

A Model Of Transformation During The Evolution Of An
Entrepreneurial Opportunity Via Social Media

by

Abena Engmann

submitted in accordance with the requirements
for the degree of

DOCTOR OF BUSINESS LEADERSHIP

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: Professor Collins, C. Ngwakwe

October 2020

Abstract

Recently, there has been a growth in digital technology use and an upward trend in the adoption and use of social media by individuals and corporations, changing the way people communicate and interact. Despite this evolution, little is known about how the adoption of online social interaction affects entrepreneurial processes, especially opportunity evaluation. This empirical study sought to fill the gap in the literature by investigating the effect of social interaction via social media on opportunity evaluation. In reviewing the studies done on opportunity evaluation as indicated in the paper by Wood and Mckelvie (2015), it would seem that the effect of online social interaction on opportunity evaluation has not been studied and hence, to the best of the researcher's knowledge, there was no model in the literature to measure the effect.

The study used a mixed-method approach. Survey questionnaires were used to collect data from a random sample of young entrepreneurs in Ghana. The questions were evaluated with SPSS and later exported to STATA for data analysis. Factor analysis and various normality tests were performed to ensure the accuracy of the data. A total of 383 questionnaires were analysed. This was then followed by key informant interviews with 13 entrepreneurs, and the analysis done using Nvivo 11.

The main contribution of this research is the development of a model that measures the effect of online social interaction on opportunity evaluation. The study found that online social interaction helps entrepreneurs build networks which subsequently has an impact on opportunity evaluation either directly, or indirectly through mediation by resource availability. This study has made an important contribution to practice by showing the positive effect that basic tools that aid daily activities, like social media, has on entrepreneurial opportunity evaluation.

It is recommended that future research understands other factors that may facilitate the opportunity evaluation process and the extent to which those factors facilitate the opportunity evaluation process, as this may lead to better insight with regards to targeting entrepreneurial training for optimum results. The use of the mediation analysis process was adopted for this study because of evidence from other disciplines that suggest the efficacy of targeting interventions at the intermediate process. Using this approach for future studies will help target interventions, taking into consideration mediation mechanisms for more impact.

Keywords: *Social Interaction, Social Networks, Social Capital, Causation, Effectuation, Technology, Social Media, Entrepreneurship, Opportunity Evaluation, Mediation, Moderation*

Acknowledgment

I wish to express my appreciation to the University of South Africa (UNISA) Graduate School of Business Leadership (SBL) for giving me the opportunity to undertake my doctoral studies, and to Professor Breggie Van Der Poll. To Professor Jan Kruger, my first supervisor who had immense patience with me as I put together my proposal and was very supportive during the literature review process, I am eternally grateful. My sincerest gratitude also goes to my current supervisor, Professor Collins Ngwakwe, whose supervision through the rest of this study has been simply amazing. The long distant phone calls, your critical reviews, proficient guidance, and direction throughout the study urged me on; for that I am truly grateful. Special thanks go to the SBL Librarian, Megan Scheepers for your support on referencing and articles you forwarded to me when I struggled to locate them. I am grateful to Ms. Tumi Seopa, the DBL Administrator, for constantly being available with any administrative support that I needed. Distance was not an issue for you at all and you would go the extra mile to sort me out. I am thankful to all SBL Faculty who attended my colloquiums and made valuable inputs into my research work.

In addition, I would like to say a heartfelt thank you to the following people who made this journey a little easier, each in their own special way: Professor Justice Nonvignon, Dr. Samuel Bosomprah, and Mr. Kofi Agyabeng, all of the University of Ghana School of Public Health. Hearty thanks also go to Professor Gordon Adomdza of Ashesi University who has been a mentor to me during this whole time and provided professional advice in relation to entrepreneurship. I also thank these experts in entrepreneurship who supported me during the framing of my data collection tool used in this study: Dr. Tambudazi Magenzi, Professor Chris Dicky. Dr. Tshehla, Makgopa, and Dr. Kwame Adom.

I also wish to thank Social Enterprise Ghana and the National Entrepreneurship and Innovation Programme for putting me in touch with the participants used in this research.

I wish to thank my husband, Ing. Gabriel Engmann for his unwavering encouragement and support during my studies and research period. To my parents, I say a big thank you for your prayers and support throughout this DBL journey. I do not take it for granted.

Above all, I give thanks to God for providing me with the wisdom, ability, strength, and determination to undertake this study. It has been a tough period, but through it all God has been faithful.

TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	BACKGROUND OF THE STUDY.....	1
1.2	MOTIVATION.....	6
1.3	PROBLEM STATEMENT	6
1.4	THESIS STATEMENT	7
1.5	RESEARCH PURPOSE	8
1.6	RESEARCH AIMS AND OBJECTIVES.....	8
1.7	RESEARCH QUESTIONS.....	9
1.8	SIGNIFICANCE OF THE STUDY.....	9
1.9	IMPACT OF THE RESEARCH ON SOCIETY.....	10
1.10	METHODOLOGY	11
1.11	HYPOTHESIS AND PROPOSITION.....	11
1.12	DATA COLLECTION	13
1.12.1	<i>Data accuracy</i>	13
1.12.2	<i>Benchmarks</i>	13
1.12.3	<i>Validity</i>	14
1.12.4	<i>Reliability</i>	14
1.12.5	<i>Credibility</i>	14
1.12.6	<i>Dependability</i>	14
1.12.7	<i>Confirmability</i>	15
1.12.8	<i>Transferability</i>	15
1.12.9	<i>Ethics</i>	15
1.13	LIMITATIONS OF THE STUDY	15
1.14	DELIMITATION	16
1.15	DEFINITIONS OF THE KEY CONSTRUCTS	16
1.15.1	<i>Opportunity Evaluation (OE)</i>	16
1.15.2	<i>Social Interaction (SI)</i>	16
1.15.3	<i>Resource Availability (RA)</i>	17
1.15.4	<i>Causation (CS)</i>	17
1.15.5	<i>Effectuation (EF)</i>	17
1.16	LAYOUT OF THESIS	17
1.17	CONCLUSION	18
2	THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT	1
2.1	INTRODUCTION.....	1
2.2	THEORETICAL FRAMEWORK	1
2.2.1	<i>Causation and Effectuation Theories</i>	1
2.2.2	<i>Social Network Theory</i>	2
2.2.3	<i>Social Capital Theory</i>	3
2.2.4	<i>Resource Based View (RBV)</i>	4
2.3	HYPOTHESES DEVELOPMENT	5
2.3.1	<i>Relationship Between Online Social Interaction And Opportunity Evaluation</i>	5
2.3.2	<i>Online Social Interaction And Using The Causation Or Effectuation Approach</i>	7
2.3.3	<i>The Effect Of Online Social Interaction On Opportunity Evaluation Mediated By Resource Availability</i>	8
2.4	CONCLUSION.....	9
3	LITERATURE REVIEW.....	1
3.1	CONCEPT OF ENTREPRENEURSHIP	1
3.1.1	<i>Definition of Entrepreneurship</i>	1
3.1.2	<i>Global Perspective</i>	2
3.1.3	<i>Regional Perspective – The African Region</i>	2
3.2	THE ENTREPRENEURIAL PROCESS.....	3
3.3	OPPORTUNITIES AND ENTREPRENEURSHIP – PHILOSOPHICAL VIEWS	7

3.3.1	<i>A Realist Approach to Opportunity Formation</i>	7
3.3.2	<i>A Constructionist Approach to Opportunity Formation</i>	7
3.3.3	<i>An Evolutionary Realist Approach to Opportunity Formation</i>	8
3.4	OPPORTUNITIES AND ENTREPRENEURSHIP – OTHER VIEWS	9
3.5	IDENTIFICATION OF OPPORTUNITIES	10
3.5.1	<i>Knowledge Corridors</i>	11
3.5.2	<i>Search</i>	11
3.5.3	<i>Social Ties</i>	12
3.6	OPPORTUNITY EVALUATION	12
3.6.1	<i>Opportunity For Me or Someone Else</i>	12
3.6.2	<i>An Idea to Pursue or Not to Pursue</i>	13
3.6.3	<i>Opportunity evaluation - A less studied construct in the Entrepreneurial Process</i>	15
3.6.4	<i>Prior Reviews on Opportunity Evaluation</i>	16
3.6.5	<i>Role Identity and Opportunity Evaluation</i>	19
3.6.6	<i>Intensions and Opportunity Evaluation</i>	20
3.6.7	<i>An Identity Control Model of Prosocial Opportunity</i>	21
3.7	OPPORTUNITY EVALUATION FROM THE SOCIAL PERSPECTIVE	23
3.8	OPPORTUNITY EVALUATION - RESOURCE ASSESSMENT AND NETWORKS	23
3.9	METHODOLOGIES IN PRIOR RESEARCH ON OPPORTUNITY EVALUATION	26
3.10	CONTRASTING BETWEEN CAUSATION AND EFFECTUATION	27
3.11	ENTREPRENEURSHIP NOT AS A LONE ACTIVITY	28
3.12	THE BUSINESS MODEL CANVASS	29
3.13	ENTREPRENEURSHIP AND THE SOCIAL CONTEXT	31
3.14	NETWORKS AND ENTREPRENEURSHIP	33
3.15	TYPE OF NETWORK TIES	35
3.16	BENEFITS OF NETWORKS	36
3.17	OPPORTUNITIES AND NETWORKS	38
3.18	SOCIAL NETWORKS AND INNOVATION	39
3.19	GLOBAL SOCIAL MEDIA USE	40
3.20	SOCIAL MEDIA AS A TOOL FOR PROFESSIONALS	45
3.21	SOCIAL MEDIA AS A TOOL FOR ENTREPRENEURS	47
3.22	SOCIAL MEDIA USAGE	51
3.23	ONLINE SOCIAL INTERACTION AND ENTREPRENEURSHIP	52
3.24	THE ESSENCE OF ONLINE SOCIAL INTERACTION AND ENTREPRENEURSHIP	54
3.24.1	<i>The Entrepreneur and the Economy</i>	54
3.24.2	<i>Social Media and the Economy</i>	54
3.25	THE WAY FORWARD TO UNDERSTANDING OPPORTUNITY EVALUATION FROM A SOCIAL INTERACTION PERSPECTIVE	57
3.26	CONCEPTUAL FRAMEWORK OF THE STUDY	61
3.27	CONCLUSION	61
4	RESEARCH DESIGN AND METHODOLOGY	63
4.1	INTRODUCTION	63
4.2	OBJECTIVES	63
4.3	RESEARCH QUESTIONS	64
4.4	RESEARCH HYPOTHESIS AND PROPOSITION	65
4.5	RESEARCH PHILOSOPHY	65
4.6	RESEARCH STRATEGY	67
4.7	RESEARCH DESIGN	68
4.8	STUDY AND TARGET POPULATION	69
4.9	UNIT OF ANALYSIS	69
4.10	SAMPLING TECHNIQUES	69
4.11	SAMPLING CRITERIA	70
4.12	SAMPLE SIZE	71
4.13	DATA COLLECTION PROCEDURE	72
4.14	VALIDATING SCALES FOR SOCIAL INTERACTION AND OPPORTUNITY EVALUATION	74
4.15	THEORETICAL IMPORTANCE AND EXISTENCE OF CONSTRUCT	75

