initial list of codes for empirical indicators was developed. Thereafter, the researcher coded one case using this initial list of codes. The researcher discussed the coding results with the doctoral supervisor which led to changes in the empirical indicators, to resolve inconsistencies, clarify understanding of the indicators, and ensure that they matched the dimensions of effectuation. Next, the researcher coded the same case and discussed the differences with the supervisor which led to further minor changes in the empirical indicators.

Subsequent to this, the researcher independently coded each case using the revised final coding scheme based on the procedure outlined below.

3.7.3.3 Data analysis

The process of data analysis began during the interview where the researcher took notes of what was perceived as information that bore potential to engender follow up questions later in the interview. The analysis then continued into the transcription stage. Transcription was done verbatim with the interviewer taking notes of first interpretations of what the data meant. Two analytical methods were employed, the NCT analysis which entailed noticing things, collecting things and thinking about things (Friese, 2014) and the Gioia methodology (Gioia, Corley, & Hamilton, 2012) which involved the development of a data structure. Use of two analytical methods was done to triangulate the findings and ultimately attain rigor in analysis.

The primary analysis was undertaken with the help of computer assisted qualitative data analysis software (CAQDAS). The main uses of computer software in qualitative studies are to collect and archive data in automatic and unobtrusive ways; do editing, coding, and storage tasks; keep available information in different logical fields; link data to form categories and networks of information; build theories and test hypotheses; and prepare reports (Holstein & Gubrium, 2003). In this regard ATLAS.ti version 7 was the software of choice. Easy access through the university to this software was a major impetus of its choice. Further to this, the software has features that facilitate the analysis of the kind of data that was collected and is heralded among several qualitative research methods scholars as one of the best software tools for data analysis.

The first analytic approach used was the computer-assisted NCT analysis. Noticing refers to the process of finding interesting things in the data when reading through. At this point codes were derived both deductively and inductively. In collecting things, codes are combined or code names amended based on what is observed. Thinking of things takes place throughout the process. As a stage of the NCT process, it entails the finding of patterns and relations in the data after the coding.

A recursive approach was used; this involved moving back and forth between noticing, collecting and thinking. At times, codes were created and when patterns were visualised, it necessitated going back to collecting things, in the process, renaming or recombining codes, until a coherent picture was created.

Descriptive analysis was first done where all the data was coded with a code list developed as outlined above to describe everything that was in the data. During within-case analysis, segments of data that bore relationships were connected using the hyperlink function of Atlas.ti. Subsequently, the conceptual-level analysis was undertaken in which the data was related to the research questions. Using the query and co-occurrence tools, relations were established between study variables. Research question memos were key at this stage to answer the research questions highlighting applicable codes and identifying patterns and relations in the data.

After transcribing the first case, it was imported into Atlas.ti and all the transcripts of this case designated to a single document family. Thereafter the coding process began. Using variables from the research questions the first set of codes were identified. Along with this theoretical coding, sections of the transcripts were captured that had potential to be useful for later analysis. The coding process fragments the interview into separate categories, forcing one to look at each detail, whereas synthesis involves piecing these fragments together to reconstruct a holistic and integrated explanation.

Subsequently during the coding process emergent themes were identified and codes provided. On completion of the coding process, the researcher returned to the field to collect data from the second case. Armed with insights derived from the analysis of the first case, a different approach in the interview process was used where emphasis was placed on emerging insights. Just as was the process for the first case, the interviews were transcribed verbatim and imported into Atlas.ti. Codes were assigned and thereafter these codes were compared with those in the first case. New codes that had emerged in the second case were sought for in the first case and unique codes were taken note of. When this was done, the researcher embarked on the third case and the same procedures were followed as had been in the second case. After analysis of the third case, again new insights came to light, which were by this time fewer. These were checked for in the two previous cases. At this point the coding system was reviewed, creating sub-categories and merging codes in the process. Sub-categories were developed both from the literature and empirically. The researcher embarked on case four, for which the previously applied procedures were undertaken. Thereafter the researcher embarked on the fifth case and again the above procedures were applied. By this stage it was clear that there were no new codes emerging from the data as the researcher continuously explored the different cases. The emerging relationships were cross-checked with the literature to ascertain the veracity of the conceptualization.

Second-cycle coding was undertaken where categories, themes, conceptual and theoretical organization were developed (Saldana, 2009). This entailed classifying, prioritizing, interpreting, synthesizing, abstracting and conceptualizing. Throughout the interview and analysis process, the researcher wrote memos in a note book which were transferred to the memo feature of Atlas.ti into a memo named ‘emerging insights’ from which insights were drawn. The capture of these memos also extended outside the data gathering and analysis stage. The researcher maintained the notebook with him such that even during travel, reading or an informal discussion with faculty or fellow doctoral students, insights were captured.
With the coding process less intense, the researcher created memos based on research questions. Within each memo the research question was written, codes that could possibly answer the question were written and unique discoveries based on the literature were articulated. Memos, as previous literature has shown, are important for writing qualitative studies (Charmaz, 2006; Corbin & Strauss, 2008). At this point a sketch of an answer to the research question was formed. Using the code co-occurrence tools, codes-primary documents table and the query tool, relations and patterns in the data were identified. Thoughts generated from the data behind the analysis were then written in the research question memos.

Thereafter the researcher undertook another review of the literature to investigate the emerging explanations. This review generated new insights, themes and variables which the researcher immediately cross-checked with the data before adopting new codes or omitting or renaming old ones. Based on analysis and synthesis, the researcher created a platform to discuss the findings answering the 'how' and 'why' questions through both the empirical evidence and using the literature for support.

3.7.3.4 Document analysis

For analysis of documents, three distinctive approaches are possible: (a) the analysis of documents for their content (content analytic); (b) the analysis of documents as commentary (context analytic); and, (c) the analysis of documents as actors (context analytic) (Miller & Alvarado, 2005). In this study, context analysis was adopted for analysis of the documents.

While there is a variety of available analytic strategies, careful attention was paid to alternate or contrary examples or explanations as an analytic strategy. In this research documents served the purpose of triangulation with the data sourced from the sustainable entrepreneur's interview transcripts and the stakeholder interviews. Documents were read to confirm what was stated in the transcripts as part of the triangulation process. Codes were assigned to the documents manually seeking to replicate the codes that had been found in the interview transcripts. The analysis of the documents was integrated with that of the interview transcripts by codes from both sources being harmonized. The documents were coded based on the codes that had been identified in the entrepreneur interview transcripts. When a code that was forming part of the unfolding pattern did not appear or was not strongly reflected in the interview transcript, evidence was sought from available documents. For example, if Musaz stated in his interview transcript that he partnered with UNHCR but offered scanty details about this interaction, the researcher would study the memorandum of understanding between the two parties or visit the UNHCR Uganda country office website and source additional information that would at times even provide explanations and detail about the nature of this interaction. During the coding of the documents the researcher was also on the lookout for prominent codes that occurred in the documents and would require identification in the interview transcripts. This review of the documents therefore strengthened the research and offered a number of benefits. First, through use of the documents better insights were developed about the topic under study. Secondly, inadequacies that could have arisen as a result of relying on one data source were set aside as the documents provided confirmatory evidence. Thirdly more comprehensive data compared to the interview transcripts was collected from documents which also enabled the elimination of inconsistencies.

3.7.3.5 Analysis of stakeholder data

As part of the data collection, data was collected from a number of stakeholders associated with the sustainable entrepreneurship firm. These stakeholders included a customer, a supplier, an employee and a community member. The primary objective of undertaking these interviews was to triangulate the results with those obtained in the interview transcripts of the sustainable entrepreneur. The nature of the study phenomena is such that a number of stakeholders cooperate to realize an entrepreneurial outcome. In the spirit of effectuation, employees, customers, suppliers and community members may work together offering input in form of resources, feedback or custom to enable the success of the enterprise. Using in-depth interviews these individuals were asked questions about their association with the focal firm. Data that was collected was transcribed verbatim. The transcripts of the stakeholders were coded using the codes that had been developed for the entrepreneur's interview transcripts. The elements that were particularly sought out were changes in quality of products, acceptance of lower wages with the promise for improvements in the future, consultation in the process of setup and production and willingness to supply on credit terms. These matched the emerging insights from the other analyses. Insights from the data that was collected from the stakeholders were integrated with the data from the sustainable entrepreneur's transcripts and the document analysis through clarifying, explaining and confirming the findings in the other analyses. Specifically, this was achieved through identification of similar codes in the different data sources. Furthermore, insights that may have not been clearly surfaced in the earlier analysis of the sustainable entrepreneur's interview transcripts, were revealed in this process.

3.7.3.6 Rigor in data analysis: The Gioia analytical method

Qualitative research has often faced criticism regarding the lack of systematic conceptualization and analytical discipline. An analytic approach referred to as the Gioia methodology has been developed to remedy this issue. In this study it was used as a second analytical method to triangulate with the NCT analysis.

Data was coded into a number of first order codes. These codes reflected the informants' language. The first-order codes were matched with the study constructs as 2nd order empirical indicators. The second order empirical indicators are researcher-centric concepts. This tandem reporting of both voices allows for a qualitatively rigorous demonstration of the links between the data and the emergent theory. Finally, these indicators were integrated around core themes (Strauss & Corbin, 1998) to form a framework that helped validate the empirical indicators and verified relationships.

A data structure shown as Table 3 was developed from the analysis (Gioia et al., 2012). This data structure provides a representation of how progress was made from raw data to the themes used in conducting analysis. It also shows how the data links to the emerging insights.
Throughout this process, connections between the data, the emerging concepts and the resulting theory are demonstrated. The importance of the above process is to provide a transparent and

coherent audit trail of the different steps in the analysis. In this regard a presentation is created that shows concepts, transparently demonstrates the details of analysis and ultimately produces theoretical models that are transferable. It was therefore possible to move from the idiosyncrasies of a particular case, to produce transferable constructs. The tandem reporting of informant and researcher voices allowed for both a qualitatively rigorous demonstration of the links between the data and the induction of the sustainable entrepreneurship concept and the kind of insight that is the defining hallmark of high-quality qualitative research (Gioia et al., 2012). In this process how the data was collected, reduced and analysed to produce interpretable findings was detailed. This high transparency allows the reader to determine the accuracy of the conclusions and learn from the findings and the methodology (Bluhm, Harman, Lee, & Mitchell, 2011).

Table 3: Data Structure

<table>
<tr><th>1st Order Concepts</th><th>2nd order empirical indicators</th><th>Aggregate theoretical dimensions</th></tr>
<tr><td rowspan="2">Engaged with suppliers on favourable conditions
Hired staff with a promise of future benefits
Partnered with development organizations and NGOs
Involved the local community in the development of the product
Sought market for the product before the idea was fully developed</td><td>Co-create the enterprise with stakeholders</td><td rowspan="2">Formation of alliances</td></tr>
<tr><td>Seeks support from potential partners with the promise of future benefits</td></tr>
<tr><td rowspan="2">Use of readily accessible resources
Use of cheap inputs
Easily cut losses</td><td>Use of limited amounts of money</td><td rowspan="2">Tolerance for failure</td></tr>
<tr><td>Quickly changes tact</td></tr>
<tr><td rowspan="3">Pursuit of amendments to current procedures
Interest in learning new methods
Active search for information
Open to evolution of processes
Positive attitude towards failure
Receptive to new individuals</td><td>Interest in learning</td><td rowspan="3">Willingness to change</td></tr>
<tr><td>Positive attitude to challenges</td></tr>
<tr><td>Understanding reasons for change</td></tr>
<tr><td rowspan="2">Pursued different projects along the way
Was not sure of success when he/she started out
Gradually improved product or process
Product/service currently on offer is substantially different than what was first imagined</td><td>Trial of new things</td><td rowspan="2">Adaptation</td></tr>
<tr><td>Learning from failure</td></tr>
</table>

1st Order Concepts	2nd order empirical indicators	Aggregate theoretical dimensions
	Transformative and robust outcome/output	
Low capital Inadequate skills Widespread poverty	Improvisation	Resource scarcity
	Small investments	
Concern for community Interest in the environment Fascination with the economic activity Belief in own ability	Endearing interest in entrepreneurial activity	Passion
	Self-driven pursuit in face of challenges	
Enterprise with social, environmental and economic objectives intertwined Enterprise designed to cater to needs of future generations Novel product or method of production that seeks to help a community or save the environment	Pursuit of multiple objectives	Sustainable entrepreneurship
	Consciousness of the role of business in society	
	Improved offerings or production process	

3.8 Ethical considerations

In any research study, ethical issues relating to protection of the participants are of vital concern (Webster, Lewis, & Brown, 2014). Ethical issues in qualitative research are of both an empirical and a theoretical nature and apply to the whole research process. The intricacies of researching individuals' lives and reporting findings to a wide audience, raises a number of ethical issues that cannot be resolved simply by the application of abstract rules, principles or guidelines. Within the qualitative realm there are tensions due to the inductive uncertainty that typifies this type of research, yet guidelines tend to be static, oblivious to the emergent nature of this research process.

The following are important from an ethical standpoint. The research should be worthwhile and not make unreasonable demands on participants. Participation should be based on informed consent and free from coercion and adverse consequences of participation should be avoided. Confidentiality and anonymity should be respected.

Before the interview began, the respondent was fully sensitised about the nature and purpose of the study. Informed consent is one of the key ethical considerations. Through this the research participant is alerted to possible risks that could arise due to taking part in the study. Along with a brief verbal narrative of what the research was about, the introductory part of the interview guide spelt out the aims and nature of the research. The participants were informed who the researcher was and who the doctoral advisor was. Full telephone and email contacts were availed to the participant. The respondents were also told why they were selected and that even if they agreed to be a part of the study, they could withdraw at any time without giving an explanation. Respondents were informed of how freely they were expected to answer the questions and that their identities would not be disclosed in research outputs. They were informed that information sourced was strictly for academic purposes and would be kept by the university for 5 years in conformance with the university's data storage code. The participant then was requested to sign a consent form. None of the participants was pestered to participate or volunteer information sought. Given the nature of inquiry, there was no potential harm that could be caused to the research participants.

3.9 Trustworthiness of the research

Features of trustworthiness in qualitative research can be related to validity and reliability in quantitative research. Validity is the degree to which something measures what it purports to measure while reliability is the consistency with which use of a method yields similar results. Issues of validity in qualitative studies should be linked not to ‘truth’ or ‘value’ as they are for the positivists, but rather to ‘trustworthiness’, which ‘becomes a matter of persuasion whereby the scientist is viewed as having made those practices visible and, therefore, auditable’ (Sandelowski, 1993, p. 2). This shifts the responsibility for judgements of quality from the producer to the consumer of the research.

Trustworthiness has been further divided into credibility, which corresponds roughly with the positivist concept of internal validity; dependability, which relates more to reliability; transferability, which is a form of external validity; and confirmability, which is largely an issue of presentation (Graneheim & Lundman, 2004; Lincoln & Guba, 1985).

Credibility is indicative of whether the findings are accurate and credible from the perspective of the researcher, participants and reader and refers to the trustworthiness, verisimilitude, and plausibility of the research findings (Tracy, 2010). Dependability focuses on the degree to which data change over time and alterations made in the researcher's decisions during the analysis process (Lincoln & Guba, 1985, p. 299). On the one hand, Guba and Lincoln (1989, p. 239) regarded member checks as 'the single most critical technique for establishing credibility'. Member checking is the process of returning to the participants following data analysis. On the other hand, Sandelowski (1993) regarded reliability/dependability as a threat to validity/credibility. He questioned many of the usual qualitative reliability tests such as member checking or peer checking (using a panel of experts or an experienced colleague to re-analyse some of the data) as ways of ensuring that the researcher has analysed the data correctly. Lincoln and Guba (1985) shifted the emphasis of neutrality in qualitative research from the researcher to the data, so that rather than looking at the neutrality of the investigator, the neutrality of the data was considered. They suggested that confirmability be the criterion of neutrality. This is achieved when truth, value and applicability are established.

A single audit of the research can enhance both the dependability and confirmability of the project (Lincoln & Guba, 1985). Transferability refers to 'the extent to which the findings can be transferred to other settings or groups' (Polit & Hungler, 1999). This feature depends on the reader's perception which is informed by the clear articulation of the research process.

From the foregoing discussion, here below we discuss the four tests that were used to establish the quality of the study, that is, construct validity, internal validity, external validity and reliability. In the discussion I also explain the tactic used for each of these tests.

3.9.1 Construct validity

This refers to identifying correct operational measures for the concepts being studied (Yin, 2009). To do this, multiple sources of evidence were used in what is referred to as triangulation. Triangulation in qualitative research assumes that if two or more sources of data, theoretical frameworks, types of data collected, or researchers, converge on the same conclusion, then the conclusion is more credible (Denzin, 1978). In the social sciences the word has been associated with the use of multiple methods to improve validation so that variation reflects the trait rather than the method (Campbell & Fiske, 1959). Multiple types of data, researcher viewpoints, theoretical frames, and methods of analysis allow different facets of problems to be explored, increase scope, deepen understanding, and encourage consistent (re) interpretation (Tracy, 2010). Two types of triangulation are much discussed in the literature; between methods and within methods (Denzin, 1978). The former entails the use of different and distinct research methods while the latter involves use of multiple techniques within the same method. This study adopts the former. If the multiple and independent methods reach the same conclusion, there is a higher level of confidence in the results.

In this study a number of data sources were relied on including the interviews, document reviews and observations. Data was also sourced from a variety of respondents; the entrepreneurs, suppliers, customers, employees and members of the community. These facilitated the triangulation of the findings. Nonetheless the researcher opted to do member checks mainly because the entrepreneurs requested that they take a look at the transcripts and conclusions before publication of the research. Data and outputs were also shared with the doctoral supervisor to ensure conformity and test the veracity of the findings.

3.9.2 Internal validity

Pattern matching entails the logical comparison of an empirically based pattern with a predicted pattern (Yin, 2009). Pattern matching is one of the most desirable techniques to analyse case study evidence as it involves the comparison of predicted patterns with those empirically observed, and the identification of any variances. In this study, pattern matching was used as a tactic (Yin, 2009) to ensure internal validity. Explanation building - a form of pattern matching through an iterative process - was used during data analysis.

3.9.3 External validity

This criterion defines the extent to which the results are generalizable. Case studies rely on analytical generalization where the results are generalizable to broader theory as opposed to a population, as in a survey (Yin, 2009).

3.9.4 Reliability

One goal of this test is to ascertain whether the study on the same case can be repeated with similar results (Yin, 2009). To achieve this, the researcher has documented the procedures undertaken throughout this section. Appendices attached provide additional information on these procedures and the decisions undertaken. To further limit effects of time variations due to changes in participants' perceptions, the duration of data collection was limited. Throughout this section, an attempt has been made to explicitly detail the research process so that a reader can decide if the findings can be applicable to another setting. To further ensure reliability multiple data sources and analytical approaches were used.

More recent studies are seeking to improve the notion of trustworthiness. For example, it has been argued that quality has to be established not through some ex-post assessment of the truthfulness of the research findings, but intrinsically through the ethical and substantive validation of the design and execution of the research by skilled and capable researchers (Leitch *et al.*, 2010). This, they add, requires the shift from the notion of validity as an outcome to validation as a process.

3.10 Chapter summary

This chapter provides a detailed description of this study's research methodology. The selected methodology is justified by the stage of development of the theory under consideration. The researcher's paradigm was discussed revealing the researcher's understanding of what knowledge is and how it is created, aligned with a post-positivist paradigm. Qualitative case study methodology was employed to illustrate how individuals facing resource constraints engage in sustainable entrepreneurship. The participant sample was made up of 5 purposefully selected cases.

Two data-collection methods were employed: individual interviews and document review. The data was reviewed against literature as well as emergent themes. Credibility and dependability were accounted for through various strategies, including source, method and analytical triangulation and a detailed description of the method and protocol.

A review of the literature was conducted to devise a conceptual framework for the design and analysis of the study. The process of analysis was specified showing a recursive implementation of the NCT procedure and the Gioia analytical approach. Through a comparison with the literature, interpretations and conclusions were drawn. Ethical issues and the limitations faced in the study were spelt out.

Chapter 4 – Results

4.0 Chapter introduction

The primary aim of this multi-case-study research is to explain how individuals faced with resource constraints engage in sustainable entrepreneurship. This chapter presents the key findings obtained from the study. The study relies on consistent observations across the cases and seeks out and investigates unanticipated findings. The main finding is that for individuals faced with resource constraints, the occurrence of sustainable entrepreneurship is made possible through formation of alliances, willingness to change, sensitivity to what they can lose and repeatedly trying a number of options to achieve their aim. Further to this, passion enables the entrepreneur to persist in the face of challenges encountered. Sustainable entrepreneurship was also shown to occur in the form of the social, environmental and economic objectives that exist in a state of shifting supportive interaction with one another.

4.1 Model description

In understanding how individuals faced with resource constraints engage in sustainable entrepreneurship effectuation theory was used. The model specified in this study is derived from a number of effectuation studies, specifically the works of Sarasvathy (2001) and Chandler et al. (2011). From these studies the following constructs were adopted to create codes: pre-commitments, flexibility, affordable loss and experimentation. Thereafter patterns predicted by this theory were searched for.

The proposed relationships are diagrammatically portrayed in Figure 1 below and depicted in the subsequent sections of this chapter wherein the cognitive and motivational explanations for these relationships are highlighted. Explanations for these relationships are drawn from case evidence and detached logic (Eisenhardt & Graebner, 2007) as shown in Table 4 below.

Qualitative researchers often seek relationships between conceptual ideas generated from the narrative data. As properties of the categories become well defined, linkages between them become more sensible. While qualitative data analysis software does not provide a role similar to that quantitative data analysis tools do, it eases common tasks such as searching for trends and relationships. Atlas.ti provides a tool known as the codes co-occurrence tool that highlights the proximity of codes from which relations can be adduced. With the help of this tool, it was found that references to alliances formation co-occurred with tolerance for failure, willingness to learn and adaptation. In the same way references to tolerance for failure co-occurred with willingness to learn and adaptation while instances where willingness to learn appeared co-occurred with adaptation. Memos, another tool in Atlas.ti was also used to help sort data into categories, define properties and make sense of the data by discovering relationships among categories. Case based evidence of this is provided in the section below where quotations that consistently occur across the cases are used to highlight these relationships. Further analysis through detached logic and review of the literature revealed associations between these constructs and this contributed to the creation of the model.

The model labelled as Figure 1 shows that when individuals are faced with resource constraints they form alliances which alliances influence their tolerance for failure which in turn changes their willingness to learn and subsequently induces one to adapt to unfolding circumstances through which they engage in sustainable entrepreneurship.

The model derived from the data in this study includes elements of flexibility referred to as willingness to learn, adaptation which reflects the effectual construct of experimentation and tolerance for failure that mirrors the affordable loss construct. In this model alliance formation is proposed as a broader conception of pre-commitments evidenced by the depiction of alliances beyond actual commitments to include for example the offer of moral support. While previous effectuation research focussed on strategic alliances this was narrowed down to pre-commitments with a focus on what actually is useful in these alliances. However, the data in this study shows that in answering the research question the relationships between the sustainable entrepreneur and others may not be limited to the acquisition of pre-commitments. Elements of moral support or even just being associated with a significant entity were evident in the data and this prompted the broadening of this construct.

The model also introduces passion which previous research has not had as part of effectuation theory. Entrepreneurial passion has been proposed as a central characteristic of entrepreneurs, and has been theorized to influence a host of entrepreneurial behaviours as well as firm performance (Cardon et al., 2009). Passion the model shows is important for inspiring the sustainable entrepreneurship idea, promoting the formation of alliances and ultimately sustaining the sustainable entrepreneurship pursuits when challenges are encountered. While recent literature has brought passion to the fore of the conversation on entrepreneurship, its role may be prominently displayed in the domain of sustainable entrepreneurship where the budding literature on team passion (Cardon, Post, & Forster, 2017) may provide interesting insights. The model may inspire research in this direction showing how passion's relevance may be drawn from a number of sources from the product being developed to the social beneficiaries of the enterprise activities and the partners that the entrepreneur engages with.

The model lends insights to research on small firms in developing countries. The nature and substance of the alliances these firms create differ from those that multinationals and large established firms tend to create and the content of these interactions may inspire new theoretical developments. In sum, the model shows that resource constraints are likely to result in greater receptivity to diverse information enabled by passion which facilitates recombination of new ideas in the realization of sustainable entrepreneurship.

By way of "thick description" (Lincoln & Guba, 1985), the researcher describes the experiences, and presents the opportunity for the reader to better understand the reality of the research participants. In this regard, illustrative quotations taken from interview transcripts (presented in Table 4) are interwoven with the text in an attempt to portray multiple participant perspectives and capture the richness and complexity of the subject matter.

Figure 1: Model

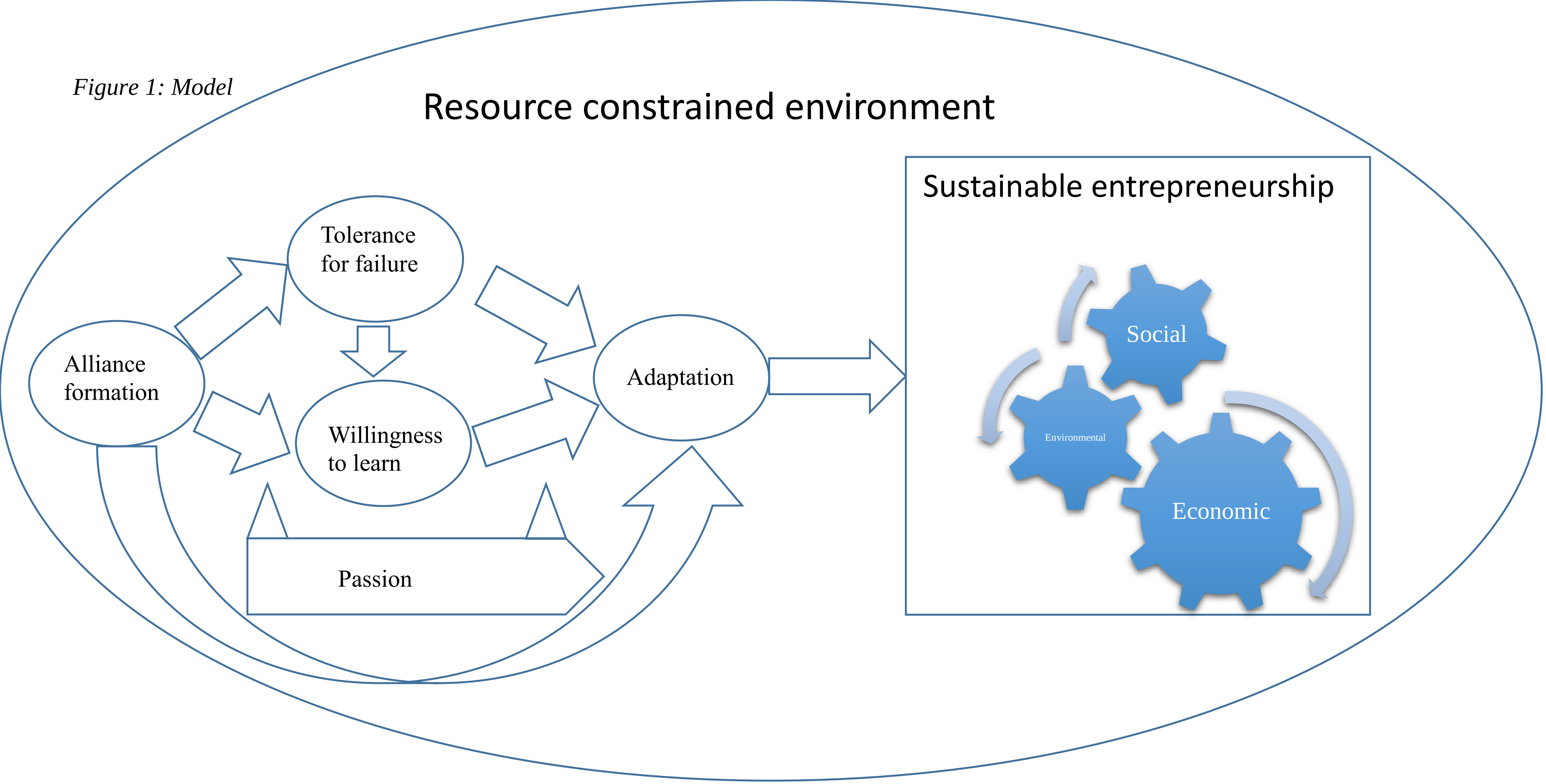

Table 4: Illustrative Quotes

Code	Illustrative Quotes
Resource constraints	My income from consultancies was not constant and not enough to pursue my activities. *Celes* For 6 years after my retirement money ran out, I depended on handouts from my children which were small and sometimes irregular. *Bened* In the start we lacked money to manufacture and market our products and so we relied on word of mouth and the relationships we had with a number of people. *Pulo* I didn't have much money in the start or employees to design the machinery. *Musaz* My travels, the research whatever we did, at the start needed more money. So I sold my business in the UK and relied on my husband to add me capital. *Ros*
Formation of alliances	UNHCR, GOU and GTZ partnered with us. UNHCR undertook to buy the pads, while GOU offered land and GTZ helped with the development of the machinery. *Musaz* What we also do is we come in partnership with banks. The banks are willing to give them loans so a woman will come and take that stove that she has been desperately wanting. Instead of charcoal she will use the same money the 2000sh per day she has been using to buy charcoal and it will service the loan. I did the same with National Housing and Construction Corporation such that every property that they build has an inbuilt eco stove. *Ros* We sign agreements, we agree that we are not going to market our company to the visitor we simply deliver the service. That's the way because you are getting in to the industry and you come face to face with the reality so you have to find a way and it is working for example this business of the hunters this is something that tour companies actually are finding very interesting , and many of them have organised firm tours, they have even started adding it on their itineraries and selling it to their visitors, so in the end we may not even have to go to the source markets, we market ours to the local tour operators here. *Celes* We have partnered with development organizations who undertake to provide us [free] training and share research information. *Pulo* I approached the Private Sector Foundation and asked for help to acquire a machine [to straighten the straws]. They then facilitated me to attend a conference in India where I made a pitch for this type of machine. I identified a potential supplier and I interested the Uganda Export Promotion Board in funding its purchase. *Bened*
Tolerance for failure	"To start we invested $2,000. We had just concluded a consultancy job and this was not a lot of money for me. We were feeling out the market, looking for ideas and contacts. Whatever didn't work we tried something else." *Celes* Machinery is expensive. In the start I had to use the money UNHCR gave us to develop machines. *Musaz*

Code	Illustrative Quotes
	I sold my business in London and I used the money I made to start. My husband added more money. The travels, the research whatever we did, needed more money. Remember I was coming into new territory and had to try a number of things to see what worked. Though I couldn't sell my house to finance this business. *Ros* Initially I didn't know what exactly to make. I bought 2 Jerri cans of water at 200/= and a Sachet of detergent at 300/=. I washed the used drinking straws and started weaving a skill I learned as a child. *Bened* In the start I used money from my savings because it was easily accessible. Because I knew what I would get out was for my benefit I wasn't afraid to lose it. *Pulo*
Willingness to change	"Being a member of a number of organizations, local and regional such as East African Technology Development Network and UCEA has provided access to knowledge and opportunities of different types. Partnering with development organizations like SNV, WWF, GIZ and GIVEP exposes us to a number of ideas". *Pulo* "I am forever changing, I am forever breaking, I am forever learning from different stakeholders. Even if I appreciate something and a new idea comes up I will not hesitate to break it and try the new idea." *Ros* "At the start we thought we would offer the same services as players in the market but we found out we could not compete… Now we have them market our unique services." *Celes* "To get a machine to straighten the straws, I have tried working with the university. I have also tried our local fabricators. I have even imported from India. My partners in America have also tried to help. Now I will try China". *Bened* "I am always on the lookout for new ideas. I listen to a number of people and I do a lot of research. I am always ready to try something new to improve production." *Musaz*
Adaptation	"After adopting the stones as the source of energy we tried a number of options to fan the stones as this is necessary to keep them burning. Doing this manually was dismissed as it is labour intensive and yet my aim was to make the woman's cooking environment tolerable. We tried using electricity from the main grid but found out that during power rationing users would be forced back to charcoal and firewood. We then stumbled upon a solar solution which has worked well." *Ros* "We have slowly improved our stoves. We first improved the insulation to reduce heat loss and then we developed new ways of having it light faster and cook fast. We then reduced the emission of smoke." *Pulo* "I picked up the straws took them home without a clear idea of what to do with them. I then bought two Jerri cans of water and a sachet of detergent at 500/=

Code	Illustrative Quotes
	and washed them. I started weaving a mat that a by passer came, admired and booked." *Bened.* "We tried to take people to see the [mountain] gorillas but we discovered that because we had to hire vehicles it would be expensive and we therefore couldn't compete with lodges that owned these tourism vehicles." *Celes* "I had to use locally available materials to make the machinery. I tried several things till it finally worked. It is because of this that I have to continuously improve the machinery." *Musaz*
Passion	"Someone suggested that we have the stoves fanned manually. I refused this suggestion as I really wanted to liberate the rural woman from such heavy work." *Ros* "Poverty doesn't make sanitary pads a priority to mothers, fathers or girls we have not yet gotten there. So we need to get there and I feel strongly about this and I must find a way of getting there." *Musaz* "All my life I have so much felt drawn to the renewable energy sector." *Pulo* "I was opposed by my family in the beginning … but I felt that what I was doing was very important … I was saving the environment and the health of children who used to use these used straws as play things." *Bened* "I was concerned for these people. They are poor and yet they were hunting in an unsustainable manner. What would happen when the animals all die out?" *Celes*

4.2 Resource constraints

Enterprises the world over usually have to contend with inadequate resources. The resource constraints may take the form of financial, human or other organizational resources. Resource constraints result in a number of reactions including the pursuit of a revised version of the organization's goal or outright abandonment of the venture. Sometimes firms may devise mechanisms to set aside the challenges that result from resource constraints. These mechanisms vary and result in a number of outcomes depending on the entrepreneurs' aspirations. While the multi-faceted objectives pursued by sustainable entrepreneurs imply that more daunting resource constraints are encountered, a myriad of pathways to address these hardships may also be presented. The following quotes demonstrate the nature of resource constraints faced by the sustainable entrepreneurs:

"I had retired from employment and had no source of livelihood" *Bened*

"I had no money, no business experience and yet needed to make a pad that was affordable to the poor people" *Musaz*

"I have used the little money from my employment and consultancy business to set up this business" *Celes*

"At the start of this business things were hard. I had to rely on the few savings I had from my former employment." *Pulo*

Faced with these resource constraints, the sustainable entrepreneurs sought to engage with others to mitigate their situation as shown below:

"UNHCR offered to purchase a lot of the pads I manufactured on condition that I setup a plant in one of their refugee settlements and employed the refugees." *Musaz*

"I approached the Private Sector Foundation and asked for help to acquire a machine [to straighten the straws]. In this regard, they facilitated me to attend a conference in India where I made a pitch for this type of machine. I identified a potential supplier and I interested the Uganda Export Promotion Board in funding its purchase." *Bened*

Out of engagement with others by the sustainable entrepreneurs, alliances were formed instantiating actions akin to effectuation. The quotes above show that the resource constraints inspired the entrepreneurs to undertake actions that yielded sustainable entrepreneurship because the alliances were a least cost option. Resource constraints therefore caused the entrepreneurs to become frugal, preferring to spread the risk to others.

4.3 Formation of alliances

Alliances represent stakeholder buy-in, reducing the entrepreneur's exposure. Through alliances, information and resources are accessed and the entrepreneur's confidence is enhanced. Further to this, alliances saddle the entrepreneur with the responsibility to make good on his promise. The nature of sustainable entrepreneurship ultimately demands a greater role from stakeholders who are directly affected by the social and environmental dimensions of the firm. Alliances so created to offset the uncertainty, involve a wide variety of stakeholders including liaisons with community members, suppliers, customers, employees, international organizations, non-governmental organizations, government and community-based organizations. In the spirit of effectuation, these partners as co-creators persuade the entrepreneur of the possibilities that their product or service may bear. Below is a discussion of the results showing that alliances influence tolerance for failure, willingness to learn and adaptability.

4.3.1 Formation of alliances and tolerance for failure

Alliances represent endorsements by other parties of the likelihood of the success of a venture. In such circumstances the entrepreneur's fortitude and perception of the success of the venture is reinforced and in so doing, the perceived likelihood of failure and willingness to lose is diminished. These alliances are useful in providing guarantees such as markets, sources of supplies or wage levels. This on the other hand, increases the responsibility to account for the entrepreneur's actions and in turn, limits the risks the entrepreneur may be predisposed to undertake. An illustration of alliances influencing tolerance for failure through responding to obligations is captured in the quote below:

> "Two weeks ago I signed an agreement with a big German firm where we are going to run at our cost, tours for their clients for a year before we are paid. We must stick to what we agreed upon; if not, we risk jeopardizing the whole arrangement." *Celes*

The above quote shows that the undertaking with the German firm curtailed the risk-seeking behaviour of the entrepreneur because of his obligation to the German firm. Action contrary to this could attract penalties, including the termination of the arrangement.

The following illustrations show how through provision of resources, alliances change the nature of interaction between the firm and partners such that the firm reduces its exposure by redirecting potential expenses to better endowed partners:

> "In my partnership with Finance Trust Bank, the bank pays for the stove and extends this as a loan to the customer, omitting collection costs and the possibility of bad debts. Ever since we started this arrangement with the bank, we no longer offer our clients direct credit lines, instead we forward them to our partner banks." *Ros*

> "We had an opportunity to attend the World Tourism Market in London and ITB Berlin, but because we had partners who we knew could attend and market our products, we were not willing to spend the amounts required and so elected not to attend." *Celes*

With the provision of resources also comes an enhancement of the sustainable entrepreneur's perception that he/she is capable of surmounting challenges. This is captured in the following quote:

> "We have partnered with development organizations who undertake to provide us [free] training and share research information. This enables us avoid costs associated with training and hiring new employees." *Pulo*

The above quote suggests that the sustainable entrepreneur's fortitude was enhanced from the association with the partner organizations and the knowledge so obtained. These reduced what the sustainable entrepreneur would have accepted to forego in expenses by providing him/her the trained personnel from within.

Alliances may be manifested in the form of access to markets. Assurances of a market and how that diminishes the tolerance for risk and potential loss is illustrated below.

> "Following my success with UNHCR I was approached by Watoto Church to manufacture pads for the Northern region of Uganda. Unfortunately, they were not able to market the pads they had produced. In the past I would have sold these extra pads in other markets but now I was not ready to take on these additional risks and so I severed the arrangement." *Musaz*

> "I got a contract from one of my clients to manufacture an assortment of products using black straws. I had never undertaken this size of contract and I had no experience with the products he wanted. Because of this contract I turned away a number of potential clients." *Bened*

The above quotes show that the certainty provided by the contract alleviated the need to accept what may be perceived as less certain business from other clients.

It is observed from the foregoing that the resources provided through alliances not only facilitate the running of the enterprise but also enhance the confidence of the sustainable entrepreneur and in turn the sustainable entrepreneur's perception of the level of certainty of success of the firm. When a number of parties subscribe to a particular venture, belief in success by the key actor is reinforced. On the other hand, it is shown that the alliances saddle the sustainable entrepreneur with obligations that influence his/her tolerance for failure.

4.3.2 Formation of alliances and willingness to change

The formation of alliances evokes obligations to meet partners' demands which also facilitate the pursuit of ideas to not only realise sought-after objectives, but to exceed these. The results show that alliances influence the sustainable entrepreneur's willingness to change through facilitating access to information and ideas about opportunities and challenges. The amenableness of the sustainable entrepreneur to these new ideas serves as a source of improvement. Alliances also offer a safety net to the sustainable entrepreneur who develops a sense of confidence in taking on new ideas.

How alliances foster access to ideas and information is shown in the following quotes:

> "By getting the community to agree to our tourism model of letting visitors watch them hunt but sparing the kill, we have identified possible business opportunities such as storytelling and culinary tourism to boost our income." *Celes*

> "I have never undertaken any formal training in design but I rely on my customers and friends who give me information and ideas that I use to consider changes to my products." *Bened*

> "Our partnership with development organizations like SNV, WWF, GIZ and GIVEP has opened pathways to new possibilities through trainings they provide, access to research information and market networks." *Pulo*

On the other hand, the sense of safety created by these alliances is shown in the quotes below:

> "I entered into an agreement with UNHCR to set up a factory in a refugee camp, employ refugees and produce MAKA pads that the UNHCR will buy. This has enabled me to try a number of other products and scale up my operations in a number of locations producing to sell to UNHCR and also to the general public." *Musaz*

> "When I started the partnership with Post Bank who were willing to pay me the full price upfront, I was able to reach out to more people, understand their needs and entertain ideas for a cheaper Eco stove." *Ros*

The above evidence demonstrates that access to information, resources and a sense of confidence that emerges from alliances informs the sustainable entrepreneur's receptiveness to new ideas. Feedback sourced from partners is more easily forthcoming and convincing considering that it is perceived that these partners have a vested interest in the success of the venture. These alliances spread the risk of failure to a number of stakeholders and limit the effect of failure.

4.3.3 Formation of alliances and adaptation

The results show that the formation of alliances increases the likelihood of adaptation through providing physical resources, knowledge and enhancement of confidence of the sustainable entrepreneur to improve the product or service. These increase the likelihood of the venture's success and in turn increase the effort to ensure this success. The obligations that come with these alliances on the other hand also create a need to work harder to realise earlier conceived goals. The excerpt below shows that alliances provided resources that facilitated the betterment of the product:

> "Because of our partnership with UNHCR we have been able to access waste paper from different foreign missions in Kampala. We use this waste paper to improve the quality of the sanitary pads." *Musaz*

> "We were able to develop relationships with suppliers of our inputs that gave us flexible repayment plans and enabled us to develop a number of products that did not necessarily have ready market." *Pulo*

> "We have a memorandum of understanding with the tourism police to provide us with security. As a result, we have introduced a new product, night tours." *Celes*

It is argued here that without access to these resources derived from the alliances, the development and quality of products may not have been as remarkable as they are.

The resources and information so secured, enhance the sustainable entrepreneur's confidence, which in turn facilitates adaptation as shown in the quote below:

> "Having got the Uganda Export Promotion Board to accept to pay for the machine, I was then emboldened to seek funds from elsewhere to pay for its modification. Thereafter I got the local fabricators to modify the machine." *Bened*

> "When I order for a component from the engineers I work with in the UK and China, I suggest improvements before I bring it to Uganda. Having a clear understanding of what the foreign engineers did, I then work with my local engineers to further modify it to meet our customer demands." *Ros*

> "Initially we used the money UNHCR gave us to develop a machine which made us confident that we could do it… I am an engineer, we fabricated them [the machines] locally … The machinery is not static we have to fabricate new ones and better ones." *Musaz*

Formation of alliances may guarantee supplies or markets to facilitate adaptation. These resources in turn, enhance the individual's fortitude which facilitates his/her adaptation practices. Within the context of sustainable entrepreneurship, this relationship is emphasised because the variety of stakeholders provide varying - and at times conflicting - ideas that demand trial and error approaches to attain optimal results.

4.4 Tolerance for failure

Entrepreneurs are often faced with competing needs which affect the amount of resources they can devote to a particular endeavour. Even when resources are abundant, there are limits to which an entrepreneur will commit additional resources to an endeavour - in a sense, a personal threshold of risk. This threshold is subjectively arrived at due to the inability to accurately calculate the viability of the venture. Entrepreneurs therefore leverage limited means in creative ways to limit the extent to which they may face a loss (Sarasvathy, 2008).
In the study it is shown that the sustainable entrepreneur's tolerance for failure influences his/her willingness to learn and disposition to adapt.

The results show that resources were not committed to the venture based on results of marketing analysis, but on the tolerance for failure - with many sustainable entrepreneurs relying on the cheapest available - and the subjective perception of the likelihood of success. This is reflected in Celes' investment of the $2,000 which was readily available and he believed the venture was likely to succeed. It is also shown in Musaz's establishment of the sanitary towels factory, based on the exhortation of his partners backed by their funding and his belief that the venture was viable. Explanations proposed for these findings show that tolerance for failure results in openness to new ideas as it hastens the learning process.

4.4.1 Tolerance for failure and willingness to change

In order to limit the possibility of loss, the sustainable entrepreneur is open to suggestions. In this study it is argued that the less the sustainable entrepreneur is willing to tolerate failure the more likely he/she will be open to alternative ideas and proposals.
The quotes below suggest that the intolerable conditions, the difficulty in accessing resources, the low amounts involved and the alternative uses to which the resources could be put, imply the need for speed in realizing results which in turn influences the sustainable entrepreneur's amenableness to alternative pathways.

> "To start we invested $2,000. We had just concluded a consultancy job and this was not a lot of money for me. We spent the money for product development, engaging the communities and engaging a few suppliers. We were feeling out the market, looking for ideas and contacts. Whatever didn't work we tried something else." *Celes*

> “My objective is to make a sanitary pad that is affordable to the poor. To succeed in this business, I have had to use locally and readily available raw materials and fabricate my own machines. When one doesn’t work out I try something else… To date I am still seeking the best and most readily available raw materials and ideas on how to improve my production processes.” *Musaz*

> “I would rather not spend money on advertising. Instead I present on radio programmes, I meet women groups and talk to them about my products, I visit corporate premises set up a tent and educate employees in the company about my products. Where one method doesn't work I try another. I am continuously considering alternative methods to get our message out there.” *Ros*

> "The amount of money to be used for production was low and so I was open to ideas of what to do. People I know suggested to me a number of things including earrings, belts, shoes and bags. For me all these ideas are welcome since I have the raw material and skill. So it is easy to try them out and gauge how the market receives them." *Bened*

The ease with which the sustainable entrepreneur embraced new ideas especially when a previous one did not work out, symptomises this relationship.

4.4.2 Tolerance for failure and adaptation

The results show that the extent to which the sustainable entrepreneur is willing to tolerate failure influences the adaptation activities of the entrepreneur. This is because actions relating to tolerance of failure influence the rate of uptake of information. The less one can tolerate failure, the faster he/she will learn which increases the likelihood of undertaking appropriate actions in the face of challenges.

One of the participants, Bened, narrated her experience with the straightening machine. She was not willing to spend a lot on it and would not tolerate the attendant setbacks, which led her to trying many other options, getting ideas as she tried different avenues. The role of learning in explaining how tolerance of failure facilitates the entrepreneur’s adaptation is further captured in the following quotes:

> "With the limited money we were willing to invest in the business, given the risks involved, we tried a number of things, for example, we tried to take people to see the [mountain] gorillas but we discovered that because we had to hire vehicles we couldn’t compete with lodges that owned these tourism vehicles." *Celes*

"I sought to make a sanitary pad that would cost less than 30 US cents. To do this I had to fabricate my own machinery and improvise with a number of locally available raw materials." *Musaz*

> "I bought two Jerri cans of water and a sachet of detergent at only 500/=, washed the straws I had picked up and just started weaving. This is a skill I grew up learning. Initially I didn't know what exactly to make and tried out a number of things." *Bened*

> "I don't have a lot of resources to spend but I try a lot of things with my engineers. If I don't like the output, I ask for it to be destroyed. I may lose money but eventually they end up making a better product." *Ros*

From the above quotes it could be argued that the more the sustainable entrepreneur could tolerate negative results, the less the urgency he/she perceived with learning and trying out alternative methods. Rapidness in learning is implied in the fabricating of own machinery, trying out different methods, engaging with a number of stakeholders, using a variety of experimental materials and intolerance for inferior products. All these inspire adaptation.

4.5 Willingness to change

Willingness to change is important in identifying an opportunity. This willingness implies that change is necessary and possible. The possibility of change is enhanced by the information sourced from this willingness which leads to action in the form of probes, testing different methods and learning more with each trial. The willingness and ability to act quickly and appropriately on this information in the form of feedback and volunteered suggestions, is therefore important. The individual who is willing to change is likely to adapt because he/she is able to cope with change through acquisition and possession of the requisite knowledge and experience, the ability to choose among a number of options and ability to ascertain the adequacy of his/her input in an activity. Willingness to change therefore enables creative responses to situations which may not have been anticipated.

The following quotes highlight how knowledge together with the willingness to learn and self-evaluate, explain the actions of the sustainable entrepreneurs who were interviewed:

> "In London I worked with renewable energy, I worked with environmental offices, I worked with conservation … I studied renewable energy as a diploma … I am forever changing, I am forever breaking, I am forever learning from different stakeholders. Even if I appreciate something and a new idea comes up I will not hesitate to break it

and try the new idea. If I am not happy with the design, I don't expect somebody else to be appreciative." *Ros*

"I have training in industrial ceramics … After my studies I worked for a company that was trying to improve cooking stoves … We are always on the lookout for ideas from different sources. We are always trying to improve but are careful to maintain our focus… From these ideas we have been able to reduce the amount of soot, make the stoves light faster and burn longer." *Pulo*

The quotes show that while the sustainable entrepreneur possesses the knowledge and experience, he/she continues to seek more information and are also able to exercise elements of choice and self-regulation, trying out a number of ideas and adopting what they perceive as workable.

4.6 Adaptation

Adaptation involves getting better suited to the environment. Through adaptation an entrepreneur tests the orthodoxy of his perceptions in an attempt to meet market requirements. Adaptation fosters learning through increasing the number, variety and quality of outputs. It is a path chosen because it is relatively inexpensive. The results show that through adaptation the sustainable entrepreneur develops novel products as captured in the quote below.

"I used to straighten the used drinking straws manually but as the volume increased I looked for a machine. I first approached the fabricators in downtown Kampala: what they made couldn't work. Next, I went to the engineering department in the University and I got a Professor and his students to work on a machine that also failed. I next met a young fabricator at a trade show. The machine he made worked well but for a short time. Then I got the Uganda Export Promotion Board to finance an Indian company to make a machine. It worked but for a short time too. I have recently received a machine from a US NGO but it too is inadequate." *Bened*

The rate of development of the novel solutions is gradual which may be attributed to the reliance on stakeholder feedback to improve on the product.

"We have slowly improved our stoves. We first improved the insulation to reduce heat loss and then we developed new ways of having it light faster and cook fast. We then reduced the emission of smoke." *Pulo*

The challenges faced by sustainable entrepreneurs are arduous with a high likelihood of failure. Sustainable entrepreneurs therefore tend to be tenacious, learning from past failures but driven by their lofty aspirations. They rely on innovative mechanisms that can address the needs and also ensure the competitiveness of the firm. This is captured in the quote below from Ros who was explaining the genesis of the Eco stove, Musaz who explains what is unique about his pad and Bened who describes how she stumbled upon the creation of used straw products and how alien the idea was to the extent of her having to bear disdain and ridicule from her family.

> "Instead of using wood which produces soot we got volcanic stones from Kisoro and tested them to see if they could work. We found out that the stones need a continuous supply of air to enable them keep burning and so we had to improvise. We tried using electricity from the main grid but found that the supply was unreliable and this would eliminate the rural poor women from using the facility. So we focused on a renewable energy solution until we came upon solar." *Ros*
>
> "Menstruation keeps girls out of school because pads are expensive. The poor are most affected by this. My pads are aimed at these poor people. What is unique about mine is that it is bio degradable." *Musaz*
>
> "I picked up the straws took them home without a clear idea of what to do with them. I then bought two Jerri cans of water and a sachet of detergent and washed them. I started weaving a mat that a by passer came, admired and booked. On finishing the mat, it was bought at 7,000/=after having spent 500/= which surprised me. I faced stiff opposition from my children and friends who were against the idea of me dealing with 'garbage'. Some people even called me mad for working with used straws which at the time were considered to be rubbish." *Bened.*

The extent to which actors adapt can be explained by their confidence, access to resources and information. Bened's persistent search for a machine typifies this. On the other hand, Musaz' undertaking to make a pad from locally available materials only, motivated by the belief in himself, also exemplifies this.

The data shows that the entrepreneur begins with a specific issue to address and attempts a number of solutions before modifying these attempts to develop the eventual solution.

> "My primary concern was to alleviate the suffering of that poor woman who has to walk long distances in search for firewood. Every improvement we made to the stove had to make her life easier." *Ros*
>
> "I was seeking to create a sanitary pad that was affordable to poor people. I was able to use locally available materials that are biodegradable and offer employment to a number of poor people." Musaz
>
> "People in this area are poor and yet their source of livelihood is not sustainable. I had to come up with a model that will ensure that they can continue doing what they do but also save the animals." *Celes*
>
> "We have been able to make the stoves light faster and retain heat better and so improved their ability to cook local foods." *Pulo*

The data also shows that throughout, the sustainable entrepreneur encounters challenges from which he/she learns and improves his/her approach until a solution is developed. The solution so developed is not an end in itself but a means to address the social, environmental and economic objectives of the firm.

4.7 Passion

Entrepreneurship that is characterised by interdependent events that are richly affective in nature (Morris, Kuratko, Schindehutte, & Spivack, 2012), elicits emotions (Cardon et al., 2017) that affect the undertaking of these entrepreneurial activities. When individuals sense that their physical and psychological wellbeing is under threat this sets off emotions which focus attention and energy on the problem (Shepherd & Patzelt, 2017). Sustainable entrepreneurship on the other hand is driven by emotions borne of past personal experiences or present concerns to address either a personal financial, environmental or a community need.

In the research evidence of passion was so strong. This may be explained by the altruistic basis of sustainable entrepreneurship (Shepherd & Patzelt, 2017). It may also be explained by the multiple goals pursued and the trade-offs occasioned by these multiple pursuits which make succeeding as a sustainable entrepreneur difficult. To contend with these complexities, it was conceivable that the entrepreneur had to rely on a deep commitment to practice this type of entrepreneurship. Passion was evident in the decision to start the firm, maintain the enterprise and counter challenges that the firm encountered. It served as a motivator to the entrepreneur and an inspiration to the other stakeholders. Passion influenced the seeking of equally as passionate individuals to form the alliances. It also influenced the tolerance for failure and the search for information and the learning from failure. The results also showed that the sustainable entrepreneurs were passionate about the products they created and the services they provided. They were also shown to be passionate about the problems they felt their businesses solved and the desire to improve the lives of their customers and the environment. It was in this regard that the researcher cycled back to the literature review section to include a review of the passion literature.

It has also been proposed that constructs from other theories could be incorporated into effectuation theory (Read et al., 2016). It is in this regard that passion is included in this study as it typifies the habitual patterns that Reuber et al., (2016) argue may be associated with effectuation theory.

Passion is exhibited in the form of concern for the wellbeing of others, disquiet about the health of the environment and a deep conviction of the merits of their entrepreneurial activity. This passion underscored a strong identification with the product and its core values.

> “The eco stove was created due to the urgent need to solve a problem. When you hear what my customers say, the feedback is amazing. It keeps me doing what I am doing.” *Ros*

> “I really wanted to help that woman in the village who has to walk long distances in search of firewood” *Ros*

> “Poverty doesn’t make sanitary pads a priority to mothers, fathers or girls. We have not yet gotten there. So we need to get there and that’s my passion and I must find a way of having this.” *Musaz*

One of the ways passion is exhibited by the sustainable entrepreneur is through the opposition to the idea of selling the enterprise.

> “I get about 3 or 4 offers every year to buy my business/technology. But I am still very skeptical. Somebody may buy you and kill the technology or somebody may buy you out and can take it to another level and leave out the poor.” *Musaz*

> “I would never sell this business. There is a lot I am going to do for so many disadvantaged people through this business that a new owner may change. This is my legacy.” *Ros*

Here we see that the sustainable entrepreneur’s worry is that the new owners may diminish the broad objective base that the firm is pursuing in favour of economic gain.
This passion evokes concern for others known or unknown, present or future, individually or for the whole community. The following quotes show the varied exhibition of this emotion. The results further show that this emotion is derived from a sense of what is right or wrong.