4.16	REPRESENTATIVENESS AND APPROPRIATENESS OF DATA COLLECTION	76
4.16.1	<i>Survey Administration</i>	76
4.17	STATISTICAL METHOD AND DATA ANALYSIS	77
4.17.1	<i>Statistical Method</i>	77
4.17.2	<i>Study Variables</i>	78
4.18	OPPORTUNITY EVALUATION (OE)	78
4.19	SOCIAL INTERACTION (SI)	79
4.20	RESOURCE AVAILABILITY (RA)	79
4.21	CAUSATION (CS)	80
4.22	EFFECTUATION (EF)	80
4.23	QUANTITATIVE DATA ANALYSIS	82
4.23.1	<i>Item reduction and Extraction of factors</i>	82
4.23.2	<i>Scale Evaluation</i>	83
4.23.3	<i>Validity</i>	84
4.23.4	<i>Reliability</i>	84
4.24	QUALITATIVE DATA	84
4.24.1	<i>Data Collection Procedure</i>	84
4.24.2	<i>Data Analysis</i>	86
4.24.3	<i>Trustworthiness in Qualitative data</i>	86
4.24.4	<i>Credibility</i>	86
4.24.5	<i>Dependability</i>	87
4.24.6	<i>Confirmability</i>	87
4.24.7	<i>Transferability</i>	87
4.24.8	<i>Benchmarking</i>	88
4.25	ETHICS	88
4.26	DELIMITATION	88
4.27	TIME HORIZON	89
4.28	CONCLUSIONS	89
5	RESULTS AND DISCUSSION	90
5.1	INTRODUCTION	90
5.2	QUANTITATIVE RESULTS	90
5.2.1	<i>Background characteristics of Entrepreneurs</i>	90
5.3	DISTRIBUTION OF RESPONSES TO INDIVIDUAL QUESTIONS OF THE VARIOUS CONSTRUCTS	91
5.3.1	<i>Opportunity Evaluation</i>	91
5.3.2	<i>Online Social Interaction</i>	94
5.3.3	<i>Resource Availability</i>	95
5.3.4	<i>Causation</i>	96
5.3.5	<i>Effectuation</i>	97
5.3.6	<i>Control Factors</i>	98
5.4	RESULTS AS PER EACH OBJECTIVE	100
5.4.1	<i>Objective 1: To develop and validate scales for social interaction and opportunity evaluation.</i> 100	
5.4.2	<i>Objective 2: To estimate the effect of online social interaction on entrepreneurs' opportunity evaluation</i>	108
5.4.3	<i>Objective 3: To examine if the effect of online social interaction depends on effectuation and causation (Moderation)</i>	108
5.4.4	<i>Objective 4: To examine the mechanism by which online social interaction affect entrepreneurs' opportunity evaluation using resource availability as a mediator (Mediation analysis)</i>	112
5.5	QUALITATIVE RESULTS	114
5.5.1	<i>Demographics</i>	114
5.5.2	<i>Factors Motivating Commencement of the Entrepreneurial Journey</i>	118
5.5.3	<i>The role of social media during the start of the Entrepreneurial Journey</i>	119
5.5.4	<i>Change in Entrepreneurs' Initial Business Models</i>	123
5.5.5	<i>Innovating the Current Business Models</i>	124
5.5.6	<i>Benefits of Social Media</i>	125
5.5.7	<i>In-person Interaction versus Interaction on Social Media</i>	127

5.5.8	<i>Other resources obtained through Social Media</i>	127
5.6	QUALITATIVE FINDINGS SUMMARY CHART	129
5.7	DISCUSSION	129
5.7.1	<i>Conclusion</i>	135
6	CONCLUSION AND RECOMMENDATIONS	136
6.1	INTRODUCTION	136
6.2	SUMMARY OF FINDINGS ON RESEARCH OBJECTIVES	136
6.2.1	<i>Summary of Findings on Research Objective 1: To develop and validate scales for social interaction and opportunity evaluation</i>	136
6.2.2	<i>Summary of Findings on Research Objective 2: To estimate the effect of online social interaction on entrepreneurs' opportunity evaluation</i>	137
6.2.3	<i>Summary of Findings on Research Objective 3: To examine if the effect of online social interaction depends on effectuation and causation</i>	137
6.2.4	<i>Summary of Findings on Research Objective 4: To examine the mechanism by which online social interaction affect an entrepreneur's opportunity evaluation using resource availability as a mediator..</i> 138	
6.2.5	<i>Summary of Findings on Research Objective 5: To understand the nature of feedback and the pattern of resultant changes to a potential opportunity as a result of online social interaction</i>	139
6.3	CONTRIBUTION TO KNOWLEDGE.....	139
6.4	RECOMMENDATIONS	140
6.4.1	<i>Implications for Practice</i>	140
6.4.2	<i>Implications for Theory</i>	141
6.4.3	<i>Recommendations for Future Research</i>	142
6.5	LIMITATIONS OF THE STUDY.....	142
6.6	CONCLUSION	143
7	REFERENCES	144
8	APPENDIX	166

TABLE OF FIGURES

FIGURE 1-1	ANNUAL GROWTH RATE OF INTERNET, MOBILE AND SOCIAL MEDIA USE	4
FIGURE 1-2	GLOBAL INDICATORS OF INTERNET, MOBILE AND SOCIAL MEDIA USERS.....	5
FIGURE 3-1	CONCEPT MAP SHOWING IMPORTANT POINTS AND CONCEPTS IDENTIFIED.....	6
FIGURE 3-2	MODEL OF ENTREPRENEURIAL INTENTION (SOURCE: KRUEGER, 2009).....	20
FIGURE 3-3	IDENTITY CONTROL MODEL OF PROSOCIAL OPPORTUNITY (SOURCE: CONGER ET AL., 2017).....	22
FIGURE 3-4	SOCIAL MEDIA SITE USAGE BEHAVIOUR MODEL.....	51
FIGURE 3-5	CONCEPTUAL FRAMEWORK OF THE STUDY	61
FIGURE 4-1	EXPLANATORY MIXED-METHODS DESIGN	67
FIGURE 4-2	EXPLANATORY SEQUENTIAL DESIGN.....	67
FIGURE 4-3	TEN STEPS AND THREE PHASES IN SCALE DEVELOPMENT.....	74
FIGURE 5-1	MEDIATION ANALYSIS OF EFFECT ONLINE SOCIAL INTERACTION ON OPPORTUNITY EVALUATION USING RESOURCE AVAILABILITY AS A MEDIATOR.....	113
FIGURE 5-2	MEDIATION ANALYSIS OF EFFECT ONLINE SOCIAL INTERACTION ON OPPORTUNITY EVALUATION USING RESOURCE AVAILABILITY AS A MEDIATOR WITH CONTROL FACTORS	113

LIST OF TABLES

TABLE 1-1	RESEARCH QUESTIONS AND CORRESPONDING HYPOTHESIS.....	12
TABLE 4-1	STATISTICAL ANALYSIS PERFORMED TO TEST EACH HYPOTHESIS.....	81
TABLE 5-1	DISTRIBUTION OF BACKGROUND CHARACTERISTICS OF ENTREPRENEURS IN GHANA	91
TABLE 5-2	RESPONSES TO OPPORTUNITY EVALUATION QUESTIONS.....	92
TABLE 5-3	RESPONSES TO INFLUENCE ON BUSINESS MODEL	94