> "Indoor pollution is harmful to people. Through use of our stoves emission of smoke and soot is greatly reduced which makes for a healthier environment permitting women to undertake a number of activities like looking after their children while cooking without the risk of inhaling poisonous fumes." *Pros*

> "I work with some of the most disadvantaged people in society. Some of the people I employ can hardly read or write their own names. Some of them are women who have a number of children and no spousal support. Giving them the equivalent of $200 a month has a big impact on their lives." *Musaz*

> "A woman doesn't have to spend a lot of time in the field looking for straws or firewood to be able to cook. Instead of households spending money on kerosene the Eco stove not only saves them this daily expense but also provides a light to enable children study for longer hours." *Ros*

> "We have a role to protect nature. By dissuading the locals from hunting down the animals and attracting tourists to this area we are improving their incomes while providing them a sustainable livelihood." *Celes*

> "Children in this neighbourhood were using the used drinking straws and this led to the spread of diseases like cholera and diarrhoea. When I started this business I rid the environment of these straws which has had a tremendous impact on these children's lives." *Bened*

The results also show that the passion causes the entrepreneur to persist even when faced with challenges:

> "After adopting the stones as the source of energy we tried a number of options to fan the stones as this is necessary to keep them burning. Doing this manually was dismissed as it is labour intensive and yet my aim was to make the woman's cooking environment tolerable. We tried using electricity from the main grid but found out that during power rationing users would be forced back to charcoal and firewood. We then stumbled upon a solar solution which has worked well." *Ros*

The results show that passion informs both persistence and concern for others leading the entrepreneur to pursue a path of sustainable entrepreneurship.

4.8 Sustainable entrepreneurship

For the full realization of sustainable entrepreneurship, a number of stakeholders are involved. These stakeholders bear diverse views and objectives that reduce the possibility of accurately predicting or planning for the future. Further to this the divergent objectives these firms pursue require constant adjustments to attain harmony. Predicting the future in these circumstances that are always in flux may not be possible. Control is therefore a mechanism that firms faced with such uncertainties implement.

Sustainable enterprises are established in response to multifaceted needs. The needs are in the form of a social problem, threat to the environment or an economic need. This can be seen from the quotes below from Celes and Ros who were explaining what motivated them to start this type of enterprise.

> "In the area I hail from hunting is a source of livelihood and up to 20 wild animals are killed per day. What is worse is that this is not a wildlife protected area. Eventually all the animals will be killed and I worry about what the people will rely on for livelihood." *Celes*

> "I grew up in a village where I had to travel long distances to find firewood. As a kid that was hard. Recently I went back to the village and found that even the few trees we used to rely on are all gone… I am a woman and as a woman I need to cook for my family but the time and cost of looking for cooking fuel is very high." *Ros*

From the foregoing we see that the entrepreneurs are both driven by social and environmental concerns and by implication what the future holds for their areas of origin. These needs it can be observed, are driven by first-hand experience as is the case for Ros or an observed phenomenon as is the case with Celes and there is a sense of concern for others in each of these circumstances.

Pursuit of the need in turn drives the accomplishment of the other pillars of sustainable entrepreneurship. These objectives are oft times intertwined. This is captured below in the quotes from Ros, Bened and Celes who were explaining the broad accomplishments of their firms.

> "I am saving them [women] the time they would have spent looking for firewood. I am giving them that quality time with their loved ones. Instead of spending time looking for firewood and cooking those meals with inefficient stoves they can use that time to go and generate income. From a health standpoint the stoves are smoke free so there is no indoor air pollution." *Ros*

> "With the straw idea in mind I realised that the venture would do more than just earn me money. I noticed that children in the slums were using the dirty straws to drink water and ridding the environment of these straws would also set aside a health hazard. At the time the area we lived in had regular outbreaks of cholera and diarrhoea which may have been transmitted to the children in this way. Through engaging a number of my neighbours in the same exercise I realised that I could employ them and have others start their own enterprises. Soon in my neighbourhood there was hardly any straw in the dumping site as more and more residents realised their value and so I had to seek straws from elsewhere." *Bened*

> "We are happy with the direction the business is taking. A major challenge is that we need to build a sizeable market base through having a regular inflow of customers. Through this high volume of activity, we will be able to provide the community with a sizeable source of livelihood which will dissuade them from their unsustainable hunting practices." *Celes*

The needs influence one another in that the social relevance of the firm increases the economic viability with customer interest being enhanced. The environmental protection accorded by the firm's actions translates into social benefits or, in the reverse, through addressing a social problem, the environment is protected. Economic gain ensures the continued protection of the environment and the practice of social good. This is captured in the excerpts below from three of the research participants:

> "With the eco stove they are using a fraction of the time because the heat is regulated to what they want to cook. I am saving them the time they would have spent looking for firewood, I am giving them that quality time with their loved ones. They can use that time to go and generate income." *Ros*

> "I have a factory in Kawempe that is solely for people who are in Kampala that is the urban poor. I set up a factory in a UNHCR settlement called Chaka, Chaka which is in Mubende where I only employ refugees. I have also got also a factory in Soroti where I also employ poor people. They make the pads and I package them and then sell them to UNCHR and the open market." *Musaz*

> "If our clients get value for money through saving on their fuel expenses we also earn income that enables us continue doing what we are doing for social benefit and environmental conservation." *Pulo*

This finding is important in explaining the balancing of objectives that is undertaken in a sustainable enterprise. With a number of objectives being pursued, the entrepreneur relies on a thriving element to boost a dimension that is perceivably struggling.

The prominence of the supportive objective is influenced by the size of the firm. This is because the size of the enterprise influences the embeddedness of the entrepreneur in the community. The smaller the firm, the more embedded the entrepreneur is and therefore closer to the social problems and aware of the environmental challenges. This awareness emphasises these objectives relative to the economic one. Where the firm is relatively big, the entrepreneur is further removed from the locale and therefore concern for the social and environmental dimensions is almost equally matched by concern for the economics.

This is shown in Bened's case, where her concerns are for children in her neighbourhood and the general hygiene of her neighbourhood. This can be contrasted with Musaz, who is not a refugee and has integrated the economic benefits of his firm with the social and environmental ones, to a greater extent. Sometimes the needs are so intertwined that a clear delineation of the objectives is not easy. Take for example the idea of creating employment which is construed as a social function as opposed to an economic one.

> "When it comes to the other social part, the people who I employ are those who can hardly read or write their names so the social economic is quite big, you're taking an

> urban poor woman who either has so many children or even doesn't have a husband and you're giving her employment to earn about 200$ a month that's a lot of money."
> *Musaz*

The extreme nature of resource constraints alters the perception of the sustainable entrepreneur regarding employment. In these circumstances creation of employment is looked at as a charitable activity as opposed to a resourced based decision.

4.9 Chapter summary

In this chapter the study's findings were presented. Data from individual interviews revealed research participants' perceptions vis-à-vis their experiences of resource scarcity and sustainable entrepreneurship. As is typical of qualitative research, extensive samples of quotations from participants are included in the chapter to build the confidence of readers by accurately representing the reality of the persons and situations studied. The results show that individuals faced with severe resource scarcity are able to engage in sustainable entrepreneurship through formation of alliances, variations in tolerance for failure, willingness to change and adaptation to emerging circumstances. The role of passion in this is also demonstrated. It was also shown that sustainable entrepreneurship is exhibited in the form of the social, environmental and economic objectives that exist in a state of shifting supportive interaction with one another.

Chapter 5 – Discussion

5.0 Chapter introduction

The purpose of this chapter is to provide interpretative insights into the study's findings and create a more holistic understanding of the study phenomena. The discussion of the results of this multi-case-study research is undertaken guided by the following research question: "How do individuals faced with severe resource constraints engage in sustainable entrepreneurship?". To improve our understanding of sustainable entrepreneurship literature, effectuation theory is used to answer this question.

The results show that when a sustainable entrepreneur is faced with resource constraints they form alliances, through which the entrepreneur accumulates knowledge, physical resources and confidence which enable control of an unpredictable future. In effecting this control the entrepreneur is able to prudently manage available resources. The sustainable entrepreneur is also imbued with obligations which facilitate learning and adaptability. This occurs in the form of small inexpensive probes that yield an artefact that addresses the firm's social, economic and environmental objectives. The results also show the role of passion in sustaining the effort towards sustainable entrepreneurship. It is also shown in this study that the multiple objectives that represent sustainable entrepreneurship occur in a state of shifting supportive interaction of one another.

With a focus on the individual entrepreneur, the study improves the understanding of sustainable entrepreneurship by going beyond the broad motivations to providing an understanding of how sustainable entrepreneurs act. It sheds light on the role of entrepreneurial dynamics within developing economies and generally contributes to furthering the understanding of the role of entrepreneurship in economic development in developing countries.

In this chapter, the meaning and importance of the findings are discussed and the literature both in support of and against these findings, is highlighted. Alternative interpretations of the findings are also provided. The chapter concludes with a summary of the discussion wherein the highlights are restated.

5.1 Resource constraints

Previous studies have discussed the role of resources in enterprise start-up and performance. A number of these studies have shown the importance of slack in enterprise performance (George, 2005) while others have shown that resource scarcity may spark creativity in enterprises (Bradley, Shepherd, & Wiklund, 2011).Most of these studies have limited their focus to firms that are solely driven by the profit-maximization motive. For enterprises seeking to satisfy more than the economic benefit of the entrepreneur, the challenges of resource constraints are more adverse (Desa & Basu, 2013). This study contributes to this line of inquiry by providing an explanation for why in the absence of resources a sustainable enterprise may be formed and how this enterprise may be created in these challenging circumstances.

The literature further shows that in response to resource constraints a number of mechanisms may be implemented by the entrepreneurs. The notable actions in this regard include the formation of partnerships (Park, Chen, & Gallagher, 2002), adoption of control activities to conserve available resources (Wiklund & Shepherd, 2003, 2005) and pursuit of strategies that involve learning from small trials (Macpherson, Herbane, & Jones, 2015). While these actions are akin to effectuation, this theory has not been widely used to explain resource scarcity and its role in entrepreneurial outcomes. In fact the extent to which resources are a constraint or enabler of opportunities has been identified as a fruitful avenue to advance research in effectuation (Read et al., 2016). Resource constraints it is argued therefore influence the perception of opportunities (Haynie, Shepherd, & McMullen, 2009). Alliances with suppliers, distributors, and joint-venture partners are used to overcome these resource constraints (Cavusgil & Knight, 2015).

5.1.1 Resource constraints and formation of alliances

Entrepreneurs need to organise resources in order to create or discover new opportunities. However these resources are rarely readily available making this one of the most difficult tasks the entrepreneur has to bear (Baker & Nelson, 2005). Given the liability of newness, entrepreneurs tend to depend on others for much needed resources (Anderson, Park, & Jack, 2007). It is in this spirit that it has been argued that the essence of entrepreneurship is seen in the ability and willingness to use external resources (Jarillo, 1989). Resource constraints typify most entrepreneurial activity. In sub-Saharan Africa this situation is enhanced given the institutional weaknesses. Entrepreneurs in this context have to be creative in finding ways to work around these challenges. Research on resource constraints therefore constitutes a promising approach to foster new ideas' generation, that leads to more creative outcomes despite using less costly inputs (Scopelliti et al., 2014).

The findings show how limited resources, may be manipulated to achieve an organization's ends. This it is shown is achieved through the sustainable entrepreneur's formation of alliances as this is an affordable path to achieve the sought after entrepreneurial aspirations. The limited means they have to contend with in a context where access to credit is a problem dictate that the entrepreneur must seek solutions to the resource constraints from others. This finding is consistent with research that shows that sustainable entrepreneurs in sub-Saharan Africa tend to form complex and dynamic partnerships as a result of the complexity of the environment they operate within (Juma et al., 2017).

It has been argued in previous studies that a primary activity of the entrepreneur is to increase reach to valuable resources and convince the owners of those resources to share or transfer them (Ozdemir, Moran, Zhong, & Bliemel, 2016). Therefore, resource constraints stimulate managers to adopt entrepreneurial practices, looking to the outside for new opportunities and to make do with the resources at hand (Bradley, Aldrich, Shepherd, & Wiklund, 2011).
The importance of this finding is that it specifies a mechanism through which resource constrained sustainable entrepreneurs may not only seek resources but also create opportunities by partnering with external entities. The finding is important in stressing the role of social exchanges in contending with uncertainty.

Support for this finding can be drawn from theory on bounded creativity where it is suggested that humans will be more productive when subjected to restrictions which result in diverse and creative solutions (Goldenberg, Lehmann, and Mazursky, 2001; Moreau and Dahl, 2005). Further support for the finding can be found in the theories based on dynamic capabilities (Katila & Shane, 2005) where it is argued that these capabilities may be developed under conditions of resource scarcity. The findings in this study are consistent with a recent study where it was conceived that to mitigate against typical challenges, sustainable entrepreneurs tend to partner with communities and scientists to develop novel solutions (Shepherd & Patzelt, 2017). In this study we further this conceptualization by including a broader range of possible stakeholders the sustainable entrepreneur is likely to engage with.

5.2 Formation of alliances

An alliance is described as a tie between a focal firm and a partner with the aim to jointly coordinate one or more resource combinations (Wassmer, Li, & Madhok, 2017). Formation of alliances means endorsement from partners which endorsement validates the entrepreneur’s ideas and improves the entrepreneur's belief in his/her ability to persist and succeed with a task. In this way legitimacy, psychological and emotional support are gleaned from the alliance which also reinforces perceptions of increased confidence. This heightened confidence leads to increased initiative-taking and persistence and thus subsequent performance.

The path towards sustainability starts with external collaboration with entities in the entrepreneur’s surrounding system. It is in this regard that the interdependence between the entrepreneur and partners in the community is critical (Juma et al., 2017). Because of the pro-social basis of sustainable entrepreneurship, the entrepreneur is amenable to considering information from multiple perspectives, which stimulates the processing of social and other information from and about relevant others. Effectuation is a useful theory in understanding this as it flags the superior cooperative strategic abilities of the entrepreneur (Arend *et al.*, 2015). Social engagements, it has been argued, can set off cognitions regarding an entrepreneur’s means and how they can be put to use (Fischer & Reuber, 2011). Alliances provide multiple perspectives offered by different stakeholders which may not only provide information and accelerate learning, but also temper down the sustainable entrepreneur’s adventurism. They reduce the ambiguity associated with the conduct of business through provision of information, access to sought-after resources and enhancement of belief by the sustainable entrepreneur that he/she can accomplish the task at hand. Alliances also impose responsibilities on the sustainable entrepreneur to jointly achieve the aims of the partnership. Previous research has shown that partners can be counted on for better coordination, joint learning and problem solving that relies on knowledge transfer (Holloway & Parmigiani, 2016).

Through these alliances, a lot of the information the sustainable entrepreneur may require, becomes endogenous and so instead of looking outside to assess what is necessary to succeed, the sustainable entrepreneur looks within to evaluate how best to produce. This enables the sustainable entrepreneur to focus on things within his/her control and in so doing, increases confidence. In this way, the partnerships drive the type of decision that is made - seeking to multiply its effect for the stakeholders. Ultimately alliances increase the amount of resources under the control of the sustainable entrepreneur. This enables him/her to readily act on identified opportunities (Fisher, 2012).

Successful formation of alliances may reduce the level and cost of competition if the partnership is with people in a similar industry. Such engagement may also reduce the cost of marketing and supply and set aside potential litigation costs that could arise due to labour disputes and competition for scarce resources. Ultimately alliances facilitate learning, reduce the costs of the venture and influence the sustainable entrepreneur’s attitude towards the challenges ahead. Alliances, however, may lead to an increased dependency on a partner and lower performance (Hillman, Withers, & Collins, 2009). Taking action requires consideration of not just outcome expectancies but also the feasibility (Bandura, 1986). Alliances facilitate perceptions that resources are available and obstacles are surmountable. This is dependent on the belief that one has, or can acquire, the requisite skills. Perceptions of desirability reflect both our perceptions that likely outcomes are personally beneficial as well as reflecting a perception of desirability to key stakeholders in the decision.

In line with the argument by Sarasvathy and Dew (2005) that effectual partnerships can increase the information, knowledge and resources available to a firm, it is proposed that this is important for sustainable enterprises in sub-Saharan Africa as it allows them to address information asymmetries along with the uncertainty and resource constraints. The role of alliances is two-fold; on the one hand, they help the sustainable entrepreneur bring his/her idea to the market with less capital. On the other hand, the social interactions, social reputation and recognition by others boost the sustainable entrepreneur's confidence and imbue him/her with obligations. This finding therefore draws support from the proposal that sustainable entrepreneurship entails the complex interactions among a number of actors (Munoz & Cohen, 2017). In summary, alliances increase the level of control the actor has of the future. This is demonstrated below in the discussion of the relationships between alliances and the other constructs.

5.2.1 *Formation of alliances and tolerance for failure*

Through the formation of alliances, a sustainable entrepreneur’s firm activities are sanctioned which not only increases the need to better manage resources, but also augments the entrepreneur’s perception of his/her ability to succeed. Financially, the alliances enable the sustainable entrepreneur to limit the losses he/she may incur by diversifying risk to other partners. This is done through negotiating terms with employees, customers and suppliers and accessing valuable information from these stakeholders. This type of information helps the sustainable entrepreneur make an informed judgement of the level of resources (physical and emotional) that the venture warrants and subsequently what he/she is willing to lose in the event it doesn’t work out. Alliances also provide a level of certainty through pre-defined supply and market quotas, lines of credit and flexible payment schedules. They reduce the resources that would have been used for sales promotions, collective bargaining and procurement of inputs.

Spreading the investment over several projects is another alternative to reduce risk (Dew, Sarasvathy, *et al.*, 2009). In this research, it is shown that spreading the risk over a number of stakeholders is one other strategy in the context of sustainable entrepreneurship. Related to this, it has been proposed that reciprocal interactions between different communities shape the development of sustainable entrepreneurship opportunities (Shepherd & Patzelt, 2017). Partnerships, through bringing a number of stakeholders together, enable the sustainable entrepreneur to share the risk with stakeholders (Daniel, Domenico, & Sharma, 2014). The relationship between alliances and prudent management of resources has been alluded to in a number of authoritative papers on effectuation. This includes the assertion that "the strategic partnerships principle dovetails very well with the affordable loss principle" (Sarasvathy, 2001, p. 252). In describing effectual partnerships as those that share the risk of the venture and benefit from the success of the venture, this relationship has also been suggested (Read, Song, *et al.*, 2009). Effectual partnerships can be distinguished from other forms of partnerships on two dimensions; first partners are sought to specifically co-create the new market and second effectual partners make credible commitments to the joint course of action even if they are unsure of the other parties’ trustworthiness down the road. Ultimately the purpose of effectual partnerships is to reduce the need to predict the future through creating a future with a number of known stakeholders. Other literature has also suggested that the creativity which stakeholders exercise in order to bring ideas to the market, obviates the necessity to place substantial bets (Sarasvathy & Dew, 2008). Access to resources from alliances reduces tolerance for failure which in turn limits risk-seeking behaviour. This logic is supported by Dawa and Namatovu (2014) who show that as savings increased, individuals tended to engage less in entrepreneurship.

The diversity of perspectives that alliances afford, enhances perceptions of feasibility by allaying perceived negatives and in turn causing the sustainable entrepreneur to be more careful in resource management. While alliances may translate into additional resources, they also bestow a responsibility on the firm to perform its contracts and appease partners, which diminishes the extent of failure the sustainable entrepreneur may tolerate. Alliances may nurture conditions, restrictions or obligations that require the sustainable entrepreneur to act in certain ways that in turn restrict the extent to which he/she can operate. It is argued in this thesis that within the context of sustainable entrepreneurship, formation of alliances increases pressure from the multitude of stakeholders for greater accountability in the realization of the social and environmental objectives of the firm. This resonates with the suggestion that sustainable entrepreneurs and their stakeholders co-create the future to achieve control over outcomes (Read et al., 2016). Conformity to obligations within the framework of these alliances - given the perceived consequences of failure – increases the need for prudence in managing resources. This finding is supported by the argument that internal beliefs about obligations to stakeholders may guide efforts to determine how to reduce exposure to potential threats (Jones, Felps, & Bigley, 2007).

The finding that alliances influence the extent to which sustainable entrepreneurs prudently manage resources, sheds new light on how partnerships with a variety of stakeholders may help a firm become more competitive. Venkataraman, Sarasvathy, Dew and Forster (2012), using two real life examples of Owades and Richard Branson, show that the absence of the partnerships made the loss the entrepreneur would have faced, high. When the odds of success are increased through the formation of alliances, tolerance for failure diminishes and failure is perceived as more embarrassing. This creates haste in learning.

5.2.2 *Formation of alliances and willingness to change*

The formation of alliances enables the sustainable entrepreneur to engage with stakeholders who may volunteer a variety of ideas. The role of these alliances becomes prominent where there is a variety of stakeholders, diversity of aspirations, information asymmetries and resource constraints, all of which contribute to uncertainty. According to the theory of effectuation partnerships in these circumstances can increase the information, knowledge and resources available to a firm (Sarasvathy & Dew, 2005). Alliances also enhance the sustainable entrepreneur's sense of efficacy which facilitates the search for and openness to new ideas and improves confidence in considering alternative ideas. In a related manner it has been suggested that the sustainable entrepreneur has to align the socio-ecological attributes of his firm with benefits to other stakeholders through constantly engaging with the stakeholders (Belz & Binder, 2017). Ultimately, these alliances reinforce the sustainable entrepreneur's sense of duty and exert pressure on him/her to seek solutions in an effort to enhance the firm's efficiencies. The formation of alliances also limits the number of choices available to the firm through encumbering the firm's resources and capabilities. These encumbrances foster the sustainable entrepreneur's amenableness to suggestions to extend the firm's performance beyond what is possible within the framework of the alliances.

Alliances also foster the need to seek ideas from elsewhere as the sustainable entrepreneur may seek to increase the number of alliance partners and in so doing reduce reliance on existing alliances. Previous literature shows that prior experience with a partner increases flexibility through adaptation to changing conditions especially where uncertainty is high (Luo, 2002). This relationship can be inferred in the discussion of strategic alliances where it is imputed that flexibility is made possible in these strategic alliances (Das, Sen, & Sengupta, 1998). Further support for this relationship can be found in the assertion that ideational productivity occurs when "trusted partners" exchange and refine ideas (Gemmell, Boland, & Kolb, 2012). In discussing the role of stakeholders in bricolage among social enterprises, it was shown that partnerships are important in responding to unplanned opportunities (Domenico *et al.*, 2010). Alliances increase attention to information about stakeholders' perspectives. This enhanced perspective-taking accordingly increases cognitive flexibility, willingness to take risks and openness to complexity, all of which expand the individual's access to ideas and potential solutions (Grant & Berry, 2011). This finding is important as it explains the mechanism for knowledge and other resource sharing in effectual partnerships.

5.2.3 *Formation of alliances and adaptation*

Formation of alliances increases the likelihood of adaptation. This occurs through providing access to information, physical resources and improving the sustainable entrepreneur's confidence. Together these foster the exploration and exploitation of several options to address the sustainable entrepreneur's aspirations. The physical resources serve as inputs in the production process, while the information accessed relates to markets and sources of inputs or process improvement. Within the context of sustainable entrepreneurship, the multitude of partners provides access to a greater variety of resources. The self-belief on the other hand, facilitates the taking up of challenges and the tenacity to try again when failure is encountered and to improve the product to levels beyond what it is currently capable of.

In seeking to increase the viability of the firm over and above what may be possible given the alliances, the sustainable entrepreneur tries different approaches. The ideas sourced from a number of people with different experiences enable the refinement of technology. A diverse mind-set is likely to result from co-operation with others and may uncover new opportunities (Blauth, Mauer, & Brettel, 2014). Since the idea he has devised is not fully developed, the sustainable entrepreneur utilises these partnerships - relying on stakeholders to provide feedback to ensure modification until the opportunity is fully exploited. Within these partnerships, the sustainable entrepreneur is also able to source funding/capital for the enterprise. This finding is important as it may explain how firms, especially small and new ones, may utilise relationships with other entities to develop new products and grow.

Research in support of this finding shows that alliances are important in solving problems through learning and the succeeding experimentation (Gemmell *et al.*, 2012). The sustainable entrepreneurship literature also favours this result proposing that the interaction between the different actors in a venture creates a dynamic geosocial space (Munoz & Cohen, 2017) where in knowledge and action are preeminent. Further support from the literature showing the need to exceed obligations is found in Wiltbank *et al.* (2009, p. 117) where it is stated that "entrepreneurs and their stakeholders seek to go beyond predicting and adapting to the environments in which they operate — into transforming and re-shaping them, often in surprising new ways". Other related literature also shows that partnerships facilitate responsiveness to changing situations and uncertainty (Holloway & Parmigiani, 2016).

In sum the formation of alliances conforms to the literature on effectuation theory specifically regarding pre-commitments. They are used in establishing partnerships while creating new opportunities to extend means and mitigate risk (Deligianni et al., 2015). Pre-commitments reduce uncertainty by providing new information (Arend et al., 2015), lowering the cost of experimentation and offering more scope for flexibility (Chandler et al., 2011).

5.3 Tolerance for failure

The results show that the ability by the sustainable entrepreneur to accept undesirable circumstances influences the willingness to change and the likelihood of adaptation. These influences are explained by the bearing that the reaction to undesirable circumstances has on the sustainable entrepreneur’s rate of learning. This finding is grounded in the works of March (1996), where it was found that human beings exhibited less risk tolerance for losses due to accumulated learning. A fail-fast mentality therefore leads to quicker learning and the elimination of wrong choices (Khanna, Guler, & Nerkar, 2016).

Assessing the extent to which one can bear unpleasant circumstances does not require a lot of information or calculations and so is more likely to be used by sustainable entrepreneurs. Previous research states that this requisite information is endogenous to the entrepreneur and all that is needed is knowledge of the current financial status and a psychological definition of commitment to the worst possible outcome. It does not depend on the venture and varies amongst individuals and even across their life stages (Dew, Sarasvathy, *et al.*, 2009). In this thesis, it is argued that sustainable entrepreneurs use this type of reasoning to try out a number of avenues as a way to further lower their investments. By putting in perspective the tolerance of less than ideal circumstances, this subjective assessment of the level of loss that can be borne reduces the cost of failure, in essence making failure survivable.

5.3.1 Tolerance for failure and willingness to change

The sustainable entrepreneur’s tolerance for failure was shown to influence his or her willingness to change. In circumstances where the sustainable entrepreneur was more averse to failure, the results show that he/she was likely to seek the opinions and reassurance from a multitude of sources. This is because the sustainable entrepreneur’s tolerance for failure relates to his/her ability to learn from this failure, so that for a given failure, the faster one learns the more likely one will be open to alternative options. Limits to the level to which one can bear failure stimulates one to make do with what is available, to maintain alertness to emerging new resources and adhere to feedback. Previous literature has shown that scarcity focuses one’s attention to use what is on hand most effectively (Mullainathan & Shafir, 2013). These individuals, it can be argued, need to better embrace change in order to sustain their activities.

Through managing the extent to which he/she can tolerate failure, the sustainable entrepreneur seeks ways to lower his/her investment and relies on a variety of options that may present themselves. The finding means that through working with this subjective assessment, the sustainable entrepreneur may take advantage of surprise opportunities borne of suggestions from others and personal observations. This further implies that on top of providing opportunities to make good decisions through paying attention to the possibility of failure, the criterion also provides a mechanism to cope with this failure. Through requiring entrepreneurs to choose projects, it permits the sustainable entrepreneur to consider a number of alternatives. Support for this finding is drawn from literature that proposes that affordable loss influences decisions that direct actions through the entrepreneur evaluating outcomes against aspirations (Arend et al., 2015). Other literature in support of this finding shows that low tolerance for loss increases the likelihood of hybrid entrepreneurship, that is entrepreneurs who are simultaneously employed in other jobs (Schulz, Urbig, & Procher, 2016). These entrepreneurs tend to implement a number of flexible mechanisms in balancing their employment and entrepreneurial activities. The finding is important as it highlights the importance of control, derived from subjective assessments of success in entrepreneurial decision making.

5.3.2 Tolerance for failure and adaptation

The results show that the level of tolerance of failure influences the extent to which the sustainable entrepreneur will ceaselessly assess the worthiness of opportunities. This takes the form of persisting where there is promise and abandoning those that hold minimal prospects. As argued in the previous section, the extent to which one can tolerate failure determines the rate at which one learns from mistakes. With every failure, two options are presented: to try again or to try something else. For the individual who cannot tolerate additional failure, the likelihood of him/her trying something else is high. It is argued in this thesis that the lessons learned from this failure inform the direction of subsequent action. The learning increases both confidence and creativity and frees up resources to venture in a number of directions, which, in essence lowers the cost of subsequent efforts.

This finding is anchored in previous research on learning from failure. For example, it's been suggested that recovery from failure is a function of "distinctive learning processes that ... are future-oriented, increasing the entrepreneur's level of entrepreneurial preparedness for further enterprising activities" (Cope, 2011, p. 604). By suggesting that tolerance for failure manifests itself through hastening the knowledge acquisition process, this finding extends the proposal that affordable loss contributes to entrepreneurial capability development through knowledge acquisition (Runping, 2016). The limits imposed on the entrepreneur by this subjective assessment cause the sustainable entrepreneur to devise creative means to withstand challenges and achieve their aim. To do this the sustainable entrepreneur learns to improve on technology or develops new products or services. Affordable loss is a criterion for decision-making based on the subjective assessment of the extent to which one can accommodate the failure to meet set objectives. As opposed to a focus on expected returns, affordable loss provides the sustainable entrepreneur leeway to evaluate his future pursuits based on a broad range of criteria including social and environmental concerns.

Previous literature has shown that an abundance of resources to an entrepreneur may prompt him/her to become comfortable and shun creativity (Fisher, 2012). In another study it was found that affordable loss bore a significant relationship to the practice of creativity (Blauth *et al.*, 2014) and has also been linked to action akin to bricolage (Reymen *et al.*, 2015) - a form of experimentation associated with resource mobilization. These studies reflect adaptation activity that results from perceptions of the amounts one is willing to forego.

This finding contributes to studies that intersect judgement and action in the entrepreneurship literature. For a novel idea, such as the causes sustainable entrepreneurships seeks to address, no market may yet exist; in a developing-world context such as sub-Saharan Africa there may be no records on which to base calculations. Both these conditions make it difficult to calculate an expected return. The theory of effectuation may explain an individual's undertaking in these circumstances. Tolerance for failure resonates with the entrepreneur's selection of an alternative based on loss affordability rather than the highest expected return (Chandler et al., 2011). The assessment provides the entrepreneur with both resolve to move forward and the emotional support when a decision to quit must be made (Dew, Read, et al., 2009).

5.4 Willingness to change

Through the willingness to learn new methods, procedures, or techniques and the ability to adjust, the entrepreneur may find out that his/her original assumptions may vary with what is workable. Willingness to change facilitates openness to seeing negative results and this also means that the sustainable entrepreneur is open to different mechanisms including the use of partnerships, multiple offerings and methods to navigate the uncertain entrepreneurial landscape. Based on the discussion of integrative thinking described as rejecting issues as either or (Martin, 2007), it is likely that sustainable entrepreneurs are more likely to exhibit integrative thinking. This is so as their firm's success demands a more holistic view of problems and potential solutions ranging from economic and social to environmental. Effectuators ceaselessly evaluate the merits of the opportunities they pursue, abandoning those that lack promise and persisting with those that remain attractive. The ensuing discussion focuses on the relationship between the willingness to change and adaptation wherein a rationale for the proposed relationship is provided and grounded in existing literature.

5.4.1 *Willingness to change and adaptation*

The results show that willingness to change - exhibited as openness to new suggestions and the willingness to try new things in response to changes in the environment - prompts adaptation, which describes actions that entail trial and error methods. The sustainable entrepreneur exhibits an interest in new methods and suggestions such that information sourced and liaisons formed reduce the ambiguity associated with the conduct of business that leads to product or service improvement or cost reduction. The explanation for this relationship adduced in this study is that the sustainable entrepreneur is likely to adapt because he/she is able to cope with change. Coping with change is manifest in the acquisition of knowledge and experience, the ability to choose from a number of options and the ability to self-regulate. This finding extends the arguments that sustainable entrepreneurs require major changes in prevailing institutional arrangements to succeed (Munoz & Cohen, 2017).

Acquisition and possession of knowledge and experience facilitate the ability to operate in complex environments with incomplete information. This is especially true where a firm seeks to address disparate objectives and caters to the remarkably wider variety of stakeholders associated with sustainable entrepreneurship. Previous studies have shown the role of entrepreneurial competencies in enabling firm success (Katongole, Munene, Ngoma, Dawa, & Sserwanga, 2015). In fact, other research has shown that competence has a bearing on the other two dimensions that explain the relationship between willingness to change and adaptation, that is, the ability to self-regulate and choose from options (Haynie & Shepherd, 2009). The ability to choose from a number of options and self-regulate, facilitates control and resilience in a fast-changing environment with unspecified objectives.

Individuals learn from their past experiences in the market and the ability to utilise this knowledge through trying out different options is crucial. Furthermore, ideas are continuously developed and the ability to select the most appropriate one is important.
A sustainable entrepreneur who is willing to change is suited to the ever-changing business landscape and is able to seize opportunities or change course of action to mitigate losses. Through self-regulated action, the willingness to change enables measured creative responses to situations for which programmed actions are difficult to design *a priori*. Previous studies have shown that self-regulation enables a person to display the appropriate behaviour of dedication, discipline and reinforcement which are important in the processes of identification and exploitation of entrepreneurial opportunities (Aldrich & Martinez, 2007).

The receptiveness to ideas increases the likelihood of accessing actionable information and resources which influence the sustainable entrepreneur's resultant actions. Support for this finding can be found in the arguments that moving from a regulated to a flexible structure facilitates experimentation (Brown & Eisenhardt, 1997). The relationship between flexibility and experimentation draws from the promotion focus of the regulatory focus theory (Brockner, Higgins, & Low, 2003). Here it is proposed that the ultimate goal sought by individuals is accomplishment and to do this, individuals seek to generate many hypotheses and to explore all possible means of reaching their goal. Past literature has suggested the existence of this relationship, for example, recognition of opportunities for sustainable development has been attributed to individuals who are not only knowledgeable about changes in the market equilibrium but also changes in the natural/communal environment in which they live (Patzelt & Shepherd, 2011). This informs the notion that these entrepreneurs have the ability to simultaneously meet competing objectives in the environmental, social and economic realms.

This finding is also consistent with the assertion that reciprocal interactions between different actors shape the development of sustainable entrepreneurship (Shepherd & Patzelt, 2017). These interactions imply a willingness to learn and implement lessons learned.
This finding is important as it highlights the person-situation interaction and how learning and testing based on evidence are useful in coping with change. Through contributing to research on the entrepreneurial process, the finding highlights the importance of goal re-negotiation as a strategy to navigate an uncertain business landscape.

This finding may also help explain why certain firms are able to adapt in dynamic environments. An example of this is where small and new firms are able to withstand uncertainty that more established firms may not tolerate. Related to this, it can be argued that small firms tend to be more receptive to new ideas because of lean structure easily adjusting to emerging realities yet the bigger firms may be held up by bureaucracies as a result of complex organizational structures that slow down decision making.

Willingness to change corresponds with the flexibility construct of effectuation theory as it allows firms to invest less time and fewer resources in activities with the aim of minimizing risk while embracing opportunities. Flexible firms adapt to changing environments or introduce rapid industry changes themselves (Rosenbusch et al., 2011). They abandon unfruitful ventures in favour of others (Chandler et al., 2011), and leverage resources across multiple capabilities (Deligianni et al., 2015).

5.5 Adaptation

Incremental actions derived from short feedback loops may cause an entrepreneur to quickly adapt to the environment (Bradley, Aldrich, et al., 2011). The results show that through such adaptive practices the sustainable entrepreneur gradually develops a product. The adaptation acts as a means of coping with complexity and uncertainty which negates the need to meticulously plan for eventualities. Firms often invent solutions to survive through the deliberate and systematic choice of inputs for subtle variation and comparison (Zahra, Sapienza, & Davidsson, 2006). The sustainable entrepreneur gathers feedback and learns by doing, through which improvements to the product/service are realised. In essence, he/she seeks fast and cheap access to information and knowledge, permitting him/her to determine the best course of action, given the available means. Limited by finite resources, it is imperative that the sustainable entrepreneur continuously tries a number of ideas, relying on feedback from the market to improve his/her output.

The progressive development of a product is a function of the iterations between the sustainable entrepreneur and the stakeholders. This resonates with the suggestion that in sustainable entrepreneurship entrepreneurial action is a mechanism that facilitates feedback from users to scientists in the generation of further research that can impact the sustainability of development (Shepherd & Patzelt, 2017). In this way sustainable entrepreneurs tend to be tenacious, learning from past failures to realise their aspirations. In this regard it has been argued that early failures provide better learning opportunities for firms (Khanna *et al.*, 2016).

Adaptation corresponds to the effectuation theory construct of experimentation. It is an unsystematic method of developing solutions that does not entail insight, theory or organised methodology. Rather, it relies on intuition, self-assessment and adaptation, building on the success of previous attempts and learning from mistakes made along the way (Read et al., 2016). It entails trying different options before settling on a specific business concept (Chandler *et al.*, 2011). The entrepreneur does not incur significant costs in the process (Fisher, 2012). This finding is in tandem with the assertion that experimentation exerts its influence by stimulating learning through increasing the number, variety and quality of solutions (Terwiesch & Ulrich, 2009). By taking action through experimentation, the entrepreneur actively tackles challenges and acts on opportunities (Fisher, 2012). The finding is also consistent with research that shows that sustainable entrepreneurs often rely on innovative approaches to build a commercial logic for achieving social or ecological goals (Hahn, Spieth, & Ince, 2018). In a similar vein it has been argued that due to the newness of sustainable entrepreneurship, development is possible in an environment that supports experimentation and learning (Munoz & Cohen, 2017). Further support for this finding can be adduced from research that showed the importance of knowledge and experience in enhancing the absorptive capacity of sustainable entrepreneurs (Belz & Binder, 2017).

The importance of this finding is that it contributes to the discussion of the role of *ad hocery* in innovative behaviour highlighting the role of iterations with a firm’s stakeholders in solution development.

5.6 Passion

Entrepreneurial decision making is characterised by both conscious and unconscious processes (Krueger et al., 2009). These authors further assert that in novel situations, such as in pursuit of sustainable entrepreneurship opportunities, our deep beliefs engage often without our recognition, making sustainable entrepreneurs appropriate exemplars of emotions.

Sustainable entrepreneurship the study shows is driven by an other-orientation in form of passion which is borne of past personal experiences or present concerns such as the plight of a community, the destruction of the environment or association with a place. The phenomenon is emotionally charged and value-laden (Poldner et al., 2017). Miller, Grimes, McMullen and Vogus (2012, p. 618) state that the "emotional connection to others fosters integrative solutions to seemingly intractable social problems, distorts cost-benefit analysis in other-serving ways and encourages commitment needed to undertake demanding and difficult responses." Emotions such as passion are important in the awareness, recall and analysis of problems and decisions (Baron, 2008). They also impute a sense of urgency in the actor supplying the energy to act (Ford, 1992).

It is argued in this thesis that passion ultimately acts as a motivator for pro-social behaviour through its other orientation and emotional connection to others. It may reinforce positive self-directed feelings which may in-turn increase the sustainable entrepreneur's fortitude and sustenance in the face of challenges. Support for this finding can be found in Cardon, Grégoire, Stevens and Patel (2013) who state that passion influences persistence and creativity. Further support is found in the proposition that emotions capture and direct attention to problems at hand and instil the need to act (Shepherd & Patzelt, 2017). This finding helps us understand why some entrepreneurs continue to persist despite considerable obstacles during the entrepreneurial process. This persistence is derived from the development of deep identity connections between the entrepreneur and the opportunity. It also explains the often extreme devotion by the entrepreneur to the business which includes self-sacrifice and delayed gratification. The finding is also consistent with the literature on team entrepreneurial passion showing that individual emotions may affect collective outcomes (Cardon et al., 2017).

Bandura's (1986) social cognitive theory proposes that an individual's passion shapes and directs behaviour and what an individual believes influences how the individual behaves. This passion may also explain how the sustainable entrepreneur is able to predict potential stakeholder's preferences enough to gauge the feasibility and desirability of the venture in a process McMullen (2015) refers to as social inference.

Intense positive feelings such as passion are likely to mobilise action and the needed energy of entrepreneurs to master challenging situations by overcoming uncertainties, setbacks, and resource shortages in the assembly of capital. Through passion's influence on cognition, it may have important effects on the entrepreneur's capacity to respond effectively in highly dynamic environments. Passion therefore provides useful insights into where sustainable entrepreneurship might emerge and what factors play a role in influencing its occurrence.

The role of passion has been identified in the operationalization of bricolage a related enactment theory (Stenholm & Maija, 2016). The authors argue that passionate entrepreneurs tend to improvise a lot, which actions are akin to effectuation. Other studies have related passion to entrepreneurial activity, for example it was found that the more the entrepreneur changed ideas the higher the passion exhibited (Collewaert et al., 2016). The authors observe that making more changes to ideas fosters a sense of control which in turn influences the entrepreneur's positive feelings about the undertaking.

It does so through determining the strength of individuals' intentions to contribute to solving societal and environmental problems. Ultimately, creating opportunities is an idiosyncratic process resulting in emotional attachment to the outcomes (Cardon, Zietsma, Saparito, Matherne, & Davis, 2005). It is therefore concluded that passion facilitates equanimity between the sustainable entrepreneur, other people and nature enabling the striking of a balance among the facets of sustainable entrepreneurship.

5.7 Sustainable entrepreneurship

Sustainable entrepreneurship starts out with the need to address at least one of the pillars of sustainability. It is through attention to this pillar that the other objectives are identified and accordingly become part of the joint pursuits of the firm. Pursuit and subsequent accomplishment of these objectives tends to be interactional and synergistic. This means that pursuit and realization of the social and environmental objectives influence the ultimate economic success of the firm. Further to this, when a firm's actions are perceived to be in the interest of protecting the natural environment, this translates into social benefits. Additionally, economic gain ensures the continued protection of the environment and the practice of social good. Support for this finding can also be adduced from a study that found that profits are a means by which sustainable entrepreneurs achieve their social purpose and positive societal ends (Stubbs, 2017). The balancing of objectives is consistent with the theory on integrative thinking where an objective is used as a means of furthering another objective (Miller, Grimes, McMullen, & Vogus, 2012). The objectives are therefore seen to be mutually reinforcing as opposed to mutually exclusive. This finding supports previous research that shows sustainable entrepreneurship to be complex in nature (Klewitz & Hansen, 2014; Munoz & Cohen, 2017). While the aforementioned study highlighted the complexity of the sustainable entrepreneurship phenomenon, the present research explains the interactions among actors and how the facets of sustainable entrepreneurship present.

Pursuit of each of these objectives puts demands of varying magnitude and imposes a level of urgency on the entrepreneur, requiring the shifting of attention from one issue to the other. This tends to be done seamlessly with success in one facet buoying the other. Sometimes these objectives are so interdependent that a clear delineation of one from another is not visible. A good example is where creation of employment is looked at as a social deed- a bounteous activity as opposed to a resourced-based decision - an economic activity. Support for this finding can be found in research which shows that sustainable entrepreneurship is made up of multiple discourses beyond the economic and sustainability (Poldner et al., 2017) and that sustainable entrepreneurs strive to balance and not make sacrifices amongst their diverse objectives (Munoz & Cohen, 2017).

Relatedly this finding extends the suggestion that the triple bottom line of ecological, social and economic goals is integrated sequentially and not simultaneously (Belz & Binder, 2017). This is shown in the pursuit of a single objective that is followed by others as opposed to the concurrent undertaking of all objectives. In the aforementioned study it was also stated that sustainable entrepreneurship occurs as a result of the occurrence of either a social or environmental opportunity. The current study though differs from that study by proposing that even an economic opportunity could spur sustainable entrepreneurship.

The finding highlights the value of a broad multiple-objective pursuit as a coping mechanism such that where there is under-performance in the realization of one objective, another bolsters the performance of the firm. It therefore puts in question the idea that sustainable firms by the nature of their multiple objectives, are unfavourably burdened presenting their objectives as synergistic. The finding further underscores the adaptive agility of these firms explaining the *ad hocery* usually associated with this type of firm.

5.8 Chapter summary

In this chapter the results from the previous chapter were analysed, interpreted and synthesised. Arguments were made, supported by existing literature that when faced with resource constraints, sustainable entrepreneurship occurs through the formation of alliances, variation in the tolerance for failure, willingness to change and adaptation to the emerging circumstances. It is also argued that passion plays a role in sustaining sustainable entrepreneurship. It was further argued that sustainable entrepreneurship occurs as an interactional and synergistic depiction of its broad components. In sum, it has been argued that sustainable entrepreneurs recognise problems and work with a number of stakeholders to develop solutions through complex social interactions as a cycle of learning and improvement. In turn the theory of effectuation has been elaborated showing the relationships between its constructs and providing explanations for these relationships.

Chapter 6 – Conclusion

6.0 Chapter introduction

The study was undertaken in a sub-Saharan African setting seeking insights into how individuals faced with resource constraints engage in sustainable entrepreneurship. The mechanisms involved the formation of alliances, variation in tolerance for failure, amenableness to change and adaptation to unfolding circumstances. Passion was also identified as a factor that sustained these actions. Furthermore, sustainable entrepreneurship was delineated, demonstrating the interactive and synergistic influence of the diverse objectives on one another. The study aligns itself with other studies that highlight the role of the individual in entrepreneurial action and the creative aspect of entrepreneurial opportunity recognition.

The study sought to answer the following research question: "How do individuals faced with resource constraints engage in sustainable entrepreneurship?" Effectuation theory is used to answer this question. Answering this question expounds on the growing body of research on alternatives to planning models often attributed to decision-making in management research. Sustainable entrepreneurship is an exemplar of how drivers other than profit projections operate to make businesses successful. This is so because the pursuit of multifaceted objectives and the adherence to the needs of a multitude of non-related stakeholders, creates a situation of uncertainty in which attempts at risk assessment and planning are futile. Therefore, an adaptive strategy is required wherein learning how to be resilient is key to preparing for future challenges. Having provided an understanding of the sustainable entrepreneurship phenomenon, how it occurs and how it can be promoted, answering the research question also provides answers to how entrepreneurs driven by multifaceted aspirations, identify opportunities in uncertain environments and how they are able to persist in the face of insurmountable challenges.

This chapter is organised as follows: subsequent to this introduction, the empirical findings are synthesised to answer the study's research questions. Next the implications of the research are discussed. Then recommendations for future research and finally a conclusion, are crafted.

6.1 Synthesis of empirical findings

The study explains how sustainable entrepreneurship occurs when individuals are faced with resource constraints. It is shown that in these circumstances individuals form alliances, which along with variation in their tolerance for failure, and their amenableness to change and their engagement in adaptive action leads to the occurrence of sustainable entrepreneurship. These actions typify the control strategy (Sarasvathy, 2001) that is relied upon in an uncertain context (Knight, 1921). Furthermore, the role of passion in sustaining these actions in adverse conditions is identified. It is further shown that as a coping mechanism sustainable entrepreneurship occurs via an interactional and synergistic process, with the different broad objectives influencing one another. It is therefore concluded that while sustainable entrepreneurship maybe began out of principle or emotional concerns (Kibler et al., 2015; Kuckertz & Wagner, 2010; Schaltegger & Wagner, 2011), it may evolve into a deliberate strategic activity where the multifaceted natures of its objectives serve as props to one another. Pursuit of this multitude of objectives it is argued in this study are not additional burdens for this type of firm.

6.2 Theoretical contribution

In this section it is shown how this study advances our understanding of entrepreneurship. The underlying theoretical implications are discussed explaining how the research advances what is known at a conceptual level.

While relatively few empirical studies have been undertaken in the sustainable entrepreneurship domain (Gray et al., 2014), a number of theoretical explanations for the occurrence of this phenomenon have been proposed (Dean & McMullen, 2007; Hockerts & Wüstenhagen, 2010). This study contributes to this by explaining how individuals facing resource constraints engage in sustainable entrepreneurship. It is shown that for individuals faced with resource constraints, the occurrence of sustainable entrepreneurship is made possible through formation of alliances, openness to change, variations in tolerance for failure and adaptive actions to pursue their general aspirations. Through this finding, the study contributes to theory in sustainable entrepreneurship by explicating a mechanism through which this type of entrepreneurship occurs in an under-researched context. It highlights the role of control as opposed to prediction strategies and the primacy of learning in responding to uncertainty. The study is consistent with the proposition that controlling the future is more complex when multiple people are involved (Reuber et al., 2016). Further to this, passion is shown to enable the sustainable entrepreneur persist in the face of challenges encountered. By including an affect based explanation for this (Stenholm & Maija, 2016), the study explains the sustenance of the sustainability pursuits even when the sustainable entrepreneur is faced with tremendous challenges. Consequently, the study advances theorizing in entrepreneurship by explaining the interaction of the cognitive and affective domains in the realization of sustainable entrepreneurship.

Also shown in this study are the synergistic interactions of the triple bottom line in the display of sustainable entrepreneurship. This, it is argued, represents a coping mechanism for the firm. This improves our understanding of firms with diverse objectives suggesting that the multiple pursuits may be opportunities to buoy under-realised aspirations. This extends theorizing in entrepreneurship by obviating arguments that the engagement in multi-faceted entrepreneurial activity such as sustainable entrepreneurship, pluriactivity and social entrepreneurship implies greater challenges for the entrepreneur (Schaper, 2016) and specifically advances the conception that the triple bottom line of ecological, social and economic goals are integrated (Belz & Binder, 2017).

The study therefore illuminates sustainable entrepreneurship providing explanations for mechanisms in its occurrence and highlighting the role of passion in sustaining this. It advances theorizing in this area, putting in question the exclusive alignment of previous studies to the predictive strategies approach (Belz & Binder, 2017) and proposing the inclusion of an enactment perspective. Through highlighting the adaptation abilities of the entrepreneur and responsibility to stakeholders, the study further enables the understanding of how and why entrepreneurship occurs under conditions of uncertainty.

Theorists need to learn something new about the theory itself as a result of working with it under different conditions. That is, new applications should improve the tool, not merely reaffirm its utility (Whetten, 1989). Entrepreneurship as a research field is short of domain-specific theories which creates challenges of distinguishing it from the related fields of strategy and economics - areas from which it typically borrows theories. Effectuation, one of the recent theories developed within this fast-growing research area, is characterised by shortcomings that can be traced to the general field of entrepreneurship. It has been proposed that there is a need to examine the dynamics related to this theory (Gupta et al., 2016). One such short coming is the need to explain the extent to which resources are constraints to opportunities (Read et al., 2016). Through using the theory of effectuation in explaining how individuals faced with resource constraints engage in sustainable entrepreneurship, it has been shown that the constituent constructs influence one another in exhibiting effectuation.

This study shows that sustainable entrepreneurs need to create and manage their relationships with stakeholders and to influence key actors and opinion leaders who are capable of establishing and modifying relationships with different actors. This relates with the effectuation construct of pre-commitments which the study shows are not only used to mobilize resources to reduce uncertainty but also provide legitimization and emotional support to counter subsequent challenges. Further, pre-commitments are also shown to discourage the entrepreneur from making quick, unconsidered judgments and expensive decisions. Therefore, while pre-commitments may translate into additional resources, they also bestow a responsibility on the firm to perform its contracts and appease partners, which diminishes the extent of failure the sustainable entrepreneur may tolerate. This contributes to effectuation theory by proposing a relationship between pre-commitments and affordable loss and offering an explanation for this proposed relationship.

The results further show that the tolerance of failure determines the willingness to learn. Relating this to the theory of effectuation this indicates a relationship between the effectuation constructs of affordable loss and flexibility. The study therefore proposes that affordable loss hastens learning and in this way makes the entrepreneur more flexible. The results also show that the willingness to learn influences adaptation which indicates a relationship between the effectuation constructs of flexibility and experimentation. It is proposed that this relationship occurs as a result of acquisition of knowledge and experience, the ability to choose from a number of options and the ability to self-regulate.

The study therefore contributes to the strengthening of effectuation as a theory by providing clarity about the relationships and directionality between constructs and logical arguments that support these relationships. As a theory developed within the domain of entrepreneurship, it advances theorizing in this discipline. The interactive model depicted in this study implies that each of the dimensions of effectuation's contributions is multiplicative and contingent on the other dimensions, in the sense that the contribution by each dimension depends on the extent to which the entrepreneur exhibits the other dimensions. Furthermore, building on the notion that effectuation is most useful where optimality may not apply (Read et al., 2016) this study in the sub-Saharan Africa context provides new insights into the theory.

By proposing relationships amongst the constructs and offering explanations for the underlying causes of these relationships, this study elaborates effectuation theory. “Theory elaboration is the process of conceptualizing and executing empirical research using pre-existing conceptual ideas or a preliminary model as a basis for developing new theoretical insights by contrasting, specifying, or structuring theoretical constructs and relations to account for and explain empirical observations” (Fisher & Aguinis, 2017, p. 441). This advances the understanding of the theory and will enable its practical application through setting the stage for making probabilistically true statements.

6.3 Recommendations and practical implications

In this section the chapter shifts focus from the theoretical and offers actionable suggestions derived from the findings, analysis and conclusions of this study. Actors for whom these recommendations could hold relevance, are identified. These actors include the entrepreneur, entrepreneurship trainers, the community, financial institutions, the media and policy makers.

For the entrepreneur:

Practising sustainable entrepreneurs can promote the spread of this type of entrepreneurship and change in consumer behaviour by mentoring potential entrepreneurs and consumers. This can be achieved through the formation of alliances with a diverse set of stakeholders which would maximise the potential to pursue set aspirations.

This implies that there is a need to develop deep knowledge of stakeholders in order to design sustainable products that match these needs.

It is also recommended that the entrepreneur should treat every firm-related activity as an opportunity to learn and improve the firm operations based on lessons learned. The entrepreneur should also accept failure as an opportunity to improve. Therefore, firm design plans should revolve around averting failure as opposed to ensuring success.

This implies that the cost of learning will be cheaper and through learning from failure improvements based on market requirements may be realised.

Another recommendation is that firms could operate based on a project model where new ideas are handled as independent projects so that they can take full advantage of effectuation until they mature to the extent that they can be integrated with the rest of the business. This implies that the firm will maintain the flexibility associated with small units.

It is also recommended that top management should give clear signals of support for innovative behaviour in the face of constrained resources. This implies that management should provide opportunities to attempt innovative strategies at relatively low risk.

For the Entrepreneurship trainers:

There is a need to develop a teaching curriculum that has an emphasis on resilience and resourcefulness as this is important in a highly uncertain environment. To this end, a focus on pedagogical models that emphasise experiential learning is desirable.

This implies that students will not be surprised by the challenges that practice may present as they have been forewarned of the possibility of undesirable results.

It is also recommended that academic and training programmes should be tailored to highlight the feasibility of sustainable entrepreneurship opportunities. Trainees should be connected to credible models of key behaviours as mentors and through internships.

This implies that exposure to diverse life and work experiences such as the possibilities that sustainable entrepreneurship presents broadens individuals' range of what they perceive as feasible.

For the community:

It is recommended that communities should bear a demonstrable stake in operations of the firm rather than only be social beneficiaries. They can form alliances with the entrepreneurs that foster the ultimate success of the firm through vouching for a business environment that accommodates learning from trial and error actions, accept lower initial wage offers, undertake training to provide higher quality supplies and agree to purchase the firm's outputs.