TABLE 5-4 RESPONSES TO INFLUENCE ON BUSINESS MODEL	95
TABLE 5-5 RESPONSES TO RESOURCE AVAILABILITY	96
TABLE 5-6 RESPONSES TO CAUSATION	97
TABLE 5-7 RESPONSES TO EFFECTUATION	98
TABLE 5-8 RESPONSES TO CONTROL FACTORS	99
TABLE 5-9 TABLE OF MEAN AND STANDARD DEVIATION FOR CONTROL FACTORS	99
TABLE 5-10 POLYCHORIC COEFFICIENT OF CORRELATION BETWEEN INDIVIDUAL ITEMS	101
TABLE 5-11 ITEM DISCRIMINATION INDEX IN ASCENDING ORDER	102
TABLE 5-12 FACTOR EXTRACTION WITH OBLIQUE VARIMAX ROTATED FACTOR LOADINGS ABOVE ABSOLUTE 0.35	102
TABLE 5-13 CRONBACH ALPHA TEST OF ITEM RELIABILITY AND CONSISTENCY INDEX	103
TABLE 5-14 POLYCHORIC COEFFICIENT OF CORRELATION BETWEEN INDIVIDUAL ITEMS	104
TABLE 5-15 ITEM DISCRIMINATION INDEX IN ASCENDING ORDER	104
TABLE 5-16 FACTOR EXTRACTION WITH ORTHOGONAL VARIMAX ROTATED FACTOR LOADINGS ABOVE ABSOLUTE 0.35	105
TABLE 5-17 CRONBACH ALPHA TEST OF ITEM RELIABILITY AND CONSISTENCY INDEX	105
TABLE 5-18 MEAN SCORE OF VARIABLES AND THEIR PEARSON PRODUCT MOMENT CORRELATION COEFFICIENT	106
TABLE 5-19 COMPARISON OF MEAN SCORE OF THE OPPORTUNITY EVALUATION PROCESS BY BACKGROUND CHARACTERISTICS OF PARTICIPANTS	107
TABLE 5-20 EFFECT OF ONLINE SOCIAL INTERACTION ON ENTREPRENEURS' OPPORTUNITY EVALUATION	108
TABLE 5-21 POLYCHORIC COEFFICIENT OF CORRELATION BETWEEN INDIVIDUAL ITEMS	109
TABLE 5-22 ITEM DISCRIMINATION INDEX IN ASCENDING ORDER	109
TABLE 5-23 FACTOR EXTRACTION WITH OBLIQUE VARIMAX ROTATED FACTOR LOADINGS FROM ABSOLUTE 0.40 AND ABOVE	109
TABLE 5-24 CRONBACH ALPHA TEST OF ITEM RELIABILITY AND CONSISTENCY INDEX	110
TABLE 5-25 ITEM DISCRIMINATION INDEX IN ASCENDING ORDER	110
TABLE 5-26 FACTOR EXTRACTION WITH OBLIQUE VARIMAX ROTATED FACTOR LOADINGS ABOVE ABSOLUTE 0.35	111
TABLE 5-27 CRONBACH ALPHA TEST OF ITEM RELIABILITY AND CONSISTENCY INDEX	111
TABLE 5-28 EFFECT OF ONLINE SOCIAL INTERACTION ON ENTREPRENEUR'S OPPORTUNITY EVALUATION USING EFFECTUATION AND CAUSATION AS MODERATORS	112
TABLE 5-29 EFFECT OF ONLINE SOCIAL INTERACTION ON ENTREPRENEURS' OPPORTUNITY EVALUATION USING RESOURCE AVAILABILITY AS A MEDIATOR	113
TABLE 5-30 BACKGROUND CHARACTERISTICS OF QUALITATIVE RESPONDENTS	115
TABLE 5-31 CODE BOOK USED IN QUALITATIVE ANALYSIS	116

CHAPTER ONE

1 INTRODUCTION

1.1 Background of the Study

The study of Entrepreneurship focuses mainly on creating or finding opportunities which have a potential for maximizing returns and exploiting them (Scott Shane and Venkataraman 2000). Typically, the entrepreneurial process proceeds through identification, evaluation, and exploitation of potential opportunities.

An extant body of entrepreneurial literature exists that seeks to explain how individuals identify and interpret potential opportunities (Baron and Ensley 2006; Cornelissen and Clarke 2010; Autio *et al.* 2013; Grégoire *et al.* 2010; Tang *et al.* 2012). These studies concentrate on how individual attributes and cognitive abilities recognize potential opportunities and interpret them as being potential opportunities either for themselves (1st person opportunities) or for someone else (3rd person opportunities). Entrepreneurship goes beyond the mere identification of opportunities. The identified opportunities do not come fully formed; they go through a process of evaluation and refinement (Dimov 2007; Shepherd 2015) before they are eventually exploited.

Of all the components of the entrepreneurial process, it is opportunity evaluation that has been less studied (Wood and Mckelvie, 2015). The few studies that are available on opportunity evaluation have also not researched into the effect of social interaction via social media by entrepreneurs on opportunity evaluation and the resultant outcomes. To give a deeper understanding of how social resources support entrepreneurs (Dimov 2007), and of how technology is increasingly becoming part of our everyday lives, the researcher found it necessary to fill this knowledge gap by investigating opportunity evaluation through social interaction via social media. Interaction via social media was chosen as the focus for this study

because it seems entrepreneurship research has not critically observed the part digital technologies play in entrepreneurship (Sussan and Acs, 2017), especially with regards to the dynamic and socially-embedded nature of digital technologies in relation to entrepreneurship (Tilson, Lyytinen and Sørensen, 2010). Following the causation and effectuation theory, this study examines how social interaction influences opportunity evaluation and refinement.

Opportunities are central to the study and practice of entrepreneurship (Shane and Eckhardt, 2003). Although research has been done on opportunity identification, discovery and exploitation (Jarvis, 2016; McMullen and Dimov, 2013; Shane and Venkataraman, 2000; Van de Ven, Sapienza, and Villanueva, 2007), very little critical attention has been given to the evaluation of opportunities identified, and that is the area this study seeks to focus on.

Opportunity evaluation is essential in the study of the entrepreneurship process because an individual takes action in creating a venture in order to produce a good or service only if he or she is convinced, upon evaluation, that an imagined future is attractive enough to pursue (Wood and Mckelvie, 2015). Opportunity identification is different from opportunity evaluation in that identification involves entrepreneurs recognizing opportunities as 3rd person opportunities. In opportunity evaluation, 3rd person opportunities are assessed to see if they are attractive in and of themselves i.e. 1st person opportunities (Shepherd *et al.*, 2009). Exploitation is the phase of the entrepreneurial process which involves taking actions such as the search for resources (Autio, Dahlander and Frederiksen, 2013) in relation to 1st person opportunities (Wood and Mckelvie, 2015). Thus, Opportunity Evaluation can be considered as the bridge between opportunity recognition and exploitation. It is this process which moves opportunity identification towards exploitation. When business ideas are eventually exploited, they are significantly different from how they are originally conceived, as they go through a dynamic process of shaping and development. In the course of this process, some ideas come to the stage of execution, while others are abandoned. The decision-making process is guided

either by the principles of effectuation or causation. The idea or opportunity could be one of either process or both processes, where an entrepreneur is selecting from various processes and resources in order to obtain a particular effect or selecting among numerous effects using a specific set of resources or processes (S. Sarasvathy 2001). The evaluation process is not done in isolation, as entrepreneurs engage other social actors in the process of developing their ideas in a process simply referred to as a social process of discussion and interpretation. The social process of discussion and interpretation gives rise to a social view of the entrepreneurial process (Dimov 2007). Thus, in opportunity evaluation, there are a variety of other individuals involved in the social process who are also expected to give a positive evaluation.

A variety of stakeholders have been discussed in research regarding evaluations, but the most frequently discussed are financial investors (Bishop and Nixon, 2006; Murnieks *et al.*, 2011) who are envisaged to see an opportunity in the same light as the entrepreneur i.e. both having the same mental model of circumstances. Other opportunity evaluation studies have focused on how mental depictions of ideas and situations are used in evaluating opportunities (Keh, Foo and Lim, 2002) or on how individuals integrate their personal knowledge and goals into assessing the viability of a potential opportunity (Wood and Williams, 2014) or an alignment between the individual's mental representation of the opportunity and that of by others (Murnieks *et al.* 2011). The socially embedded attribute of entrepreneurship shows that potential entrepreneurs do not think or act alone but are engaged in an active process of information exchange with a community. This community can be an offline community or an online community. An entrepreneur's community is usually referred to as social networks. Aside the provision of resources, social networks have varied influences on entrepreneurial opportunity evaluation and action, and often these influences occur through the provision of various kinds of information (Autio, Dahlander and Frederiksen, 2013). Typically, social networks are created through social interaction. Individuals create their social networks

through interactions with people in their circles and communities. These interactions can be either offline or online. There is growing evidence, globally, of an increase in online social interactions (Poushter 2016; Song 2015) and entrepreneurs' use of social media (Fischer and Reuber, 2011). In this era of new digital technologies, organizations are relying more and more on contributions from people outside the organization, who are either isolated, dispersed or are in communities, to drive innovation (Dobusch and Kapeller, 2018).

As indicated in figure 1.1, between January 2018 and January 2019, the number of internet as well as active social media users increased, with both increasing by 9%. A growing proportion of this online activity, especially social media use, takes place on mobile phones, with 3.26 billion people accessing social media via their phones in January 2019 as shown in figure 1.2 (Kemp 2019).



Figure 1-1 Annual growth rate of internet, mobile and social media use

Source: Digital In 2019 Global Overview a collection of Internet, Social Media, And Mobile Data From Around The World (Kemp 2019)

Considering the strong integration of social media platforms into the everyday lives of our society, it has become imperative to explore the impact of social interactions on the entrepreneurial process.

1.2 Motivation

With the increasing use of the internet and social media and how it has changed the ways of communication, impacting entrepreneurship and its relevance to economic growth, the motivation of the researcher lies in researching into how entrepreneurs can make use of this new form of communication to enhance entrepreneurial activities especially nascent entrepreneurs and thereby helping promote economic growth.