This implies that the community not only benefit from the social and environmental activities of the firm but they also act as a policing mechanism to ensure that the firm delivers on its promise.

For Financial institutions:

It is important to evaluate request-for-funding proposals based on adaptability to possible challenges rather than potential to successfully earn a predicted rate of return.
This implies that rather than focus on financial forecasts, financial institutions will do well to focus on the entrepreneur's ability to learn.

For the media:

The media should emphasise the desirability of sustainable entrepreneurship opportunities, highlighting the exploits of credible role models and emphasizing in equal measure, the pecuniary and non-pecuniary benefits. In providing publicity on entrepreneurship, there is a need to focus on business failure as a learning process to motivate and prepare current and prospective entrepreneurs for the challenges ahead as well as the possible opportunities therein. This implies that through increasing awareness about the viability and the challenges of sustainable entrepreneurship the media will embolden prospective stakeholders to engage with existing firms. In the same way potential sustainable entrepreneurs may be sold on to the idea of starting their own enterprises.

6.4 Policy implications

Incentives should be provided within the frameworks of chambers of commerce, business incubators, university and industry alliances in order to foster alliances which will give entrepreneurs opportunities to access pre-commitments.
Guidelines need to be developed for firms that access government support to include adaptability to changing conditions. This may entail the entrepreneur having to specify how they would deal with a challenge of ultimate failure.
The penalties associated with business failure should be lowered to facilitate the recovery from bankruptcy and possibility of a restart of a more efficient venture.
Sustainability ideals should be integrated in the early year's education curriculum to inspire awareness at an early age
Tax cuts should be availed to firms that demonstrate moves towards sustainable entrepreneurship.

6.5 Areas for further research

It is recommended that further studies be undertaken to probe and test the mechanisms within the study phenomena. In this regard it is recommended that this study's model be explored in contexts other than the sustainable entrepreneurship one to clarify the role of multiple objectives and absence of profit maximization. A statistical validation of the model through undertaking more quantitative studies is also recommended. It is further recommended that there is a need for cross-cultural comparisons of effectuation to study how this occurs in different geographical contexts. Controlled experiments will be very much needed to confirm whether there is indeed causality within effectuation and between sustainable entrepreneurship and a number of other variables.

Conclusion

This study was undertaken in a sub-Saharan Africa country and sought to explain how individuals faced with resource constraints engage in sustainable entrepreneurship. From the research we now know that resource constraints instantiate control strategies because planning in the absence of well-kept records in the midst of uncertainty as is the case in sub-Saharan Africa is a challenge. We further conclude that the cognitive and affective domains interact for the realization of sustainable entrepreneurship as the emergent challenges require learning and passion to sustain activity. It is also concluded that the multi-faceted nature of sustainable entrepreneurship does not make it more burdensome but rather acts as a coping mechanism in an uncertain context.

References

Aldrich, H. E., & Martinez, M. A. (2007). Many are called, but few are chosen: An evolutionary perspective for the study of entrepreneurship. In A. Cuervo, D. Riberio, & S. Roig (Eds.), *Entrepreneurship* (pp. 293–311). Berlin/Heidelberg: Springer.

Alvarez, S. A., & Barney, J. B. (2007). Discovery and creation: Alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal*, *1*(1–2), 11–26.

Alvesson, M., & Karreman, D. (2007). Constructing mystery: Empirical matters in theory development. *Academy of Management Review*, *32*(4), 1265–1281.

Anderson, A. R. (1998). Cultivating the garden of eden: Environmental entrepreneuring. *Journal of Organizational Change Management*, *11*(2), 135–144.

Anderson, A. R., Park, J. S., & Jack, S. L. (2007). Entrepreneurial social capital—Conceptualizing social capital in new high-tech firms. *International Small Business Journal*, *25*(3), 245–272.

Arenas, D., Sanchez, P., & Murphy, M. (2013). Different paths to collaboration between businesses and civil society and the role of third parties. *Journal of Business Ethics*, *115*(4), 723–739.

Arend, R. J., Sarooghi, H., & Burkemper, A. (2015). Effectuation as ineffectual? Applying the 3E theory-assessment framework to a proposed new theory of entrepreneurship. *Academy of Management Review*, *40*(4), 630–651.

Asongu, S. A. (2013). How would population growth affect investment in the future? Asymmetric panel causality evidence for Africa. *African Development Review*, *25*(1), 14–29.

Austin, J., Stevenson, H., & Wei-Skillern, J. (2006). Social and commercial entrepreneurship: Same, different, or both? *Entrepreneurship Theory and Practice*, *30*(1), 1–22.

Baker, T., Gedajlovic, E., & Lubatkin, M. (2005). A framework for comparing entrepreneurship processes across nations. *Journal of International Business Studies*, *36*(5), 492–504. https://doi.org/10.1057/palgrave.jibs.8400153

Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Adminsitrative Science Quarterly*, *50*(3), 329–366.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall, Inc.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Baron, R. A. (2004). The cognitive perspective: A valuable tool for answering entrepreneurship' s basic '"why"' questions. *Journal of Business Venturing*, *19*(2), 221–239. https://doi.org/10.1016/S0883-9026(03)00008-9

Baron, R. A. (2008). The role of affect in the entrepreneurial process. *Academy of Management Review*, *33*(2), 328–340.

Baron, R. A., Zhao, H., & Miao, Q. (2015). Personal motives, moral disengagement, and unethical decisions by entrepreneurs: Cognitive mechanisms on the "slippery slope." *Journal of Business Ethics*, *128*(1), 107–118.

Baum, J. R., & Locke, E. a. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *The Journal of Applied Psychology*, *89*(4), 587–98. https://doi.org/10.1037/0021-9010.89.4.587

Baumol, W. J. (1989). Entrepreneurship in economic theory. *American Economic Review Papers and Proceedings*, 64–71.

Baumol, W. J. (1990). Entrepreneurship: Productive, unproductive, and destructive. *Journal of Political Economy*, *98*(5), 893–921.

Beckman, C. M., Eisenhardt, K. M., Kotha, S., Meyer, A., & Rajagopalan, N. (2012). The role of the entrepreneur in technology entrepreneurship. *Strategic Entrepreneurship Journal*, *6*(3), 203–206.

Belderbos, R., Carree, M., & Lokshin, B. (2004). Cooperative R&D and firm performance. *Research Policy*, *33*(10), 1477–1492.

Belz, F. M., & Binder, J. K. (2017). Sustainable entrepreneurship: A convergent process model. *Business Strategy and the Environment*, *26*(1), 1–17. https://doi.org/10.1002/bse.1887

Bernardi, R. (2006). Associations between Hofstede's cultural constructs and social desirability response bias. *Journal of Business Ethics*, *65*, 43–53.

Bierly III, P. E., Kessler, E. H., & Christensen, E. W. (2000). Organizational learning, knowledge and wisdom. *Journal of Organizational Change Management*, *13*(6), 595–618.

Blauth, M., Mauer, R., & Brettel, M. (2014). Fostering creativity in new product development through entrepreneurial decision making. *Creativity and Innovation Management*, *23*(4), 495–509.

Bluhm, D. J., Harman, W., Lee, T. W., & Mitchell, T. R. (2011). Qualitative Research in Management : A Decade, (December). https://doi.org/10.1111/j.1467-6486.2010.00972.x

Bogdan, R. C., & Biklen, S. K. (1982). *Qualitative research for education: An introduction to theory and methods*. Boston, MA: Allyn and Bacon.

Bourgeois, L. J. I. (1981). On the measurement of organizational slack. *Academy of Management Review*, *6*(1), 29–39.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. Sage.

Bradley, S. W., Aldrich, H., Shepherd, D. A., & Wiklund, J. (2011). Resources, environmental change, and survival: asymmetric paths of young independent and subsidiary organizations. *Strategic Management Journal*, *32*(5), 486–509. https://doi.org/10.1002/smj

Bradley, S. W., Shepherd, D. A., & Wiklund, J. (2011). The Importance of Slack for New Organizations Facing 'Tough' Environments. *Journal of Management Studies*, *48*(5), 1071–1097.

Brettel, M., Mauer, R., Engelen, A., & Küpper, D. (2012). Corporate effectuation: Entrepreneurial action and its impact on R&D project performance. *Journal of Business Venturing*, *27*(2), 167–184.

Brockner, J., Higgins, E. T., & Low, M. B. (2003). Regulatory focus theory and the entrepreneurial process. *Journal of Business Venturing*, *19*(2), 203–220.

Brown, S. L., & Eisenhardt, K. M. (1997). The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations. *Administrative Science Quarterly*, *42*(1), 1–34.

Bruton, G. D., Ahlstrom, D., & Li, H.-L. (2010). Institutional Theory and Entrepreneurship: Where Are We Now and Where Do We Need to Move in the Future? *Entrepreneurship Theory and Practice*, *34*(3), 421–440. https://doi.org/10.1111/j.1540-6520.2010.00390.x

Bruton, G. D., Ahlstrom, D., & Puky, T. (2009). Institutional differences and the development of entrepreneurial ventures: A comparison of the venture capital industries in Latin America and Asia. *Journal of International Business Studies*, *40*(5), 762–778. https://doi.org/10.1057/jibs.2009.3

Bruton, G. D., Ketchen, D. J., & Ireland, R. D. (2013). Entrepreneurship as a solution to poverty. *Journal of Business Venturing*, *28*(6), 683–689. https://doi.org/10.1016/j.jbusvent.2013.05.002

Burg, E., Podoynitsyna, K., Beck, L., & Lommelen, T. (2012). Directive deficiencies: how resource constraints direct opportunity identification in SMEs. *Journal of Product Innovation Management*, *29*(6), 1000–1011.

Bygrave, W. D. (2007). The entrepreneurship paradigm (I) revisited. In H. Neergaard & J. Ulhoi (Eds.), *Handbook of qualitative research methods in entrepreneurship* (pp. 17–48). Cheltenham, UK. Northampton, MA, USA: Edward Elgar Publishing.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validity by the multitrait- multimethod matrix. *Psychological Bulletin*, *56*(2), 81–105.

Cardon, M. S., Grégoire, D. A., Stevens, C. E., & Patel, P. C. (2013). Measuring entrepreneurial passion: Conceptual foundations and scale validation. *Journal of Business Venturing*, *28*, 373–396. https://doi.org/10.1016/j.jbusvent.2012.03.003

Cardon, M. S., Post, C., & Forster, W. R. (2017). Team entrepreneurial passion: its emergence and influence in new venture teams. *Academy of Management Review*, *42*(2), 283–305.

Cardon, M. S., Wincent, J., Singh, J., & Drnovšek, M. (2009). The nature and expression of Entrepreneurial Passion. *Academy of Management Review*, *34*(3), 511–532.

Cardon, M. S., Zietsma, C., Saparito, P., Matherne, B. P., & Davis, C. (2005). A tale of passion: New insights into entrepreneurship from a parenthood metaphor. *Journal of Business Venturing*, *20*(1), 23–45.

Carsrud, A. L., & Brännback, M. (2011). Entrepreneurial Motivations : What Do We Still Need to Know ? *Journal of Small Business Management*, *49*(1), 9–26.

Cavusgil, S. T., & Knight, G. (2015). The born global firm: An entrepreneurial and capabilities perspective on early and rapid internationalization. *Journal of International Business Studies*, *46*(1), 3–16.

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), 375–390. https://doi.org/10.1016/j.jbusvent.2009.10.006

Chandler, G. N., & Jansen, E. (1997). Founder self-efficacy and venture performance: A longitudinal study. In *Academy of Management Proceedings* (pp. 98–102).

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London: Sage Publications, Inc.

Chiles, T. ., Bluedorn, A. ., & Gupta, V. . (2007). Beyond creative destruction and entrepreneurial discovery: A radical Austrian approach to entrepreneurship. *Organization Studies*, *28*(4), 467–493.

Choi, D. Y., & Gray, E. R. (2008). The venture development processes of "sustainable" entrepreneurs. *Management Research News*, *31*(8), 558–569. https://doi.org/10.1108/01409170810892127

Cohen, B., & Winn, M. I. (2007). Market imperfections, opportunity and sustainable entrepreneurship. *Journal of Business Venturing*, *22*(1), 29–49. https://doi.org/10.1016/j.jbusvent.2004.12.001

Collewaert, V., Anseel, F., Crommelinck, M., De Beuckelaer, A., & Vermeire, J. (2016). When Passion Fades: Disentangling the Temporal Dynamics of Entrepreneurial Passion for Founding. *Journal of Management Studies*, *53*(6), 966–995.

Cook, T., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings*. Boston, MA: Houghton Mifflin.

Cope, J. (2011). Entrepreneurial learning from failure: An interpretative phenomenological analysis. *Journal of Business Venturing*, *26*(6), 604–623. https://doi.org/10.1016/j.jbusvent.2010.06.002

Corbin, C. J., & Strauss, A. (2008). Techniques and procedures for developing grounded theory: Bringing process into the analysis. In *Basics of Qualitative Research* (3rd ed., pp. 247–263). https://doi.org/10.4135/9781452230153

Corner, P. D., & Ho, M. (2010). How opportunities develop in social entrepreneurship. *Entrepreneurship Theory and Practice*, *34*(4), 635–659. https://doi.org/10.1111/j.1540-6520.2010.00382.x

Crabtree, B. F., & Miller, W. L. (1999). Using codes and code manuals: a template organizing style of interpretation. *Doing Qualitative Research*, *2*, 163–177.

Crals, E., & Vereeck, L. (2004). Sustainable entrepreneurship in SMEs: Theory and practice. In *Third Global Conference on Environmental Justice and Global Citizenship.* (pp. 1–16).

Daniel, E. M., Domenico, M. D., & Sharma, S. (2014). Effectuation and home-based online business entrepreneurs. *International Small Business Journal*, *33*(8), 799–823. https://doi.org/10.1177/0266242614534281

Das, S., Sen, P. K., & Sengupta, S. (1998). Impact of strategic alliances on firm valuation. *Academy of Management Journal*, *41*(1), 27–41.

Davidsson, P. (2016). This thing called "Theory." In P. Davidsson (Ed.), *Researching entrepreneurship: Conceptualization and design* (2nd ed., pp. 41–73). Springer.

Dawa, S., & Namatovu, R. (2014). Self-finance – application of the restricted pecking order theory among Ugandan women entrepreneurs. *International Journal of Entrepreneurship and Small Business*, *21*(4), 513–526.

Dean, T. J., & McMullen, J. S. (2007). Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *Journal of Business Venturing*, *22*(1), 50–76. Retrieved from http://search.ebscohost.com.library.myebs.de/login.aspx?direct=true&db=bth&AN=22795132&site=ehost-live

Deligianni, I., Voudouris, I., & Lioukas, S. (2015). Do effectuation processes shape the relationship between product diversification and performance in new ventures? *Entrepreneurship Theory and Practice*, 1–29. https://doi.org/10.1111/etap.12210

Delmar, F., & Wiklund, J. (2008). The effect of small business managers on firm growth: A longitudinal study. *Entrepreneurship Theory and Practice*, *32*(3), 437–457.

Denzin, K. N. (1978). *The research act* (2nd ed.). New York: McGraw Hill.

Desa, G., & Basu, S. (2013). Optimization or bricolage? Overcoming resource constraints in global social entrepreneurship. *Strategic Entrepreneurship Journal*, *7*(1), 26–49.

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), 287–309. https://doi.org/10.1016/j.jbusvent.2008.02.002

Dew, N., & Sarasvathy, S. D. (2002). What effectuation is not: Further development of an alternative to rational choice. *Academy of Management Conference*.

Dew, N., Sarasvathy, S. D., Read, S., & Wiltbank, R. (2009). Affordable loss: Behavioral economic aspects of the plunge decision. *Strategic Entrepreneurship Journal*, *3*(2), 105–126.

Domenico, M. D., Haugh, H., & Tracey, P. (2010). Social bricolage: Theorizing social value creation in social enterprises. *Entrepreneurship Theory and Practice*, *34*(4), 681–703.

Dopfer, M., Fallahi, S., Kirchberger, M., & Gassmann, O. (2017). Adapt and strive: How ventures under resource constraints create value through business model adaptations. *Creativity and Innovation Management*, *26*(3), 233–246.

Doz, Y. (2011). Qualitative research for international business. *Journal of International Business Studies*, *42*(5), 582–590. https://doi.org/10.1057/jibs.2011.18

Drnovšek, M., Wincent, J., & Cardon, M. S. (2010). Entrepreneurial self-efficacy and business start-up: developing a multi-dimensional definition. *International Journal of Entrepreneurial Behaviour & Research*, *16*(4), 329–348. https://doi.org/10.1108/13552551011054516

Dyer, W. G., & Wilkins, A. L. (1991). Better stories, not better constructs, to generate better theory: A rejoinder to Eisenhardt. *Academy of Management Review*, *16*(3), 613–619.

Edelman, L. F., Brush, C. G., Manolova, T. S., & Greene, P. G. (2010). Start-up Motivations and Growth Intentions of Minority Nascent Entrepreneurs. *Journal of Small Business Management*, *48*(2), 174–196. https://doi.org/10.1111/j.1540-627X.2010.00291.x

Edmondson, A. C., & Mcmanus, S. E. (2007). Methodological fit in management field research. *Academy of Management Review*, *32*(4), 1155–1179.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, *14*(4), 532–550.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, *50*(1), 25–32. https://doi.org/10.5465/AMJ.2007.24160888

Eisenhower, D., Mathiowetz, N. ., & Morganstein, D. (2004). Recall bias: Sources and bias reduction techniques. In P. . Biemer, R. . Groves, L. . Lyberg, N. . Mathiowetz, & S. Sudman (Eds.), *Measurement errors in surveys* (pp. 127–144). Hoboken, NJ: John Wiley and Sons.

Elkington, J. (1998). *Cannibals with forks: The triple bottom line of 21st century business*. *Long Range Planning* (Vol. 32). New Society Publishers. Retrieved from http://www.amazon.com/dp/0865713928

Eshima, Y., & Anderson, B. S. (2017). Firm growth, adaptive capability, and entrepreneurial orientation. *Strategic Management Journal*, *38*(3), 770–779.

Estrin, S., Mickiewicz, T., & Stephan, U. (2013). Entrepreneurship, social capital, and institutions: Social and commercial entrepreneurship across nations. *Entrepreneurship Theory and Practice*, *37*(3), 479–504.

Finke, R. A., Ward, T. B., & Smith, S. M. (1992). *Creative cognition: Theory, research, and applications*. Cambridge, Mass: MIT Press.

Fischer, E., & Reuber, A. R. (2011). Social interaction via new social media: (How) can interactions on Twitter affect effectual thinking and behavior? *Journal of Business Venturing*, *26*(1), 1–18.

Fisher, G. (2012). Effectuation, causation, and bricolage: A behavioral comparison of emerging theories in entrepreneurship research. *Entrepreneurship Theory and Practice*, *36*(5), 1019–1051. https://doi.org/10.1111/j.1540-6520.2012.00537.x

Fisher, G., & Aguinis, H. (2017). Using Theory Elaboration to Make Theoretical Advancements. *Organizational Research Methods*, *20*(3), 438–464. https://doi.org/10.1177/1094428116689707

Fletcher, D. E. (2006). Entrepreneurial processes and the social construction of opportunity. *Entrepreneurship & Regional Development*, *18*(5), 421–440. https://doi.org/10.1080/08985620600861105

Flick, U. (1998). *An introduction to qualitative research: Theory, method, and applications*. London: Sage.

Fontana, A., & Frey, J. H. (2005). The Interview: From neutral stance to political involvement. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (3rd ed., pp. 695–728). Thousand Oaks, Calif.: SAGE Publications.

Friese, S. (2014). *Qualitative Data Analysis with Atlas.ti* (2nd ed.). Los Angeles London New Delhi Singapore Washington DC: Sage.

Gartner, W. B., & Birley, S. (2002). Introduction to the special issue on qualitative methods in entrepreneurship research. *Journal of Business Venturing*, *17*(5), 387–395.

Gast, J., Gundolf, K., & Cesinger, B. (2017). Doing business in a green way : A systematic review of the ecological sustainability entrepreneurship literature and future research directions. *Journal of Cleaner Production*, *147*, 44–56. https://doi.org/10.1016/j.jclepro.2017.01.065

Gemmell, R. M., Boland, R. J., & Kolb, D. A. (2012). The socio-cognitive dynamics of entrepreneurial ideation. *Entrepreneurship Theory and Practice*, *36*(5), 1053–1073.

George, G. (2005). Slack resources and the performance of privately held firms. *Academy of Management Journal*, *48*(4), 661–676.

George, G., Corbishley, C., Khayesi, J. N. O., Haas, M. R., & Tihanyi, L. (2016). Bringing Africa in: Promising directions for management research. *Academy of Management Journal*, *59*(2), 377–393.

Gerlach, A. (2003). Sustainable entrepreneurship and innovation. In *University of Leeds: The 2003 Corporate Social Responsibility and Environmental Management Conference* (pp. 101–110). Leeds, UK: University of Leeds.

Gibbert, M., Hoegl, M., & Valikangas, L. (2014). Introduction to the special issue: Financial resource constraints and innovation. *Journal of Product Innovation Management*, *31*(2), 197–201. https://doi.org/10.1111/jpim.12089

Gibbs, D. (2009). Sustainability entrepreneurs, ecopreneurs and the development of a sustainable economy. *Greener Management International*, *55*, 63–78.

Gielnik, M. M., Spitzmuller, M., Schmitt, A., Klemann, K., & Frese, M. (2015). 'I put in effort, therefore I am passionate: Investigating the path from effort to passion in entrepreneurship.' *Academy of Management Journal*, *58*, 1012–1031.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2012). Seeking qualitative rigor in inductive research : Notes on the Gioia methodology. *Organizational Research Methods*, *16*(1), 15–31. https://doi.org/10.1177/1094428112452151

Glaser, B. G., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York: Aldine.

Goel, S., & Karri, R. (2006). Entrepreneurs, effectual logic, and over-trust. *Entrepreneurship Theory and Practice*, *30*(4), 477–494.

Golafshani, N. (2003). Understanding validity and reliability in qualitative research. *The Qualitative Report*, *8*(4), 597–606.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, *24*(2), 105–112.

Grant, A. M., & Berry, J. W. (2011). The necessity of others is the mother of invention: Intrinsic and prosocial motivations, perspective taking, and creativity. *Academy of Management Journal*, *54*(1), 73–96.

Grant, P., & Perrin, L. (2002). Small business and entrepreneurial research: Meta-theories, paradigms and prejudices. *International Small Business Journal*, *20*(2), 185–211.

Gray, B. J., Duncan, S., Kirkwood, J., & Walton, S. (2014). Encouraging sustainable entrepreneurship in climate-threatened communities: a Samoan case study. *Entrepreneurship & Regional Development*, *26*(5–6), 401–430. https://doi.org/10.1080/08985626.2014.922622

Grégoire, D. A., Corbett, A. C., & McMullen, J. S. (2011). The cognitive perspective in entrepreneurship: An agenda for future research. *Journal of Management Studies*, *48*(6), 1443–1477.

Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park, CA: Sage.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in Qualitative Research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 105–117). Thousand Oaks, London, New Delhi: Sage.

Gupta, V. K., Chiles, T. H., & McMullen, J. S. (2016). A process perspective on evaluating and conducting effectual entrepreneurship research. *Academy of Management Review*, *41*(3), 540–544.

Hahn, R., Spieth, P., & Ince, I. (2018). Business model design in sustainable entrepreneurship: Illuminating the commercial logic of hybrid businesses. *Journal of Cleaner Production*, *176*, 439–451.

Hall, J. K., Daneke, G. A., & Lenox, M. J. (2010). Sustainable development and entrepreneurship : Past contributions and future directions. *Journal of Business Venturing*, *25*(5), 439–448. https://doi.org/10.1016/j.jbusvent.2010.01.002

Hanohov, R., & Baldacchino, L. (2017). Opportunity recognition in sustainable entrepreneurship: an exploratory study. *International Journal of Entrepreneurial Behavior & Research*.

Haynie, M. J., & Shepherd, D. A. (2009). A measure of adaptive cognition for entrepreneurship research. *Entrepreneurship Theory and Practice*, *33*(3), 695–714.

Haynie, M. J., Shepherd, D. A., & McMullen, J. S. (2009). An opportunity for me? The role of resources in opportunity evaluation decisions. *Journal of Management Studies*, *46*(3), 337–361.

He, Z. L., & Wong, P. K. (2004). Exploration vs. exploitation: An empirical test of the ambidexterity hypothesis. *Organization Science*, *15*(4), 481–494.

Higgins, D., McGowan, P., & Trehan, K. (2013). Celebrating entrepreneurial & small firm research - embracing qualitative research philosophies and methods. *International Journal of Entrepreneurial Behaviour & Research*, *19*(4), 1.

Hillman, A. J., Withers, M. C., & Collins, B. J. (2009). Resource dependence theory: A review. *Journal of Management*, *35*(6), 1404–1427.

Hindle, K. (2004). Choosing qualitative methods for entrepreneurial cognition research: A canonical development approach. *Entrepreneurship Theory and Practice*, *28*(6), 575–607.

Hmieleski, K. M., & Corbett, A. C. (2008). The contrasting interaction effects of improvisational behavior with entrepreneurial self-efficacy on new venture performance and entrepreneur work satisfaction. *Journal of Business Venturing*, *23*(4), 482–496. https://doi.org/10.1016/j.jbusvent.2007.04.002

Hockerts, K., & Wüstenhagen, R. (2010). Greening Goliaths versus emerging Davids — Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. *Journal of Business Venturing*, *25*(5), 481–492. https://doi.org/10.1016/j.jbusvent.2009.07.005

Hoegl, M., Gibbert, M., & Mazursky, D. (2008). Financial constraints in innovation projects: When is less more? *Research Policy*, *37*(8), 1382–1391.

Holland, D. V, & Shepherd, D. A. (2013). Deciding to persist: Adversity, values, and entrepreneurs' decision policies. *Entrepreneurship Theory and Practice*, *37*(2), 331–358.

Holloway, S. S., & Parmigiani, A. (2016). Friends and profits don't mix: The performance implications of repeated partnerships. *Academy of Management Journal*, *59*(2), 460–478.

Holstein, J. A., & Gubrium, J. F. (2003). Computer-assisted analysis of qualitative interview data. In J. A. Holstein & J. F. Gubrium (Eds.), *Inside interviewing* (pp. 289–309). Thousand Oaks, CA: SAGE Publications.

Howell, M., & Prevenier, W. (2001). *From reliable sources: An introduction to historical methods*. Ithaca, NY: Cornell University.

Ireland, R. D., Kuratko, D. F., & Morris, M. H. (2006). A health audit for corporate entrepreneurship: Innovation at all levels, part I. *Journal of Business Strategy*, *27*(2), 10–17.

Jack, S. L., & Anderson, A. R. (2002). The effects of embeddedness on the entrepreneurial process. *Journal of Business Venturing*, *17*(5), 467–487. https://doi.org/10.1016/S0883-9026(01)00076-3

Jansen, W., Mauer, R., & Brettel, M. (2016). Entrepreneurial mingling secrets: investigating the performance impact of network structure for control-based entrepreneurship using agent-based simulation. In A. Fayolle, S. L. Jack, W. Lamine, & D. Chabaud (Eds.), *Entrepreneurial Process and Social Networks: A Dynamic Perspective* (pp. 303–334). Cheltenham, UK. Northampton, MA, USA: Edward Elgar Publishing.

Jarillo, J. C. (1989). Entrepreneurship and growth: the strategic use of external resources. *Journal of Business Venturing*, *4*(2), 133–147.

Johnson, J. M. (2001). In-depth interviewing. In J. F. Gubrium & J. A. Holstein (Eds.), *Handbook of interview research* (pp. 103–132). SAGE Publications. https://doi.org/10.4135/9781412973588

Johnson, M., & Schaltegger, S. (2016). Sustainable entrepreneurship as a research field. Evidence from a systematic literature review. *Academy of Management Proceedings*.