1.3 Problem statement

Before opportunities are eventually exploited, they would need to be assessed to ascertain their viability and profitability (Shepherd, McMullen, and Haynie, 2009). Opportunity evaluation is thus a vital stage of the entrepreneurial process. It is the bridge between opportunity identification and exploitation. However, opportunity evaluation in the entrepreneurial process, compared to the other two processes, is a less studied phenomenon (Wood and Mckelvie, 2015). Emotions, cost, high risk, and uncertainty impact entrepreneurial decision-making, as to whether to pursue or abandon an opportunity (Alvarez, Barney and Anderson, 2013; Emami and Dimov, 2017; Shepherd and Patzelt, 2017). Studies that have been done on opportunity evaluation include how factors such as religious beliefs (Dave 2008), emotions (Foo, 2011), gender (Gupta, Banu Goktan and Gunay, 2014), and role identity (Mathias and Williams, 2017) can impact or influence opportunity evaluation. To the best of the researcher's knowledge, there is no model to measure the effect these have on the evaluation process and to the best of our knowledge, the impact society has on the process has not been studied extensively (Shepherd 2015). Entrepreneurs do interact with their environment and it is most likely that

this interaction has an impact on the entrepreneur's mind, causing the potential opportunity to be either refined or abandoned completely. One way of interaction is through social media. Despite the growing evidence on the use of social media among entrepreneurs (Fischer and Reuber, 2011; Dey *et al.*, 2017; Mahwish Zafar, Wajahat Shafiq, 2017; Nambisan, Wright and Feldman, 2019; Olanrewaju *et al.*, 2020) there is not much understanding on how online social interaction impacts opportunity evaluation, nor is there any instrument to measure this impact by the society or by any other factor. The theories of causation and effectuation point the path that entrepreneurs' chart when planning to launch new ventures. The choice of Causation or effectuation depends on whether the entrepreneur has a set objective already or whether the entrepreneur has the means already. Either way, there is a need for evaluation of what he is trying to pursue. The researcher believes that it is not the process of effectuation alone that is affected or is influenced by any form of interaction, including online interaction. The researcher believes that causation processes are also affected. Hence, there is a need to study this phenomenon. Moreover, social capital, causation and effectuation, social network and opportunity evaluation in entrepreneurship have all been studied and shown to individually contribute to entrepreneurship but the simultaneous interaction on venture creation and opportunity evaluation has rarely been seen. The researcher bridges the gap in research with regard to this by delving more into how online social interactions impacts entrepreneurial opportunity evaluation by validating existing scales and using it to develop a model that measures and explains the impact of online social interactions on the entrepreneurial opportunity evaluation process through the moderation of causation/effectuation and mediation of available resources.

1.4 Thesis statement

Opportunity evaluation is impacted by online social interaction through the provision of new information and direction and social media provides new information that triggers cognition

for the evaluation of opportunities. This study determines how and why online social interaction may hinder or facilitate the effort to evaluate opportunities.

1.5 Research Purpose

The main purpose of this research is to generate a model which predicts the effect of online social interaction on entrepreneurial opportunity evaluation. The study follows an explanatory sequential mixed method design to develop a model of transformation during the evolution of an opportunity. This study sought to understand the process of entrepreneurial opportunity evaluation, with evaluation not being based on human capital and available resources but also taking into consideration the social context within which this occurs.

1.6 Research aims and objectives

The aim of this research is to develop a model which measures the impact of online social interaction during the evaluation of a potential opportunity through the moderation of causation/effectuation and mediation of available resources. The model provides a deeper understanding of the impact social interaction via social media has on the opportunity evaluation process. Specifically, the objectives of the study are:

1. To validate existing scales for social interaction and opportunity evaluation
2. To estimate the effect of online social interaction on entrepreneurs' opportunity evaluation.
3. To examine if the effect of online social interaction depends on effectuation and causation
4. To examine the mechanism by which online social interaction affect entrepreneurs' opportunity evaluation, using resource availability as a mediator
5. To understand the nature of feedback received as a result of online social interaction

1.7 Research questions

Main Question: How does online social interaction affect opportunity evaluation?

Based on the research question, the following research questions are deduced to guide the conduct of the research.

1. Can existing scales be validated and used to measure the effect of social interaction on opportunity evaluation using effectuation, causation and resource availability?
2. What is the effect of online social interaction on entrepreneurs' opportunity evaluation?
3. What is the impact of online social interaction on opportunity development and refinement when an entrepreneur is using the causation or effectuation approach?
4. What is the effect of social interaction on opportunity evaluation when resource availability is used as a mediator?
5. What is the nature of feedback received as a result of online social interaction in relation to opportunity evaluation?

1.8 Significance of the study

The model explains the mechanism of evaluation through online social interaction, thereby contributing to the 'how' of entrepreneurship and helps advance the theory of effectuation, causation, social networks and social interaction in entrepreneurship.

This study responds to calls to explore the entrepreneurial process through a more interactive perspective and for seeing a potential opportunity through a process of social interaction (Shepherd 2015). The research provides a better understanding of social interaction through other social media channels that have similar effects as triggered by interaction via Twitter (Fischer and Reuber 2011). The study also helps bridge a developing gap between research in

entrepreneurship and contemporary entrepreneurial practices and existing literature on opportunity evaluation.