Jones, S. (1985). Depth interviewing. In R. L. Walker (Ed.), *Applied qualitative research* (pp. 45–55). Aldershot: Gower.

Jones, T. M., Felps, W., & Bigley, G. A. (2007). Ethical theory and stakeholder-related decisions: The role of stakeholder culture. *Academy of Management Review*, *32*, 137–155.

Jordanova, L. (2000). *History in practice*. London: Arnold.

Juma, N. A., James, C. D., & Kwesiga, E. (2017). Sustainable entrepreneurship in Sub-Saharan Africa : the collaborative multi-system model. *Journal of Small Business & Entrepreneurship*, *29*(3), 211–235. https://doi.org/10.1080/08276331.2017.1293949

Katila, R., & Shane, S. (2005). When does lack of resources make new firms innovative? *Academy of Management Journal*, *48*(5), 814–829.

Katongole, C., Munene, J. C., Ngoma, M., Dawa, S., & Sserwanga, A. (2015). Entrepreneur's intrapersonal resources and enterprise success among micro and small scale women entrepreneurs. *Journal of Enterprising Culture*, *23*(4), 405–447. https://doi.org/10.1142/S0218495815500144

Keupp, M. M., & Gassmann, O. (2013). Resource constraints as triggers of radical innovation: Longitudinal evidence from the manufacturing sector. *Research Policy*, *42*(8), 1457–1468.

Khanna, R., Guler, I., & Nerkar, A. (2016). Fail often, fail big, and fail fast? Learning from small failures and R&D performance in the pharmaceutical industry. *Academy of Management Journal*, *59*(2), 436–459.

Khavul, S., Bruton, G. D., & Wood, E. (2009). Informal Family Business in Africa. *Entrepreneurship Theory and Practice*, *33*(6), 1219–1238.

Khayesi, J. N. O., & George, G. (2011). When does the socio-cultural context matter? Communal orientation and entrepreneurs' resource accumulation efforts in Africa. *Journal of Occupational and Organizational Psychology*, *84*(3), 471–492. https://doi.org/10.1111/j.2044-8325.2011.02029.x

Kibler, E., Fink, M., Lang, R., & Muñoz, P. (2015). Place attachment and social legitimacy: Revisiting the sustainable entrepreneurship journey. *Journal of Business Venturing Insights*, *3*, 24–29. https://doi.org/10.1016/j.jbvi.2015.04.001

Kiss, A. N., Danis, W. M., & Cavusgil, S. T. (2012). International entrepreneurship research in emerging economies: A critical review and research agenda. *Journal of Business Venturing*, *27*(2), 266–290.

Klewitz, J., & Hansen, E. G. (2014). Sustainability-oriented innovation of SMEs: A systematic review. *Journal of Cleaner Production*, *65*, 57–75.

Knight, F. H. (1921). *Risk, uncertainty and profit*. New York: Augustus Kelley.

Kotler, P. (1991). *Marketing management*. Englewood Cliffs, NJ: Prentice-Hall.

Krueger, J. N. F., Hansen, J. D., Michl, T., & Welsh, D. H. B. (2011). Thinking "Sustainably": The role of intentions, cognitions and emotions in understanding new domains of entrepreneurship. In G. T. Lumpkin & J. A. Katz (Eds.), *Social and sustainable entrepreneurship* (pp. 275–309). Bingley, UK: Emerald Group Publishing Limited.

Kuckertz, A., & Wagner, M. (2010). The influence of sustainability orientation on entrepreneurial intentions — Investigating the role of business experience. *Journal of Business Venturing*, *25*(5), 524–539. https://doi.org/10.1016/j.jbusvent.2009.09.001

Langley, A., Smallman, C., Tsoukas, H., & Van de Ven, A. (2013). Process studies of change in orgnization and mangement: unveiling temporality, activity and flow. *Academy of Management Journal*, *56*(1), 1–13.

Larson, A. (2000). Sustainable innovation through an entrepreneurship lens. *Business Strategy and the Environment*, *9*(5), 304–317.

Lavie, D., Stettner, U., & Tushman, M. L. (2010). Exploration and exploitation within and across organizations. *The Academy of Management Annals*, *4*(1), 109–155. https://doi.org/10.1080/19416521003691287

Le, N. T., & Nguyen, T. V. (2009). The impact of networking on bank financing: the case of small and medium-sized enterprises in Vietnam. *Entrepreneurship Theory and Practice*, *33*(4), 867–887.

Lee, T. W., Mitchell, T. R., & Sablynski, C. J. (1999). Qualitative research in organizational and vocational psychology, 1979–1999. *Journal of Vocational Behavior*, *55*, 161–187.

Leech, N. L., & Onwuegbuzie, A. J. (2007). An array of qualitative data analysis tools: A call for data analysis triangulation. *School Psychology Quarterly*, *22*(4), 557.

Lehner, O. M., & Kaniskas, J. (2012). Opportunity recognition in social entrepreneurship: A thematic meta analysis. *The Journal of Entrepreneurship*, *21*(1), 25–58. https://doi.org/10.1177/097135571102100102

Leitch, C. M., Hill, F. M., & Harrison, R. T. (2010). The philosophy and practice of interpretivist research in entrepreneurship: Quality, validation, and trust. *Organizational Research Methods*, *13*(1), 67–84. https://doi.org/10.1177/1094428109339839

Leys, C. (2011). *Politics and change in developing countries: Studies in the theory and practice of development*. Cambridge University Press.

Lichtenstein, B. B., Carter, N. M., Dooley, K. J., & Gartner, W. B. (2007). Complexity dynamics of nascent entrepreneurship. *Journal of Business Venturing*, *22*, 236–261. https://doi.org/10.1016/j.jbusvent.2006.06.001

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Loch, C. H., Solt, M. E., & Bailey, E. M. (2008). Diagnosing unforeseeable uncertainty in a new venture. *Journal of Product Innovation Management*, *25*(1), 28–46.

Luo, Y. (2002). Contract, cooperation, and performance in international joint ventures. *Strategic Management Journal*, *23*(10), 903–919.

Macpherson, A., Herbane, B., & Jones, O. (2015). Developing dynamic capabilities through resource accretion: expanding the entrepreneurial solution space. *Entrepreneurship & Regional Development*, *27*(5–6), 259–291.

Manolova, T. S., Carter, N. M., Manev, I. M., & Gyoshev, B. S. (2007). The differential effect of men and women entrepreneurs' human capital and networking on growth expectancies in Bulgaria. *Entrepreneurship Theory and Practice*, *31*(3), 407–426.

March, J. G. (1982). The technology of foolishness. In J. G. March & J. P. Olsen (Eds.), *Ambiguity and choice in organizations* (pp. 69–81). Bergen, Norway: Universitetsforlaget.

March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, *2*(1), 71–87. https://doi.org/10.1287/orsc.2.1.71

March, J. G. (1996). Learning to be risk averse. *Psychological Review*, *103*(2), 309.

Martin, B. C., Mcnally, J. J., & Kay, M. J. (2012). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing*, *28*(2), 211–224. https://doi.org/10.1016/j.jbusvent.2012.03.002

Martin, R. (2007). How successful leaders think. *Harvard Business Review*, *85*(6), 60.

Mauer, R. (2014). Thinking different - Effectual logic and behaviour. In T. Baker & F. Welter (Eds.), *The Routledge Companion to Entrepreneurship* (pp. 116–130). Routledge.

Mcgrath, R. G. (1995). Advantage from adversity: Learning from disappointment in internal corporate ventures. *Journal of Business Venturing*, *10*(2), 121–142.

Mcgrath, R. G. (2001). Exploratory learning, innovative capacity, and managerial oversight. *Academy of Management Journal*, *44*, 118–131.

McMullen, J. S. (2015). Entrepreneurial judgment as empathic accuracy: a sequential decision-making approach to entrepreneurial action. *Journal of Institutional Economics*, 1–31. https://doi.org/10.1017/S1744137413000386

McMullen, J. S., & Dimov, D. (2013). Time and the entrepreneurial journey: The problems and promise of studying entrepreneurship as a process. *Journal of Management Studies*, *50*(8), 1481–1512.

McMullen, J. S., & Shepherd, D. A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review*, *31*(1), 132–152. https://doi.org/10.5465/AMR.2006.19379628

Mellahi, K., & Wilkinson, A. (2010). A study of the association between level of slack reduction following downsizing and innovation output. *Journal of Management Studies*, *47*(3), 483–508.

Merriam, S. B. (2014). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey Bass Wiley.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage.

Miller, F. A., & Alvarado, K. (2005). Incorporating documents into qualitative nursing research. *Journal of Nursing Scholarship*, *37*(4), 348–53. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16396408

Miller, T. L., Grimes, M. G., McMullen, J. S., & Vogus, T. J. (2012). Venturing for others with heart and head: How compassion encourages social entrepreneurship. *Academy of Management Review*, *37*(4), 616–640. https://doi.org/10.5465/amr.2010.0456

Misangyi, V. F., Weaver, G. R., & Elms, H. (2008). Ending corruption: The interplay among institutional logics, resources and institutional entrepreneurs. *Academy of Management Review*, *33*, 750–770.

Mitchell, R. K., Busenitz, L. W., Bird, B. J., Gaglio, C. M., McMullen, J. S., Morse, E. A., & Smith, J. B. (2007). The central question in entrepreneurial cognition research 2007. *Entrepreneurship Theory and Practice*, *31*(1), 1–27.

Moroz, P. W., & Hindle, K. (2012). Entrepreneurship as a Process: Toward Harmonizing Multiple Perspectives. *Entrepreneurship Theory and Practice*, *36*(4), 781–818. https://doi.org/10.1111/j.1540-6520.2011.00452.x

Morris, M. H., Kuratko, D. F., Schindehutte, M., & Spivack, A. J. (2012). Framing the entrepreneurial experience. *Entrepreneurship Theory and Practice*, *36*(1), 11–40.

Morse, J. M. (1995). The significance of saturation. *Qualitative Health Research*, *5*, 147–149.

Muehlfeld, K., Urbig, D., & Weitzel, U. (2015). Entrepreneurs' exploratory perseverance in learning settings. *Entrepreneurship Theory and Practice*.

Mueller, B. A., & Shepherd, D. A. (2014). Making the most of failure experiences: Exploring the relationship between business failure and the identification of business opportunities. *Entrepreneurship Theory and Practice*, *40*(3), 457–487.

https://doi.org/10.1111/etap.12116

Mueller, V., Rosenbusch, N., & Bausch, A. (2013). Success Patterns of Exploratory and Exploitative Innovation: A Meta-Analysis of the Influence of Institutional Factors. *Journal of Management*, *39*(6), 1606–1636.

Mullainathan, S., & Shafir, E. (2013). *Scarcity: The true cost of not having enough*. London, England: Penguin.

Munoz, P., & Cohen, B. (2017). Sustainable entrepreneurship research: Taking stock and looking ahead. *Business Strategy and the Environment*. https://doi.org/10.1002/bse.2000

Muñoz, P., & Dimov, D. (2015). The call of the whole in understanding the development of sustainable ventures. *Journal of Business Venturing*, *30*(4), 632–654. https://doi.org/10.1016/j.jbusvent.2014.07.012

Murnieks, C. Y., Mosakowski, E., & Cardon, M. S. (2014). Pathways of passion identity centrality, passion, and behavior among entrepreneurs. *Journal of Management*, *40*(6), 1583–1606.

Nakata, C., & Sivakumar, K. (1996). National culture and new product development: An integrative review. *Journal of Marketing*, *60*(1), 61–72.

Namatovu, R., Balunywa, W., Kyejjusa, S., & Dawa, S. (2011). *Global Entrepreneurship Monitor. GEM Uganda 2010 Executive Report*. Kampala.

NationalEnvironmentManagementAuthority. (2008). *State of environment report for Uganda*. Kampala.

Naudé, W. A. (2011). Entrepreneurship is not a binding constraint on growth and development in the poorest countries. *World Development*, *39*(1), 33–44.

Naudé, W. A., & Havenga, J. J. D. (2005). An overview of African entrepreneurship and small business research. *Journal of Small Business & Entrepreneurship*, *18*(1), 101–120. https://doi.org/10.1080/08276331.2005.10593334

Neergaard, H. (2007). Sampling in entrepreneurial settings. In H. Neergaard & J. P. Ulhøi (Eds.), *Handbook of Qualitative Research Methods in Entrepreneurship* (pp. 253–278). Cheltenham, UK. Northampton, MA, USA: Edward Elgar Publishing.

Neergaard, H., & Ulhøi, J. P. (2007). *Handbook of qualitative research methods in entrepreneurship*. Cheltenham, UK. Northampton, MA, USA: Edward Elgar. https://doi.org/10.4337/9781847204387

Nicholls-Nixon, C. L., Cooper, A. C., & Woo, C. Y. (2000). Strategic experimentation: Understanding change and performance in new ventures. *Journal of Business Strategy*, *15*(5), 493–521.

O'Leary, Z. (2004). *The essential guide to doing research*. London: SAGE Publications.

O`Neill, G., Hershauer, J., & Golden, J. (2009). The cultural context of sustainability entrepreneurship. *Greener Management International*, *55*, 33–55.

Ozdemir, S. Z., Moran, P., Zhong, X., & Bliemel, M. J. (2016). Reaching and acquiring valuable resources: the Entrepreneur's use of brokerage, cohesion, and embeddedness. *Entrepreneurship: Theory and Practice*, *40*(1), 49–79.

Pacheco, D. F., Dean, T. J., & Payne, D. S. (2010). Escaping the green prison:

Entrepreneurship and the creation of opportunities for sustainable development. *Journal of Business Venturing*, *25*(5), 464–480. https://doi.org/10.1016/j.jbusvent.2009.07.006

Padgett, D. K. (2008). *Qualitative methods in social work research* (36th ed.). Sage.

Park, S. H., Chen, R. R., & Gallagher, S. (2002). Firm resources as moderators of the relationship between market growth and strategic alliances in semiconductor start-ups. *Academy of Management Journal*, *45*(3), 527–545.

Parrish, B. D. (2010). Sustainability-driven entrepreneurship: Principles of organization design. *Journal of Business Venturing*, *25*(5), 510–523. https://doi.org/10.1016/j.jbusvent.2009.05.005

Patton, M. Q. (1987). *How to use qualitative methods in evaluation*. London: Sage.

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed., Vol. 2nd). Newbury Park, CA.: Sage Publications, Ltd.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). London: SAGE Publications.

Patzelt, H., & Shepherd, D. A. (2011). Recognizing opportunities for sustainable development. *Entrepreneurship Theory and Practice*, *35*(4), 631–652. https://doi.org/10.1111/j.1540-6520.2010.00386.x

Peirce, C. S. (1978). Pragmatism and abduction. In C. Hartshorne & P. Weiss (Eds.), *Collected papers* (5th ed., pp. 180–212). Cambridge, MA: Harvard University Press.

Penrose, E. G. (1959). *The theory of the growth of the firm*. New York: Wiley.

Perren, L., & Ram, M. (2004). Case-study method in small business and entrepreneurial research: Mapping boundaries and perspectives. *International Small Business Journal*, *22*(1), 83–101. https://doi.org/10.1177/0266242604039482

Perry, J. T., Chandler, G. N., & Markova, G. (2012). Entrepreneurial effectuation: A review and suggestions for future research. *Entrepreneurship Theory and Practice*, *36*(4), 837–861. https://doi.org/10.1111/j.1540-6520.2010.00435.x

Pietrobelli, C., & Rabellotti, R. (2011). Global value chains meet innovation systems: Are there learning opportunities for developing countries? *World Development*, *39*(7), 1261–1269. https://doi.org/10.1016/j.worlddev.2010.05.013

Pinkse, J., & Groot, K. (2015). Sustainable entrepreneurship and corporate political activity: Overcoming market barriers in the clean energy sector. *Entrepreneurship: Theory and Practice*, *39*(3), 633–654. https://doi.org/10.1111/etap.12055

Platteau, J.-P. (2009). Institutional obstacles to African economic development: State, ethnicity, and custom. *Journal of Economic Behavior & Organization*, *71*(3), 669–689. https://doi.org/10.1016/j.jebo.2009.03.006

Poldner, K., Shrivastava, P., & Branzei, O. (2017). Embodied multi-discursivity: An aesthetic process approach to sustainable entrepreneurship. *Business & Society*, *56*(2), 214–252. https://doi.org/10.1177/0007650315576149

Polit, D. F., & Hungler, B. P. (1999). *Nursing research: Principles and methods* (6th ed.). Philadelphia, New York, Baltimore: J.B. Lippincott Company.

PopulationSecretariat. (2011). *The state of Uganda population report 2010*. Kampala.

Powell, E. E., & Baker, T. (2014). It's what you make of it: Founder identity and enacting strategic responses to adversity. *Academy of Management Journal*, *57*(5), 1406–1433.

Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A metaanalysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, *16*(4), 353–385.

Rauch, A., van Doorn, R., & Hulsink, W. (2014). A qualitative approach to evidence-based entrepreneurship: Theoretical considerations and an example involving business clusters. *Entrepreneurship: Theory and Practice*, *38*(2), 333–368. https://doi.org/10.1111/etap.12093

Read, S., Dew, N., Sarasvathy, S. D., & Song, M. (2009). Marketing under uncertainty: The logic of an effectual approach. *Journal of Marketing*, *73*(May 2009), 1–18.

Read, S., Sarasvathy, S. D., Dew, N., & Wiltbank, R. (2016). Response to Arend et al: Co-creating effectual entrepreneurship research. *Academy of Management Review*, *41*(3), 528–536.

Read, S., Song, M., & Smit, W. (2009). A meta-analytic review of effectuation and venture performance. *Journal of Business Venturing*, *24*(6), 573–587. https://doi.org/10.1016/j.jbusvent.2008.02.005

Reimer, B. (1996). Qualitative research and the post-positivist mind. *Bulletin of the Council for Research in Music Education*, *130*, 123–126.

Reuber, A. R., Fischer, E., & Coviello, N. (2016). Deepening the dialogue: New directions for the evolution of effectuation theory. *Academy of Management Review*, *41*(3), 536–540.

Reymen, I. M. M. J., Andries, P., Berends, H., Mauer, R., Stephan, U. T. E., & Burg, E. V. A. N. (2015). Understanding dynamics of strategic decision making in venture creation: A process study of effectuation and causation. *Strategic Entrepreneurship Journal*, *9*, 351–379. https://doi.org/10.1002/sej

Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. NewYork: Crown Business.

Robinson, O. C. (2014). Sampling in interview-based qualitative research : A theoretical and practical guide. *Qualitative Research in Psychology*, *11*(1), 25–41. https://doi.org/10.1080/14780887.2013.801543

Rosenbusch, N., Brinckmann, J., & Bausch, A. (2011). Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. *Journal of Business Venturing*, *26*(4), 441–457. https://doi.org/10.1016/j.jbusvent.2009.12.002

Rosenkopf, L., & Nerkar, A. (2001). Beyond local search: Boundary-spanning, explora- tion, and impact in the optical disc industry. *Strategic Management Journal*, (22), 287–306.

Runping, G. U. O. (2016). An Empirical study on effectuation, knowledge acquisition and entrepreneurial capability of new ventures. *Journal of Management Science*, *3*(2).

Saldana, J. (2009). *The coding manual for qualitative researchers*. London: Sage.

Sandelowski, M. (1993). Rigor or rigor mortis: The problem of rigor in qualitative research revisited. *Advances in Nursing Science*, *16*(2), 1–8.

Sandelowski, M., Holditch-Davis, D., & Harris, B. G. (1992). Using qualitative and quantitative methods: the transition to parenthood of infertile couples. In J. F. Gilgun, K. Daly, & G. Handel (Eds.), *Qualitative methods in family research*. Newbury Park, CA: Sage.

Santos, F. M., & Eisenhardt, K. M. (2009). Constructing markets and shaping boundaries: entrepreneurial power in nascent fields. *Academy of Management Journal*, *52*(4), 643–671.

Sarason, Y., Dean, T. J., & Dillard, J. F. (2006). Entrepreneurship as the nexus of individual and opportunity: A structuration view. *Journal of Business Venturing*, *21*(3), 286–305.

Sarason, Y., Dillard, J. F., & Dean, T. J. (2010). How can we know the dancer from the dance? *Journal of Business Venturing*, *25*(2), 238–243.

Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, *26*(2), 243–263.

Sarasvathy, S. D. (2002). Entrepreneurship as economics with imagination. *Ruffin Series in Business Ethics*, *3*, 95–112.

Sarasvathy, S. D. (2004). Making it happen: Beyond theories of the firm to theories of firm design. *Entrepreneurship Theory and Practice*, *28*(6), 519–532.

Sarasvathy, S. D. (2008). *Effectuation: Elements of entrepreneurial expertise*. (S. Venkataraman, Ed.), *SciencesNew York* (Vol. 2010). Edward Elgar. Retrieved from http://books.google.de/books?hl=de&lr=&id=Ve0_8nJcOD0C&oi=fnd&pg=PR11&dq=effectuation&ots=m2EP2eW8PJ&sig=6p5s44WbpjSfNUVK8L42J1Ni0vY

Sarasvathy, S. D., & Dew, N. (2005). New market creation through transformation. *Journal of Evolutionary Economics*, *15*(5), 533–565. https://doi.org/10.1007/s00191-005-0264-x

Sarasvathy, S. D., & Dew, N. (2008). Effectuation and over-trust: Debating Goel and Karri. *Entrepreneurship: Theory and Practice*, *32*(4), 727–737.

Sarasvathy, S. D., Dew, N., Velamuri, S. R., & Venkataraman, S. (2003). Three views of opportunity. In Z. J. Acs & D. B. Audretsch (Eds.), *Handbook of entrepreneurship research* (pp. 141–160). Dordrecht, NL: Kluwer.

Sarasvathy, S. D., Kumar, K., York, J. G., & Bhagavatula, S. (2014). An effectual approach to international entrepreneurship: Overlaps, challenges, and provocative possibilities. *Entrepreneurship Theory and Practice*, *38*(1), 71–93.

Schaefer, K., Corner, P. D., & Kearins, K. (2015). Social, environmental and sustainable entrepreneurship research: What is needed for sustainability-as-flourishing? *Organization & Environment*, *28*(4), 394–413. https://doi.org/10.1177/1086026615621111

Schaltegger, S., & Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: Categories and interactions. *Business Strategy and the Environment*, *20*, 222–237.

Schaper, M. T. (2016). Understanding the green entrepreneur. In M. T. Schaper (Ed.), *Making ecopreneurs: developing sustainable entrepreneurship* (2nd ed., pp. 7–20). London and New York: Routledge.

Schlange, L. E. (2007). STAKEHOLDER PERCEPTION IN SUSTAINABLE ENTREPRENEURSHIP : THE ROLE OF MANAGERIAL AND ORGANIZATIONAL COGNITION, (July).

Schulz, M., Urbig, D., & Procher, V. (2016). Hybrid entrepreneurship and public policy: The case of firm entry deregulation. *Journal of Business Venturing*, *31*(3), 272–286.

Schwandt, T. A. (1994). Constructivist, interpretivist approaches to human inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. London: Sage.

Scopelliti, I., Cillo, P., Busacca, B., & Mazursky, D. (2014). How do financial constraints affect creativity? *Journal of Product Innovation Management*, *31*(5), 880–893.

Senyard, J., Baker, T., Steffens, P., & Davidsson, P. (2014). Bricolage as a path to innovativeness for resource-constrained new firms. *Journal of Product Innovation Management*, *31*(2), 211–230. https://doi.org/10.1111/jpim.12091

Shane, S. (2003). *A general theory of entrepreneurship: The individual-opportunity nexus*. UK: Edward Elgar Publishing.

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, *25*(1), 217–226.

Shepherd, D. A., & Patzelt, H. (2011). The new field of sustainable entrepreneurship: Studying entrepreneurial action linking "What is to be Sustained" with "What is to be developed." *Entrepreneurship Theory and Practice*, *35*(1), 137–163. https://doi.org/10.1111/j.1540-6520.2010.00426.x

Shepherd, D. A., & Patzelt, H. (2017). Researching Entrepreneurships ' Role in Sustainable Development. In D. A. Shepherd & H. Patzelt (Eds.), *Trailblazing in Entrepreneurship: Creating new pathsntrepreneurship: Creating new paths*. Cham, Switzerland: Palgrave Macmillan. https://doi.org/10.1007/978-3-319-48701-4

Shepherd, D. A., Patzelt, H., & Baron, R. A. (2012). "I Care about nature, but ...": Disengaging values in assessing opportunities that cause harm. *Academy of Management Journal*, *56*(5), 1251–1273. https://doi.org/10.5465/amj.2011.0776

Short, J. C., Ketchen, D. J., Shook, C. L., & Ireland, R. D. (2010). The concept of "'Opportunity'" in entrepreneurship research: Past accomplishments and future challenges. *Journal of Management*, *36*(1), 40–65. https://doi.org/10.1177/0149206309342746

Smolka, K. M., Verheul, I., Burmeister-lamp, K., & Heugen, P. P. M. A. . (2016). Get it together! Synergistic effects of causal and effectual decision-making logics on venture performance. *Entrepreneurship Theory and Practice*, 1–34. https://doi.org/10.1111/etap.12266

Spence, M., Gherib, J. B. B., & Biwole, V. O. (2011). Sustainable entrepreneurship : Is entrepreneurial will enough ? A North – South comparison. *Journal of Business Ethics*, *99*, 335–367. https://doi.org/10.1007/s10551-010-0656-1

Stake, R. E. (1995). *The art of case study research*. Sage.

Stake, R. E. (2005). Qualitative case studies. In *The SAGE handbook of qualitative research* (3rd ed., pp. 443–467). London: Sage Publications, Inc.

Stenholm, P., & Maija, R. (2016). Passionate bricoleurs and new venture survival. *Journal of*

Business Venturing, *31*(5), 595–611.

Stevenson, H. H., Roberts, M. G., & Grousbeck, H. I. (1985). *New business ventures and the entrepreneur*. Irwin Inc, Homewood.

Stokes, C. S., & Miller, M. K. (1985). A methodological review of fifty years of research in “Rural Sociology.” *Rural Sociology, 50*(4), 539–60.

Stokes, P. D. (2007). Using constraints to generate and sustain novelty. *Psychology of Aesthetics, Creativity, and the Arts 2*, 107–113.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Thousand Oaks, CA: Sage Publications, Ltd.

Stubbs, W. (2017). Sustainable entrepreneurship and B corps. *Business Strategy and the Environment*, *26*(3), 331–344.

Suddaby, R. R. (2014). Why theory? *Academy of Management Review*, *39*(4), 407–411.

Suddaby, R. 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), 1–10.

Sull, D. (2004). Disciplined entrepreneurship. *MIT Sloan Management Review*, *46*(1), 71–77.

Tang, J., Kacmar, K. M. M., & Busenitz, L. W. (2012). Entrepreneurial alertness in the pursuit of new opportunities. *Journal of Business Venturing*, *27*(1), 77–94.

Terwiesch, C., & Ulrich, C. (2009). *Innovation tournaments: Creating and selecting exceptional opportunities*. Boston, MA: Harvard Business School Press.

Thomke, S. H. (1997). The role of flexibility in the development of new products: An empirical study. *Research Policy*, *26*, 105–119.

Thomke, S. H., von Hippel, E., & Franke, G. R. (1998). Modes of experimentation: An innovation process—and competitive—variable. *Research Policy*, *27*(3), 315–332.

Thompson, N., Kiefer, K., & York, J. G. (2011). Distinctions not dichotomies: Exploring social, sustainable and environmental entrepreneurship. In *Social and sustainable entrepreneurship: Advances in entrepreneurship, firm emergence and growth* (Vol. 13, pp. 201–229). Emerald Group Publishing Ltd. https://doi.org/10.1108/S1074-7540(2011)0000013012

Tilley, F., & Parrish, B. D. (2006). From poles to wholes: Facilitating an integrated approach to sustainable entrepreneurship. *World Review of Entrepreneurship Management and Sustainable Development*, *2*(4), 281–294. https://doi.org/10.1504/wremsd.2006.010214

Tracy, S. J. (2010). Qualitative quality: Eight “Big-Tent” criteria for excellent qualitative research. *Qualitative Inquiry*, *16*(10), 837–851.

Turner, D. W. (2010). Qualitative interview design: A practical guide for novice investigators. *The Qualitative Report*, *15*(3), 754–760.

Ucbasaran, D., Shepherd, D. A., Lockett, A., & Lyon, S. J. (2013). Life after business failure: The process and consequences of business failure for entrepreneurs. *Journal of Management*, *39*(1), 163–202. https://doi.org/10.1177/0149206312457823

Upton, D. M. (1995). Flexibility as process mobility: The management of plant capabilities for quick response manufacturing. *Journal of Operations Management*, *12*(3), 205–224.

Van Stel, A., Carree, M., & Thurik, A. R. (2005). The effect of entrepreneurial activity on national economic growth. *Small Business Economics*, *24*(3), 311–321.

Venkataraman, S., Sarasvathy, S. D., Dew, N., & Forster, W. R. (2012). Reflections on the 2010 AMR decade award: Whither the promise? Moving forward with entrepreneurship as a science of the artificial. *Academy of Management Review*, *37*(1), 21–33.

Vermeire, J. A. L., & Bruton, G. D. (2016). Entrepreneurial opportunities and poverty in sub-Saharan Africa: A review & agenda for the future. *Africa Journal of Management*, *2*(3), 258–280. https://doi.org/10.1080/23322373.2016.1206803

Voss, G. B., Sirdeshmukh, D., & Voss, Z. G. (2008). The effects of slack resources and environmentalthreat on product exploration and exploitation. *Academy of Management Journal*, *51*(1), 147–164.

Wassmer, U., Li, S., & Madhok, A. (2017). Resource ambidexterity through alliance portfolios and firm performance. *Strategic Management Journal*, *38*(2), 384–394.

Webb, J. W., Tihanyi, L., Ireland, R. D., & Sirmon, D. G. (2009). You say illegal, I say legitimate: Entrepreneurship in the Informal Economy. *Academy of Management Review*, *34*(3), 492–510.

Webster, S., Lewis, J., & Brown, A. (2014). Ethical considerations in qualitative research. In J. Ritchie, J. Lewis, C. M. Nicholls, & R. Ormston (Eds.), *Qualitative research practice: A guide for social science students and researchers*. Los Angeles/London/Singapore/New Delhi/Washington DC: Sage.

Welter, C., & Kim, S. (2018). Effectuation under risk and uncertainty: A simulation model. *Journal of Business Venturing*, *33*(1), 100–116.

Welter, C., Mauer, R., & Wuebker, R. J. (2016). Bridging behavioral models and theoretical concepts: Effectuation and bricolage in the opportunity creation framework. *Strategic Entrepreneurship Journal*, *10*(1), 5–20. https://doi.org/10.1002/sej

Welter, F. (2011). Contextualizing entrepreneurship: Conceptual challenges and ways forward. *Entrepreneurship Theory and Practice*, *35*(1), 165–184. https://doi.org/10.1111/j.1540-6520.2010.00427.x

Wernerfelt, B., & Karnani, A. (1987). Competitive strategy under uncertainty. *Strategic Management Journal*, *8*, 187–194.

Whetten, D. A. (1989). What constitutes a theoretical contribution? *The Academy of Management Review*, *14*(4), 490–495. https://doi.org/10.2307/258554

Whetten, D. A. (2009). An examination of the interface between context and theory applied to the study of Chinese organizations. *Managemement and Organization Review*, *5*(1), 29–55. https://doi.org/10.1111/j.1740-8784.2008.00132.x

Wiklund, J., Davidsson, P., & Delmar, F. (2003). What do they think and feel about growth? An expectancy-value approach to small business managers' attitudes toward growth. *Entrepreneurship Theory and Practice*, *27*(3), 247–270. https://doi.org/10.1111/1540-8520.t01-1-00003

Wiklund, J., & Shepherd, D. A. (2003). Aspiring for, and Achieving Growth: The

Moderating Role of Resources and Opportunities. *Journal of Management Studies*, *40*(8), 1919–1941. https://doi.org/10.1046/j.1467-6486.2003.00406.x

Wiklund, J., & Shepherd, D. A. (2005). Entrepreneurial orientation and small business performance: a configurational approach. *Journal of Business Venturing*, *20*(1), 71–91.

Williamson, O. E. (1979). Transaction–cost economics: The governance of contractual relations. *Journal of Law and Economics, 22*(2), 233–261.

Wiltbank, R., Dew, N., Read, S., & Sarasvathy, S. D. (2006). What to do next? The case for non-predictive stratgey. *Strategic Management Journal*, *27*(10), 981–998.

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), 116–133. https://doi.org/10.1016/j.jbusvent.2007.11.004

World Commission on Environment and Development, (WCED). (1987). *Our common future*. New York: Oxford University Press.

Wright, M., & Zahra, S. A. (2011). The other side of paradise: Examining the dark side of entrepreneurship. *Entrepreneurship Research Journal*, *1*(3), 1–5. Retrieved from http://www.bepress.com/erj/vol1/

Xavier, S. R., Kelley, D. J., Kew, J., Herrington, M., & Vorderwülbecke, A. (2013). *The Global Entrepreneurship Monitor. 2012 Global Report, GEM 2012*.

Yin, R. K. (2009). *Case study research: Design and methods*. *Essential guide to qualitative methods in organizational research* (4th ed., Vol. 5). Thousand Oaks, CA: Sage Publications. https://doi.org/10.1097/FCH.0b013e31822dda9e

Yin, R. K. (2015). *Qualitative research from start to finish*. New York, NY: Guilford Publications.

York, J. G., & Venkataraman, S. (2010). The entrepreneur–environment nexus: Uncertainty, innovation, and allocation. *Journal of Business Venturing*, *25*(5), 449–463. https://doi.org/10.1016/j.jbusvent.2009.07.007

Zahra, S. A. (2007). Contextualizing theory building in entrepreneurship research. *Journal of Business Venturing*, *22*(3), 443–452. https://doi.org/10.1016/j.jbusvent.2006.04.007

Zahra, S. A., Gedajlovic, E., Neubaum, D. O., & Shulman, J. M. (2009). A typology of social entrepreneurs: Motives, search processes and ethical challenges. *Journal of Business Venturing*, *24*(5), 519–532.

Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: A review, model and research agenda. *Journal of Management Studies*, *43*(4), 917–955.

Appendix: Practical considerations

Budget

ITEM	Amount
Communication	$ 700
Transport	$ 500
Accommodation	$ 500
Food	$ 500
Research Assistants	$ 1,500
Stationery	$ 500
Text books	$ 200
Research permit	$ 300
Conference travel, registration, feeding and hotel	$ 3,700
Dissertation printing and binding	$ 1,000
Data gathering equipment	$ 200
TOTAL	$ 9,600

Appendix: Interview guide

Questions for entrepreneur

I am conducting research on sustainable entrepreneurship and trying to find out how you started and run this type of firm. The interview is expected to last about an hour and will improve on the understanding of the nature of this type of enterprise and how they are setup. Your participation is voluntary and you can withdraw at any time without penalty. Of course all data will be kept confidential. If you have any concerns, please contact me or my supervisor. Our details are provided below.

Samuel Dawa	Dr. Jonathan Marks
dawa@mubs.ac.ug	marksj@gibs.co.za
+256752642040	+27214815400

______________________ ______________________

Interviewer's Signature Respondent's Signature

Sustainable entrepreneurship

1. What are your firm's objectives?
    a. How do they make your firm different from others?
2. Why did you choose to engage in this type of enterprise?
3. What are your experiences of the different aspects, that is social, environmental and economic, of your business?
4. What would you like to change about your firm's performance in each of these aspects?

Effectuation

5. Tell me the story of how you started this firm?
6. What did you set out initially to do when you started this firm?
    a. How has this changed over time?
    b. Why do you think it has changed?
7. What challenges and opportunities did you encounter as you started the firm?
    a. How did you react to these?
    b. How did you overcome the challenges?
        i. If not how are you coping with these challenges?
8. What skills did you have to utilise to start this firm?
    a. How did you acquire these skills?
    b. How important were these skills when starting this enterprise?
9. Did you have to engage with other people to start this business?
    a. If yes, tell me about your relationship with these people and how they helped you in starting this business

Thank you for taking the time to go respond to my questions. To further refine the findings, it is necessary for me to speak to members of the community within which you operate, your staff, suppliers and customers. This is to request for your permission for me to approach these stakeholders to get a more complete view of the phenomena I am studying.

Questions for staff

I am conducting research on sustainable entrepreneurship and trying to find out how this type of firm was started and is run. The interview is expected to last about an hour and will improve on the understanding of the nature of this type of enterprise and how they are setup. Your participation is voluntary and you can withdraw at any time without penalty. I have requested for permission to approach you from Firm X and they have no objection to this. Of course all data will be kept confidential. If you have any concerns, please contact me or my supervisor. Our details are provided below.

Samuel Dawa	Dr. Jonathan Marks
dawa@mubs.ac.ug	marksj@gibs.co.za
+256752642040	+27214815400

______________________	______________________
Interviewer's Signature	Respondent's Signature

Staff

1. Why did you choose to work for this firm?
2. Tell me about your experience of working for this firm
3. How does working for this firm influence your perception of your contribution to the community and the environment through bettering the lives of people and preserving nature?

Questions for suppliers

I am conducting research on sustainable entrepreneurship and trying to find out how this type of firm was started and is run. The interview is expected to last about an hour and will improve on the understanding of the nature of this type of enterprise and how they are setup. Your participation is voluntary and you can withdraw at any time without penalty. I have requested for permission to approach you from Firm X and they have no objection to this. Of course all data will be kept confidential. If you have any concerns, please contact me or my supervisor. Our details are provided below.

Samuel Dawa	Dr. Jonathan Marks
dawa@mubs.ac.ug	marksj@gibs.co.za
+256752642040	+27214815400

____________________ Interviewer's Signature

____________________ Respondent's Signature

Suppliers

1. In what way was does this firm's objectives influence your decision to supply them?
2. Describe how your personal experience of supplying this type of firm differs from supplying other firms?
3. What challenges have you encountered when supplying this firm?

Questions for customers

I am conducting research on sustainable entrepreneurship and trying to find out how this type of firm was started and is run. The interview is expected to last about an hour and will improve on the understanding of the nature of this type of enterprise and how they are setup. Your participation is voluntary and you can withdraw at any time without penalty. I have requested for permission to approach you from Firm X and they have no objection to this. Of course all data will be kept confidential. If you have any concerns, please contact me or my supervisor. Our details are provided below.

Samuel Dawa	Dr. Jonathan Marks
dawa@mubs.ac.ug	marksj@gibs.co.za
+256752642040	+27214815400

______________________ ______________________

Interviewer's Signature Respondent's Signature

Customers

1. What about this firm influences your buying decisions?
2. What are the challenges of doing business with this firm?
3. How much more would you like/have liked the firm to do?

Questions for community

I am conducting research on sustainable entrepreneurship and trying to find out how this type of firm was started and is run. The interview is expected to last about an hour and will improve on the understanding of the nature of this type of enterprise and how they are setup. Your participation is voluntary and you can withdraw at any time without penalty. I have requested for permission to approach you from Firm X and they have no objection to this. Of course all data will be kept confidential. If you have any concerns, please contact me or my supervisor. Our details are provided below.

Samuel Dawa	Dr. Jonathan Marks
dawa@mubs.ac.ug	marksj@gibs.co.za
+256752642040	+27214815400

____________________	____________________
Interviewer’s Signature	Respondent’s Signature

Community

1. Tell me about your experiences of having a firm like X operating in this area?
2. What aspects of this firm are you most happy with?
3. What threats does a company like X pose to your community?
4. In what way is X firm valued by the community, and why?

Appendix: Case descriptions

Sustainable entrepreneur case 1: TFT, Musaz

TFT is a firm located in the Kawempe division of Kampala City in Uganda. The firm engages in the manufacture of a wide range of items including sanitary pads, incinerators and compressed blocks for the manufacture of low cost housing. This description details how the effectuation constructs are manifested in the case.

The firm was started by Musaz as a result of successfully responding to a challenge to design an affordable sanitary pad. The development organization, USAID was looking to have this product made to reduce school age going girls' absenteeism rates.

The proprietor of the firm met the criteria set out that was to design a product using locally available machinery and inputs and at a price less than 30 US cents.

After successfully designing the product he was urged to go commercial. Being a university professor with no entrepreneurial experience he was hesitant. In a demonstration of pre-commitments, he was however approached by another development partner, UNHCR that offered to purchase a sizeable amount of the pads he manufactured on condition he setup a plant in one of their refugee settlements and employed the refugees. Another pre-commitment eh obtained was from the government of Uganda that urged him to open another plant in a separate refugee settlement. He also attracted help from GIZ the German development organization to improve and modify his equipment. UNHCR also undertook to source for him raw materials in form of used office paper that is used in the manufacture of the pad. The entrepreneur also entered an understanding with the city authorities to use papyrus plants from the neighbouring wetlands. He also uses slam dwellers as suppliers of the processed papyrus that is raw material for the pad.

In the beginning he was amenable to a number of partners who sought out his custom but as his partner base grew he became a little more averse to taking on risks. For example, in a show of diminishing tolerance for loss a Pentecostal church that operated in the North of the country was facing challenges in consuming pads that were manufactured in their area and he elected to shut down operations if they did not do more to meet their end of the bargain. In the past he said he would have had them sell the excess in another market around the country.

Musaz states that he is always on the lookout for new ideas. He states that considering that he develops his own machinery he is always trying to make them better. He always looks out for cheaper ready available raw materials that can make his pad better and yet affordable. He had an ongoing experiment in his office that showed how his pads are biodegradable. It was an experiment that was to provide the city authorities with evidence that his pad was a solution to the problem of disposal of imported pads. These pads were causing the blockage of sewage pipes and the rapid filing up public latrines as they tended to absorb a lot of fluid and expand clogging the sewage pipes and filling the latrines faster than usual.

Sustainable entrepreneur Case 2: Eco Solutions, Ros

Eco Solutions is a manufacturing firm operating in Kampala's Rubaga division. Founded and run by Ros the firm manufactures a number of environmentally friendly equipment with the flagship product being the eco stove. This description details how the effectuation constructs are manifested in this case.

The eco stove is a cooking stove that uses volcanic stones as the cooking fuel. These stones are able to burn for long but require a fanning mechanism to enable the flames burn hotter. This requirement turned out to be a major challenge. She considered the use of motors driven by the grid power but the unstable power supply and sometimes absence of power in rural areas ruled out this option. Another option she considered was to have an individual manually fanning the stones, but from the stand point of seeking the liberation of the woman user she disregarded the idea. It was then that she considered a solar power fanning mechanism which turned out to be appropriate for this context.

Ros arrived at the idea of the eco stove while she was working in the United Kingdom. Her brother who was at the time working in the mining sector in the UK shared his technical knowledge with her and her interest was piqued with the possibility of her helping the rural woman who had to travel long distances in search of cooking fuel.

She started with technical support from her brother and other family financial support. Later on she would get further pre-commitments from financial institutions that undertook to finance the purchases on behalf of customers. The stove is quite expensive but through her partnership with a number of financial institutions loan products have been developed that enable poor people take the stoves on hire purchase with the stove as collateral. She has also attracted pre-commitments from the National Housing Corporation who have undertaken to have the stoves built into their properties as a way to increase the value of the property.

Ros states that she is always on the lookout for new opportunities. She will not hesitate to destroy or break a finished product for as long as she is informed that it can be improved. She is currently experimenting with a number of products built on the same technology platform as the Eco stove. She has developed a brooder for keeping chicks warm. She also has a number of ovens that she has developed and has also developed a line of industrial products for schools and restaurants. She is also experimenting with higher capacity solar panels and batteries so that not only can the stove cook but it should provide light, charge phones and play a radio.

The social benefit of this she says will increase the length of the productive day for the rural woman. She also states that the stove has health benefits as it has hardly any emissions. It also frees up time for the woman who would have to walk long distances in search of fire wood, time that she spends with her family instead.

Sustainable entrepreneur Case 3: KWI, Bened

KWI is a small firm that deals making products from used drinking straws. Bened the proprietor lives in a slum area where these straws used to be disposed of. The following description details how the effectuation constructs are manifested in the case.

She had recently retired from paid employment and was struggling to make a livelihood. In one of the village cleaning exercises she intuitively picked a pile of straws. She says he had had a dream a while back in which she was told to do just that. She took the straws home, bought a small amount of detergent, washed the straws and then started weaving them into ‘something’. The amount she spent on the detergent and the water was small and she was not bothered that she didn’t know what exactly she wanted to do with the straws.

She says a passer-by noticed what she was doing and offered to buy it when she was done. From then on she realised that she could do this as a business. She then made a number of products that she displayed at trade shows and through this she caught the interest from a number of individuals and firms that sought to partner with her. Some offered her training, others machinery while others offered her access to international markets.

In all her endeavours she says she has been trying a number of things, learning as she goes how to do the business and involving her community as suppliers and employees in her business. Today the area that she lives and a lot of Kampala is devoid of the drinking straws as she has agents that collect and supply her firm with the straws.

In her quest to improve her product she has had to experiment with a number of machines and partnerships. The machine to straighten the straws has been a challenge to come by. She has partnered with NGOs, government departments, universities and artisans to develop a workable solution. All this has been in vain. But with every failure she has learnt more and what a better machine should do. She is currently considering the idea of a trip to China to engage with machine makers in China.

Benedictor previously worked for the Central Bank of Uganda as a senior note examiner. After 23 years of service she was advised by a doctor to leave the job because she had developed a problem with her spinal code 2001. On resigning she used her gratuity to pay for her children’s education and to complete the house she currently lives in. When the money ran out for 6 years she depended on handouts from her children which were small and sometimes irregular. In 2006 she got a dream where she was asked to stop lamenting and go start collecting straws.

Living in a slum area they used to clean their surroundings every last Saturday of the month. On that particular Saturday she joined her neighbours in the cleaning exercise and right next to a bar she saw a pile of straws which reminded her of her dream. She picked up the straws took them home bought two jerricans of water and a sachet of detergent and washed them.

She started weaving a mat that a by passer came, admired and booked. On finishing the mat it was bought at 7,000/=after having spent 500/=. 3 days later she was encouraged by an acquaintance who she shared her story with to continue in this as a job. Others suggested to her to make earrings, belts and modify shoes using the used straws. Benedictor attributes her success to the Holy Spirit according to her Roman Catholic belief. She says people doubt her when she reveals this claiming she is averting competition. Benedicta faced stiff opposition from her children and friends who were opposed to the idea of her dealing with 'garbage'. Some even called her mad for working with straws which at the time were considered to be rubbish.

In 2008 Benedictor got an award from UN-Habitat for recycling straws. An official from the International Trade Centre in Italy got a sample of her product and 3 others bought a piece of several meters of weaved straw from Benedictor. They took it to Italy and made a chair, shoes and tablemats with the piece. When the gentleman returned he showed her how to make tablemats. He thereafter gave her an order for 1,000 shopping bags. She declined the order stating that the manual method they were using to straighten the straws was labour intensive and took long. He approached the Uganda Export Promotion Board who urged me to take on the order. She explained her reservations but the man offered $8,000 to have 1,000 shopping bags done in 6 months. They only completed the order after 8 months by which time the customer was no longer interested in the bags.

Key in Benedictor's inability to deliver was the lack of a machine to straighten the straws. Internet searches for such a machine yielded no results. I tried the local fabricators in Katwe in Kampala. I paid them 1.5million shillings, money that had been given to me by the country's president but even after 2 years they were unable to come up with a working model. She was invited to the annual trade show of the Uganda Manufacturers Association and met a young man who promised to deliver a machine in 2 months. He did so and charged me 8.5m/=. I financed this using a $2,500 cash award from Vital Voices and borrowed the remainder from Centenary Bank. The machine worked and failed after 3 months short of the 6 months' warranty period but new money demands from the manufacturer soured their relationship and he was unable to repair it.

Benedicta approached the Private Sector Foundation and asked for help to acquire such a machine and she was facilitated to attend a conference in India where she made a pitch for this type of machine. This generated interest and she settled on one potential supplier. He agreed to supply it at $5,000. So she went back to Uganda and started working her networks seeking the funds until Uganda Export Promotion Board accepted to foot the bill. Despite operational shortcomings, she accepted to have the machine imported hoping to have it modified with local engineers. The machine was brought in 2011 and it was taken to Uganda Industrial Research Institute. Unfortunately, there was no budget to undertake the modification. She used it in its state and soon the parts started wearing out and she would take them to the local fabricators to repair till she could do it no more as new parts were needed. She convinced the Export Promotion Board to release the machine to her and got a quotation to have it repaired which bill of 3,200 pounds they declined to foot. Later that year she was presented with an award in the USA where she made a pitch to a number of people including the President of Advocacy for project. She also met professors and students from Georgetown University who agreed to have a competition to design such a machine. She also approached Vital Voices, a women group in the USA where she is a member who also offered to look out for such a machine. Every year this group sends an intern to work with Benedicta's firm and this year the fourth they are sending someone they sent an email saying that they had found one such machine that could meet her needs. Unfortunately, the machine is unable to perform the task as she would have liked it to. She is now considering making contacts with the Chinese to devise a solution.

So despite being recognised nationally and internationally Benedictor is unable to undertake her activities to her full potential. She is unable to take on big orders but gladly handles orders of a few hundreds.

Benedicta has trained 734 women from Gulu tax centre in Northern Uganda, Busia in Eastern Uganda, and the surrounding areas of Kampala but few of the trained are able to fully exploit the skill because of difficulty in straightening the straws. Because of the manual nature of operations, the product tends to be expensive.

Benedicta attributes her weaving skills to her local culture where she says it is usual for a lady to learn how to weave mats at an early age and to her it is not a complicated process. The real task is the designing of the product. She has never undertaken any training in design but through exposure and customer feedback she has improved her product remarkably. To quote her, "I can't really explain how I improved my product, if you see the product we begun with and where we are , we are very far. Everybody is admiring our product".

Benedicta states that when she started out she had no idea what exactly she wanted to do. Motivated by her dream she just sought to engage in a money making venture. With the straw idea in mind she realised that the venture would do more than just earn her money. She observed that children in the slums were using the dirty straws to drink water and ridding the environment of these straws would also set aside a potential health hazard. She also observed that at the time the area she lived in had regular outbreaks of cholera and diarrhoea which may have been transmitted to the children in this way. Through engaging a number of her neighbours in the same exercise she realised that she could employ them and have others start their own enterprises. Soon in her neighbourhood there was hardly any straw in the dumping site as more and more residents realised their value and so she had to seek straws from elsewhere.

Benedicta is employing 42 people mainly women and changing their lives, through affording to send their children to school, buying their own dresses and cosmetics.

Changes Benedicta would like to effect in her business include the desire to build a model training centre for drinking straw products. So far she has secured the land and an approved plan. Her main target will be training women who she feels will have a larger impact on their own lives and that of their families

Other products Benedicta is working with include modification of the palm leaves mat using palm leaves to make shopping bags, clutch bags and coin bags. Benedicta has also benefitted from her foreign contacts who have made specific requests for products made using black straws. Black straws are not on the Ugandan market and so the customer couriered some to Benedicta and now she uses the excess to enhance her product.

She hopes to make a number of products in the future including ceilings and carpets. While the lack of a machine is a limiting factor she also needs specific customer orders such as a request for a car mat so that she can create the customised product.

Sustainable entrepreneur Case 4: SSAS, Celes

Sights and Sounds Africa Ltd is a sustainable tourism firm operating in Uganda. Their main activities are around the Mityana area where the focus of their sustainable entrepreneurship is. The following description details how the effectuation constructs are exhibited in the case.

Celes the entrepreneur has a strong educational and work background in the tourism sector which provided him a deep understanding of the workings of the industry.

SSAS was formed after the proprietor Celes shared his worries about the place he hailed from. The residents in the place in Mityana were dependent on hunting. Yet the area they lived in was not a wildlife protected area. He worried that soon the animals would be wiped out and his people would have no source of livelihood.

It was against this background that he developed an ingenious product. It entailed attracting tourists to the area to observe the people 'hunt' animals without having to kill the animals. The trapped animals were freed or not trapped at all. In return the tourists would pay for the experience and buy local artefacts. But first he relied on pre-commitments from area local leaders to cease the hunting. A number of mistakes were made in the process but he learnt how to go around them through devising cooperative strategies to appease the locals. He also depended on his contacts to drive tourists to his website. He also engaged with a friend of his to develop a professional website. He also drew pre-commitments from other players in the sector who agreed that they would use synergies to benefit from each other. To start he used $2,000 money that his other business had earned. He was not afraid of losing this money since it was a profit and was really his money.

Along the way he contacted a number of industry players and policy makers to understand the market and feed new ideas to his business. He tried a number of things like transporting the tourists that did not work out as he had to hire vehicles from established firms.

He is currently experimenting with new products after accessing new pre-commitments from among others the tourism police. These include night tours and walks that may not have been possible without the security provided by his partners.

He stated that the firm's major objective "is to contribute to conservation of nature and culture while helping the needy to earn a living".

They do this by delivering to local communities' clients who the local communities serve at an acceptable standard. Their operations are in the districts of Kapchorwa in Eastern Uganda, Kisoro in Western Uganda and Mityana in central Uganda. The entrepreneur stated that while their main philosophy is to enable the local community deliver a service and for the firm to charge the customer for this.

The entrepreneur went ahead to describe their activities in Mityana where he said they operate in a community of hunters who kill up to 20 wild animals a day. The area is not a wildlife protected area and so the hunting is unregulated. This has been the community's way of life since time immemorial. So SSAS approached the community leaders and proposed a tourism model that entailed letting visitors come and witness their hunting skills and participate in the activities but on condition they do not make the kill. In this way they earn money than they would have earned from selling wild game meat and the animal gets to live providing the opportunity for future tourism. He states as follows, "the benefits from our new initiative far outweigh the benefits of hunting through helping the poor earn a living but also helping the animals live but also on what we charge the visitors there is a profit for ourselves so we make a profit the community benefits and animals also gain something". In response to the question how his firm's objectives make it different compared to other firms, Celestine provided a background to the tourism industry in Uganda stating that most tour operators had not had advanced formal education, most of them having started as drivers and perceiving the value of the business to rotate around making money. Many times you find that they make a lot of money as they interact with communities but these communities are extremely poor and because of that, problems have continued to persist, poaching, human-wildlife conflict, and exploitation of labour. Further to this cases of stealing from clients are increasing with the tourism police. So we took the initiative to present ourselves as professionals, as people who are ethical and as people who also promote a holistic view of business where not only us but also the local communities earn something. We hope that through this we can start and run an enterprise that may in the future be copied by others and instil good values among practitioners.

Celestine is a graduate of tourism with a Master of Business Administration degree. For 8 to 9 years he has participated in the tourism industry as an employee, consultant as an advisor to literally all categories of stake holders, including government, tour operators, hoteliers.

His real motivation to enter this business was that he perceived himself to have a knowledge advantage over industry players. His inside knowledge of industry players through consulting and advisory services and the economic benefits of participating in this sector informed his decision to venture here in. On the other hand, he states that when he was working on another community project in Mityana it was challenging because he needed to continuously spend money on the activities. His income from consultancy services was not constant and did not permit him achieve his desired objectives in the community and so he sought a sustainable solution to helping the community. His interactions with different communities showed him that they lacked simple things like a website, a laptop which would enable better access to their customers. “I was touched by what I used to see so I said one best way I can really help here one I have to be involved and two I have to be involved in the business that makes money so that I can have a source of resources to support these guys so like that it took me about 3yrs actually pondering about this idea yes pondering and talking to different people, talking to different stake holders until about two years ago when I decided it was time to take action.” So I talked to friends of mine from Finland, France and England who were in Uganda developing the tourism master plan. I sat with them to ask them what it was that one can really do here, we talked about a number of things and this came out which prompted me to register a company. Now it is about one and half years since registration though we started effective operations in November 2013 and we are so far happy with our progress.

In response to the question why he started this enterprise, Celestine stated that he has always been interested in working with communities. He describes his work with a community in Mityana. I organised a village group into a community based organization, we provided training and started an enterprise. One of the key challenges we found was that being that they are in the village getting goods to the market or getting customers to the village was a challenge which has challenged the sustainability of the enterprise. Five years on the profit they make is really small though it has promise to cause transformation in the community. When you compare this enterprise to tourism, the customer has to visit the community and if you prepare and deliver a product at a standard that meets the expectation of the client, you almost ensure good marketing and publicity through word of mouth. A similar model has been implemented in Rwanda’s Ibyiwacu cultural village where an entrepreneur like myself organised a community and today they make a lot of money have built homes, live decently, send the children to school, a total transformation in essence. All this because somebody has been able to link this community to the market and the market in this case comes to the community, so I think that model in a way I believe is a better model. A similar model is being pursued in Buhoma community rest camp in queen Elizabeth national park in Bundibugyo district where they make up to 500million shillings a year. Compared to having village communities selling their products in the urban areas this model is much better as it has a high impact and low cost and this influenced our firm guided by the desire to be of service to the community.

Celestine says what he originally set out to do has changed. “Originally we set out to set up a tour company, have a website, business cards hoping people would come in. But when we started we realised it was very competitive and it was very tough. We had to find a way, a cheaper or a low cost high impact method of getting clients to our business. So we knew we wanted visitors to come around but we didn’t know the exact direction to take. Although at the core of our model we wanted to work with the communities so that our product is built with in communities we were not sure of the exact type of tourist we needed. Secondly because there is really no research information, we couldn’t get detailed information about the nature of business in this country because such data bases don’t exist. So somehow we had to learn as we went along. We discovered that we hadn’t thought of something that would help us get visitors even from the current tour operators in this country, he states.

Celestine states that with the social aspect of his firm his experience is that many of these communities are not oriented towards business, they know very little about businesses management, they know very little about marketing, they know very little about standards basically business coz these are usually peasants and not just peasants but subsistence farmers, getting them to believe and accept that business can be of help to them, is challenging. If you rush them they get bored because they won’t quit what they are doing immediately because they are used to digging, hunting. He cites an example of a time they had a client going to this community of hunters having made an appointment with the chairman. On getting there they were informed that the chairman had gone out to hunt having been informed by the ‘spirits’.

On the other hand, the community is not interested in sustainable growth of their ventures. They believe in spending the money they make on social events as opposed to addressing the pressing needs of everyday life like school fees.

Celestine’s experience with the environmental aspects of his firm are that many of these people have grown up in a way that revolves around their environment. So stopping them from undertaking activities such as hunting breeds resistance since they argue that their forefathers have engaged in these activities as a source of livelihood. For one to be able to change them you need to provide a good incentive which they will accept and welcome willingly. He doubts that you can successfully force them as this will create tension and that tension is not good for environment. He offers an example of one community in Lake Mburo National Park in Western Uganda that was asked to stop grazing their animals near the wildlife. In retribution the community poisoned the wild animals claiming that the authorities favoured these animals over human life. Similar conflicts have occurred in the Queen Elizabeth and Murchison Falls National parks areas. Celestine opines that whatever protective measures to the environment that are proposed should be able to provide viable incentives to the community. He again provides the example of Ibywachu village and Bugodi located on the fringes of Kibale National Park where residents are so passionate about their environment because they understand its importance to their livelihoods.

Celestine states that for the economic side of his business in the beginning earnings were low and they had to spend a lot on training the locals. He states that if the business is very small it may not survive without a remarkable level of financial stability to keep investing in the community. So in a way he adds, in the beginning as you build capacity you have to invest a lot and so the balance sheet may not look appealing but the long term economic perspective is you are able to build a reputation because visitors in this industry are very sensitive to community initiatives to environmental management so if over time you are discovered to be sensitive also many times that will give u mileage in terms of marketing. You will benefit from free marketing by people who will be talking about your firm. For us he states we are still at a stage where we are still investing in the communities so the balance sheet is not yet strong from an economic perspective.

A thing that Celestine would like to change about his firm's activities is to reduce the number of communities within which they are active. "I think one thing we did was take on several communities. From a strategic perspective that was a mistake with diversity in traditions we should have started with one and learn as many lessons and take these lessons to the next one." We would like to build on and grow with the Mityana operation because the effect of the hunters' activities on the environment is devastating and our activities here provide the potential for higher economic gain for our enterprise compared to the operations in Bwindi and Kapchorwa.

"We are happy with the direction the business is taking. A major challenge is that we need to build a sizeable market base through having a regular inflow of customers. Through this high volume of activity, we will be able to provide the community with a sizeable source of livelihood which will dissuade them from their unsustainable hunting practices."

Celestine states that their original business idea was to sell package tours like anyone else but they noticed that the market was almost saturated with a lot of specialization taking place. We therefore had to think creatively about alternative products and create our own market for these products. So from our original packages we curved out a niche that was not being served by existing firms.

He states that in the beginning they cast their net wide hoping to attract all foreign tourists visiting Uganda. But we noticed that's not how it works. You must have your target market clearly marked out. We found out that firms that have existed for a number of years are well established and could not be challenged so we changed our business model to partner with these firms that were able to advertise in foreign markets, offering value addition services to their clients for a fee that we shared with them. We sign agreements, we agree that we are not going to market our company to the visitor we simply deliver the service as the community this group will not do anything unethical. That's the way because you are getting in to the industry and you come face to face with the reality so you have to find a way and it is working for example this business of the hunters this is something that tour companies actually are finding very interesting , and many of them have organised firm tours, they have even started adding it on their itineraries and selling it to their visitors, so in the end we may not even have to go to the source markets, we market ours to the local tour operators here. I think that's how we were able to change a bit but also we have discovered that generally in Uganda we sell ecotourism, which generates 500billion dollars half of the global revenue that cultural tourism generates meaning that people are interested in cultural experiences as part of their tourism menu, and so if you package yourself appropriately you can easily get business.

Celestine states that there are several challenges they have to contend with in this line of business. He mentions the millions of websites selling tours all around the world making it hard to compete. He also cites the challenge of non-creative website developers in Uganda who are also not reliable and whose terms of payment and not favourable to a startup company with an international orientation. A friend of his who connected him to some guy in South Africa whose business is to market tourism enterprises. So he sent this guy an email who replied within hours and within days we had signed an agreement. He developed for me a working website that is fantastic, compatible to mobile gadgets and visually appealing. A second challenge he has faced is low website traffic. To contend with this he relied on his current work activities, specifically the large data sets he has access to, to study potential client behavior. Subsequently he had to liaise with individuals in key markets who could help with content development and delivery channels. Another challenge was funding. You are investing in training the locals, attracting the clients, yet if you fail on one of these fronts the whole business model may fail. On the other hand, taxes and levies for associations that you must belong to in order to gain legitimacy are quite high. The other challenge is the lack of skilled reliable manpower. Celestine says he has had an experience of a valued employee abandoning the firm to start her own after learning a lot about his enterprise. Another manpower challenge is that young people don’t want to work, you take them through what you want them to do and they abandon you after the training. To mitigate this, we are trying to get people from different professions, not exclusively tourism and train them in what we do those they are proving to be more stable like one guy I have here who is really good is a trained engineer he trained in agricultural engineering but his passion was in tourism and so he has joined us and working with us. So he believes putting together a team of reliable trustworthy individuals is important for his business’ growth.

A key skill Celestine says is important in the execution of his duties is the guiding skill. This he states is because when a visitor comes, its only you they have got in the country, you should be able to be everything to them, you have to be. You have to answer their questions, you have to be there for them, if they have any problem you have to be around, you have to be there. He acquired this skill from his previous employment as a tour guide. On top of this previous employment I also have a wealth of knowledge from study and teaching at the university. Other useful skills are negotiation and writing skills. The former is important in client interactions and the latter to sell your company and its products on the Internet. He attributes his writing skill to being a social story teller. Other key skills are team building and business management, a sense to identify an honest employee considering that clients will feed off the knowledge dispensed by the employees. He gave an example of a guide saying an Ibis is a Marabou stork birds that are native to this area and may not be available in other geographical regions and the implication such misinformation may have for the learning bird watcher. He says the business management skill is crucial for identifying opportunities and striking partnerships. He uses the example of convincing another industry player that your new product is not a threat to his company but can be integrated with his to create a symbiotic relationship.

Celestine considers communication which communication which is the writing skill mentioned earlier is crucial. You need to be able to tailor your conversation to the level of the person you are dealing with he states. If you are dealing with a tourist who is sophisticated you need to be at that level of thinking, at that level of reasoning but when you go to the community you also now have to breakdown these technical things, because for them you go and tell them conservation, what is conservation they don't know you have to breakdown these technical things to an understanding level that is fit for them. I think I don't know what that skill is but it is very important because that way you are able to fit in different stakeholder groups it's very important and I really don't know what skill that is, maybe it is communication.

Celestine also says that his firm has benefitted from engaging with a friend of his, a former student currently living in the USA. Having worked with him on the Bwindi project she helps with editing the website. She also helps in increasing the firm's presence in social media and has written a blog article that has generated visibility for the firm. She is currently forging a relationship between a US based NGO and SSAS with a view to helping an entrepreneur who works with the community to protect the environment. She is doing all this for no fee. Another he says is a British chartered marketer who has offered SSAS space on her high traffic website for $250 per year. He also mentions others who have been helpful citing examples of acquaintances who offer photographs at no charge.

Celestine went ahead to address the challenges facing the sector. He stated that the environment within which they operate is both challenging and unpredictable. He stated that tourism as an activity with an international orientation means that country politics has to conform to international standards for a country to be perceived as friendly and collaborative. He cited the anti-gay law as having tainted the image of Uganda severely affecting the tourism sector through cancellation of planned trips. He also faults the attitude of the leadership as arrogant and dismissive of the sector investing a paltry $96,000 compared to Rwanda's 5m Euros. He also mentions the unethical practice of some industry actors that discourages repeat customers and stifles word-of-mouth referrals.

Celestine these issues have having a direct impact of his firm. He states that two weeks ago he signed an agreement with a German firm that required that in the first year they would give him clients but they would have to run the tours at their cost until they are informed by the clients that they had a satisfying experience. This he attributed to a lack of trust by the German firm informed by the issues raised above.

Interestingly Celestine believes that these challenges provide an opportunity for his sustainable enterprise stating that, "it presents us as a candle in a very dark room, at a very long distance you will not see it but as it stays longer around this darkness gradually it will be seen and it will have an impact". Celestine also throws new light on the nature of partnerships in the industry stating that a remarkable number of firms are husband-wife partnerships with one spouse of Ugandan origin while the other is from another country. This he says attracts advantages including ease of registration or indigenous owned firms and access to foreign markets in this case the country of origin of the foreign spouse.

Celestine wonders about patenting his service. “This question about copyright or patent right how can I be sure that no one will copy this”, he states.

He says that he got the money to start his firm from his other business, a tourism consultancy firm. “Yeah I would say from my other business the consultancy firm because it’s been my primary source of income for a lot of time so when I get money part of it I use it in the office”, he says.

He says to start he used no more than $2,000. “My thinking was that I was not even going to get even a single client until after one year so I needed to make an investment for up to a year without earning anything back. So I looked at it from that perspective. So I could easily live without the money I spent. I believed I could lose it because one I knew I was going in to a business where I didn’t know anyone to come as a visitor, I didn’t have any contacts really so we were just going in to the unknown. So the possibility of losing yes it was there”, he says. “At the time we started we had just concluded consultancy so we had a bit of small reservoir. So getting about 2000$ to start with really wasn’t going to drain us completely so in a way we kind of pulled from a little stock pier of money so we didn’t have so much fear to lose”, he further states. Celestine further states, “the money we spent was at the level of product development, engaging the communities, engaging a few suppliers at that level. But there were other areas where we feared to go for example we started at a time when there was an opportunity to attend the ITB Berlin tourism fair. There was also an opportunity to attend the world travel market London WTM. Despite these opportunities we couldn’t spend 3000$ to attend when we had no appointment with potential clients. It was risky we could easily lose all that money. You don’t know anyone there you simply go to do what? So there we feared, but in terms of choice in fact that is the very point that shaped our decision to venture in to where we ventured. We noticed that we may not have now enough resources and have contacts to go to Europe and America to market but we knew there are colleagues here, tour operators who go to these places to market so if we developed products that these people would also help us to market and they earn a percentage and we also earn a percentage and the communities earn a percentage all of us would benefit so that is how we decided to put our efforts in such products so that eventually when we make some money as a company and have a good resource base and may be now have developed contacts we can also decide to attend the travel markets".

Celestine then states that it was this uncertain money situation that prompted him to seek these partnerships. "It was a strategy, developed as a result of having really limited money or as a result of fearing to invest in the unknown," he says. He agrees that with the limited amount of money he was willing to lose he could try out a number of business options. "We tried to take people to see the gorillas but we discovered that because we didn't own vehicles yet lodges that owned vehicles were in the same business and offered the same product at half the price we could not compete. We also have the city walk tour that we still do and I can tell you today its one of the biggest products. Like I mentioned earlier a challenge we are facing is that one of our former staff members with whom we planned everything started her own company selling exactly the same product. So to remain in business we couldn't sell the same thing that we sold so we have now sought to introduce night tours and that is attracting a lot of interest from our clientele. In this regard we are reaching out to the tourism police to sign a memorandum of understanding to further this aim. We also re investigating the possibility of marketing rural – urban tourism where people from up country locations get to visit the city. It will be a novel product with a lot of potential since 85% of the population lives in rural areas," he says.

Celestine says that he has had to engage with a number of stakeholders to further his business interests. "That is the model we use especially with employees and other people we work with. I will tell employees that I don't have a lot of money and I have to pay them so they have to be patient with me. They should be able to accept the little that we have but on the promise that should things get better there are also going to get more. So the bottom line was selling them the vision, the idea that we are moving in the right direction and things will get better. So I have always had to make promises even there is a company in India they call themselves SEO PHALAX", he says. He further states, "Yes, they are a marketing company originally they wanted to market for us our business but the idea was that we get them initially and see the results if things work out then in the future we could hire them on a retainer basis but it didn't work out. They wanted about 200$ per month and that we didn't have so we pulled out. So we went to Charlotte who I mentioned earlier".

Celestine highlights the role of trust in his business. He states as follows, "Trust between myself and the visitors is important because when a tourist visits a country through your company they have to believe that you are an honest person who will not cheat them and offer what you promised", he says. Positive feedback from others you have worked with, he opines is important in attracting future customers. He further states that trip advisor is a significant source of information on reputation of a tourism firm. He then describes the role of trust in relations with suppliers. "There is this guy in South Africa who is marketing for us. We have not met face to face. We pay him money he markets us. Yet it is possible to pay some body and they disappear", he says. Celestine then dwells on trust at the community level. "Another level of trust is with the people that you work with in the communities. They have to be sure that you are not taking advantage of them and that you will honor your promise, and that you are an ethical person who will engage them in a beneficial arrangement. "There is no shortcut about trust in this business. You can't cheat if u cheat with the media today if not you will be blacklisted everywhere", he says. "Unfortunately many of our colleagues in the industry lack trust and it is one of the things if you visit our website that we pride ourselves in. We call it honesty and integrity that's one of our values", he states.

Celestine states that through his attempt to develop a tourism product his belief in God was reinforced. "We were encouraging our guests to go and experience traditional shrines. As part of product research and development we had to go to a shrine and I had never been to a shrine before. When you listen to the sprits speak, asking questions and telling you about your without having spoken about them that reinforces my belief in God because this shows the actions of Satan", he says. On the other hand, he doesn't attribute directly his venture to God. "I wouldn't attribute what we do directly to God except for the fact that he has given us wisdom we believe that he is there he is the reason we live so he gives us the wisdom he gives us the life that we breathe he gives us everything that we have but you can't leave everything to God. You have to use what he gives u to make decisions. You have to be honest, you have to be open to people, and you should not cheat. Basically you need to have these Christian values as you do business", he says.

Celestine attributes his ability to try new products to his education and background. "I think it is both background and education. I am one person who has been self-reliant I think since I was about 14 and because I had to survive on my own and coming from a background also without resources I had to survive on the little at my disposal. So I always had to find alternative ways of surviving outside the main stream so perhaps overtime I have done over 20 businesses in the past 20 years. Many of them collapsed while I have sold others. So I think it's part of the background that I needed to look around and see. I think the education I have has given me what they call a spring, a natural spring from which I keep tapping ideas which my colleagues in the industry don’t have because many of them have not been to the same schools I have been to. While they have the work experience for me I have both the work experience and the training”, he says.

Celestine says that it is through his education and work experience that he has gotten to know a lot of people who open opportunities for his enterprise.

Sustainable entrepreneur Case 5: PETSD, Pulo

PETSD is a small firm that manufactures energy efficient cooking stoves and briquettes. Run by Pulo the founder, the firm is involved in the fabrication and insulation of the stoves. They also design the machinery for the manufacture of briquettes. The following description details how the effectuation constructs are manifested in the case.

At the start of the firm Pulo relied on community members to set up the organization. Subsequent to this she benefitted from pre-commitments from GTZ in training her and providing opportunities to market her products. To start she did not use a lot of money. She only used money she had saved. Even now she only takes orders that she is sure will not cripple the business in terms of what she has to invest. She has to deal with a number of suppliers some of who require money up front while others permit her various windows of opportunity to pay later. While PETSD has since acquired premise of its own she operated the business for a long time at her home to cut on costs. In fact up to the time of the interview a lot of the business operations were still being carried out at her place of residence. In this way she exposed the firm less through not undertaking more expensive rental properties. Her husband continued to provide her transport especially of her wares to trade shows which she said she did not have to pay for.

She continues to attend trainings around the country and is part of a number of trade shows where she says she observes what others are doing differently and listens to visitors' desires for better machinery. This openness to ideas has enabled her not only improve her stoves but also innovate new products some specific to individuals while in some cases she takes them to the open market.

She continues to experiment with reduction in heat loss, elimination of emissions and faster lighting of the stoves. Having benefitted from training by GTZ she continues to be involved in a number of related activities where she is made aware of improvements in related technologies.

The idea of PETSD was conceived and started in 2004 but was formally registered in 2007. The business' focus is on renewable energy technologies mainly concentrating on bio mass and solar energy. They manufacture solar driers for small scale farmers and cookers and ovens for both households and institutions.

Scovia is directly involved in the design aspects of the equipment. They also do modifications according to client specifications. Scovia has training in Industrial Ceramics. After her studies she worked for a company called Black Powers which was trying to improve the local cooking stoves. So she was responsible for improving the liners of the stoves and constructing the kiln for firing the liners and carbonizing briquettes. Since then she has remained in the energy field where she has thrice received training from the government's Ministry of Energy and Mineral Development in the improvement of cooking stoves. When she joined YWCA she was also trained in energy, appropriate technology and the environment and she was taken to the island of Crete in Greece for further training for a year. Later GIZ the German Development organization also got involved when they wanted to develop a new stove that could fit the cultures of the Ugandan communities. She was one of the pioneers to be trained in the rocket and shielded stove technology. She then continued in the manufacture and improvement of these technologies and is able to modify them to the client's needs. They have reduced the amount of smoke and soot and are able to make them light faster and burn longer catering for the local foods that are in this setting.

While she entered this line of business because it was what she studied in Kyambogo university she also attributes her participation in this sector to fate having first worked in Black Powers and being tasked with improving the liners and then her subsequent job in YWCA being in the department of appropriate technology, environment and energy. She later joined Integrated Rural Development Initiatives and was taken on as an energy officer until she started PETSD. "I feel that renewable energy is either part of me or I am part of renewable energy. Whenever I wake up, whenever I want to do something I think in those lines so now even if it comes as a business I am thinking in those lines this is what I can do best", she says.

"Initially I wanted to help the community in the area where we were operating," Scovia states as the reason she started PETSD. "I asked some community members to join me in the start, some did but left when they realised there were no immediate benefits like sitting allowances in past projects I had run in their area", she says. During her employment in IRDI, Scovia had run a donor-funded project on reduction of indoor pollution for maternal and child care health improvement. Eventually only two men stuck with her in the effort agreeing that if they intended to set up a business then everyone had to work. Later one of them retired due to old age and she remained with one partner. While she was still employed, her partner did a lot to help with the registration while she provided the funds to facilitate the process. They continued their operations relying a lot on the good relationships they had with other people the ministry and development organizations. They received assistance in form of trainings, attended workshops and were implementing partners for projects.

Scovia says that the products they sell today have changed greatly, the mechanisms and designs of the stoves, ovens and water heaters have changed to improve efficiency and meet client needs.

In the start PETSD had a challenge of marketing their products and they lacked the resources to do so. So they relied on word of mouth and client recommendations. Later they started using brochures which they distributed at workshops and trade fairs and eventually they also set up a website www.petsduganda.com . The website has attracted international interest and local market.

Another challenge they have faced is transportation of their products when they are going to exhibitions. She later says her husband has been instrumental in helping out, availing his pickup truck to her firm sometimes for free. Another challenge is how they produce the technology. They are using manual means which are not efficient and do not permit large scale production. They have to employ a number of people that make production expensive. Scovia believes that the partnerships she has struck along the way have been a main source of opportunities. Being a member of a number of organizations, local and regional such as East African Technology Development Network, UCEA has provided access to knowledge and opportunities of different types. Partnering with development organizations like SNV, WWF, GIZ and GIVEP helps promote PETSD as a company. PETSD has also participated in the National Environmental Management Authority activities winning the award for best exhibitor in one of the world environment day exhibitions.

PETSD currently has 4 permanent employees with a lot of the work being outsourced and temporary staff of up to 20 being hired when they have so many orders. In fact, in the coming few months she will have to hire many more staff having won two bids to supply institutional stoves with close deadlines. She will hire engineers and masons to offer support at the sites. Currently manufacturing takes place at both the Kyebando and Kyengera sites though the plan is that the Kyengera site is to be developed further since the land there is bigger and was bought specifically to set up a resource centre and manufacturing unit. Initially they were located on the Kampala-Masaka main road but expansion of the road and the sale of the land by the land lord forced them to seek their own premises especially since they were not warned by the land lord or refunded the rent they had paid. So far they have not yet built the premises as buying the land was quite expensive, but they have set up structures like the kiln. The watering trough and the shelter are a little bit expensive we might put there a little on and we start off.

The main reason why they chose that site is because it is where they started operating from and its close proximity to Kampala and Wakiso which are their main markets helps with the transport problem she mentioned earlier.

Scovia provides a unique perspective of the social contribution of her firm. “Socially, what I think the livelihood of these people where our technologies have been promoted improves a lot. Some of these people get a lot of visitors who come to see the new technology and are encouraged also to improve the other areas of their homes for display. In Rakai an area we have constructed a number of these stoves the district officials decided to use the homes with these stoves as models for other interventions such as model toilets. This is because the high levels of hygiene in the kitchens, the low cost of boiling water and ensuring safe drinking water created a more hygienic situation”, she says. She also says the absence of smoke and soot make for a healthier environment permitting women to undertake a number of activities like looking after their children while cooking.

She says from the economic standpoint her stoves reduce on the amount of fuel and the time it takes to cook. She says they light up very fast and use less charcoal or firewood and yet generate a lot of heat which is insulated within. “So users make big savings that can be used for other pressing needs”, she says.

Scovia also says they make charcoal briquettes. She says it is her daughter a university student who is directly responsible for this line of her business. She says she used to do it herself when she had just started PETSD. “We bought the machine the generator and the mortar which was fixed there because this other machine that we have the mould was to labourious. All the equipment we use for making and drying are available. We are just going to invest more in the generator and the mortar so that production is efficient”, she says.

In Nsangi she has tried to involve the community in briquette making. A few people have taken up the business but she does not buy from them the briquettes as they make their own for sale. So the community members have to look for their own markets.

When asked about the start of her business she responds, “it wasn’t so easy, there were not enough resources, we had some human resource that was me and my business partner and those who first worked with us. There wasn’t enough money though. Everything we had saved we had to put in the business. At the time of registration, the world economic crisis was affecting the economy which made it even harder. I was laid off from my job and used the little money I had to begin manufacturing and selling so that we could generate more revenue to reinvest. We first reinvested most of our earning and later started saving", she recollects. "We then had to buy the plot in Wakiso at 20million which is a lot of money", she adds. "Now we need upwards of 70million to construct and we are determined to see that through too", she remarks.

She said the money she got from her savings to start the business could have been used to do several other things that she had in mind. "Initially I could afford to invest this money in the business and not worry because I had employment. Now I had to concentrate my efforts in the business as it was my sure source of livelihood", she says.

Scovia says she had to engage with a number of stakeholders at the start of her business. From the community where she eventually ended with one partner to the metal fabricators who provided her with sheet metal on credit to the customers for who she had to reduce prices to cost price in the hope that a sale would yield recommendations to other potential clients. "Whenever we worked we had to sell and pay back our suppliers who started trusting us. So with this trust we created a good working relationship until we were able to start pre-paying for supplies. Since we are getting more efficient machines to increase production we may need that relationship again where they advance lines of credit since we have a good working relationship", she says.

Scovia says she has all her life had a dream to participate in the renewable energy sector. She says her partners' backgrounds in agriculture introduced her to the idea of renewable energy through biomass. She says all that has been changing is the way she has been participating. "The products change, the technology changes, the methods change", she says.

Scovia states that as a sustainable enterprise, all the aspects of the business are important. ""I think all of them have to be equated because all of them are really very relevant to the success of the business. If you don't handle the social aspect people will not take in our products very much the same would happen if we don't also look at the environment. The environment concerns all of us. Some people might not know that by saving on fuel we are saving our environment. Future generations will benefit and so we try to raise awareness about conservation. For economics if our clients get value for money through saving on their fuel expenses we also earn income that enables us continue doing what we are doing for social benefit and environmental conservation. So the three aspects are inseparable. Scovia says one of the biggest problems facing her community in Kyengera is access to cooking fuel. She says the predominant cooking fuels have been charcoal and firewood but the high rate of forest depletion along with the fast increase in charcoal prices is causing a crisis. “At one time the price of a bag of charcoal increased from 25,000 to 60,000 in a space of days. Today it is being sold at as much as 80,000”, she says.

Time frame

	26-Feb-14	20-May-14	July-14	25 Aug-14	1 Sep-14	08 Sep-14	15 Sep-14	22 Sep-14	29 Sep-14	06 Oct-14	13 Oct-14	20 Oct-14	27 Oct-14	03 Nov-14	10 Nov-14	17 Nov-14	24 Nov-14	1 Dec-14	8 Dec-14	22-Dec-14	15-Jan-15
Proposal Defence																					
Proposal correction																					
Ethics approval																					
MBA article submission																					
Data gathering and analysis																					
Firm 1																					
Firm 2																					
Preliminary analysis																					
Firm 3																					
Preliminary analysis																					
Firm 4																					
Preliminary analysis																					
Firm 5																					
Preliminary analysis																					
Firm 6																					
Preliminary analysis																					
Firm 7																					
Preliminary analysis																					
Firm 8																					
Detailed analysis																					
Submission of chapters and manuscript																					
Submission of preliminary findings																					
Feedback from supervisor																					
Submission of chapter 1																					
Feedback from supervisor																					
Submission of chapter 2																					
Feedback from supervisor																					
Submission of chapter 3																					

Feedback from supervisor																						
Submission of chapter 4																						
Feedback from supervisor																						
Submission of chapter 5																						
Feedback from supervisor																						
Submission of complete 1st draft																						
Feedback from supervisor																						
Subsequent draft submission																						
Journal article and conference																						
Conference preparation and paper presentation																						
Journal article preparation and submission																						