Several studies (Fisher, 2012; Harms and Schiele, 2012; Reymen et al., 2015; Laine and Galkina, 2017; Ortega, García and Santos, 2017) have tested the use of both causation and effectuation in entrepreneurial decision making, often focusing on whether one is used more than the other or the efficacy of one in relation to the other. What has been found is that in the decision-making mechanism, there is the interplay of both, both serving as key predictors of new venture growth. The implication is that whatever the case is, an entrepreneur will use one of the logics or use the two simultaneously. This study will contribute to the effectuation and causation literature by indicating if online social interaction is being used for evaluation during effectuation or causation. This will provide entrepreneurs an additional tool to aid the evaluation process.

Last but not least, the mediation analysis that would also be conducted by this study, where resource availability is the mediator, is significant because when interventions are targeted at the intermediate process, it is more effective.

1.9 Impact of the research on society

Entrepreneurial support by both the public and private sectors can be targeted to boost social interaction of nascent entrepreneurs against only financial support which is usually very common.

With the advent of more academic establishments that focus on business, coupled with easy access to social media, more students can be encouraged to put forth their ideas which do not need to be perfect from the start. Through a formal structure, their ideas can be shaped into valuable business opportunities (Dimov 2007)

Finally, the findings of this research will help target interventions for entrepreneurship so as to address opportunity evaluation challenges if any. Without the process of opportunity

evaluation, there would be no venture creation. Social media can be used as more than just a tool for marketing goods and services.

1.10 Methodology

The study follows the philosophy of pragmatism and combines elements of both qualitative and quantitative research approaches to provide a breadth and depth of understanding and corroboration, thereby providing greater confidence in the conclusion. The sequential explanatory method will be used where qualitative data is used to support the results.

1.11 Hypothesis and Proposition

The study's hypothesis to be tested include the following;

H1: Existing scales can be validated and used to measure the impact of online social interaction on opportunity evaluation

H2: Online social interaction increases the mean opportunity evaluation score.

H3: The effect of online social interaction is not the same across levels of effectuation and causation

H4: Online social interaction has an indirect effect on opportunity evaluation through resource availability

The study's proposition to be tested is

P1: Potential opportunities experience transformations due to the feedback received from online social interaction

Table 1-1 Research Questions and Corresponding Hypothesis

	Research Question	Hypothesis
1.	Can existing scales be validated and used to measure the effect of social interaction on opportunity evaluation using effectuation, causation and resource availability?	Existing scales can be validated and used to measure the impact of online social interaction on opportunity evaluation
2.	What is the effect of online social interaction on entrepreneurs' opportunity evaluation?	Online social interaction increases the mean opportunity evaluation score.
3.	What is the impact of online social interaction on opportunity development and refinement when an entrepreneur is using the causation or effectuation approach?	The effect of online social interaction is not the same across levels of effectuation and causation.
4.	What is the effect of social interaction on opportunity evaluation when resource availability is used as a mediator?	Online social interaction has an indirect effect on opportunity evaluation through resource availability.
	Research Question	Proposition
5	What is the nature of feedback received as a result of online social interaction in relation to opportunity evaluation?	Potential opportunities experience transformations due to the feedback received from online social interaction.

The hypothesis will be tested quantitatively. Further, various regression analyses will be performed to accept or reject the stated hypothesis.

1.12 Data collection

The data will be collected from entrepreneurs who have enrolled in an incubator program. Data will be obtained using interviews and questionnaires administered to the sampled entrepreneurs.

1.12.1 Data accuracy

To ensure data accuracy, respondents would be educated on the study and other information would be used to validate the responses of participants. Specifically, to ensure reliability and validity, instruments that have been used before in different studies which are considered appropriate for this study will be used in part or in whole. This implies that already validated scales would be adopted, although they will further be subjected to validity and reliability tests. It will also be ensured that the questionnaire is appropriate for the context and the study location.

To ensure correctness in the questionnaire, a pilot study will be carried out to ascertain that what is being measured is what is supposed to be measured and that the measurement is efficient for getting the same results. The pilot test will assist in making corrections to the main questionnaire and correct any errors and biases which are likely to come out during the questionnaire administration.

1.12.2 Benchmarks

It is expected that existing scales and measures used in similar research settings will be identified to make the findings of this research valid and reliable. Work by other researchers will also help confirm the relevance of this research. The study will use existing research studies to support the results obtained from the final results. The researcher will test for unidimensionality of the scales, linearity of the data and perform reliability test on the validated scales used.

1.12.3 Validity

The questionnaires will be pre-tested before the final administration to ensure that it is clear and understandable by the respondents and hence enhances validity of the data collected (Srinivasan and Lohith 2017). Acharya (2010) explains that the pre-test of a questionnaire should check its general and specific use of language, consistency and ambiguity, and completion time. The pre-test might lead to amendments and corrections of the questionnaire to reflect the findings of the exercise and to improve the performance of the instrument. To ensure internal validity, the researcher will also add some control variables which are likely to affect the dependent variable.

1.12.4 Reliability

The scales would be used with a minimum Cronbach's alpha level of 0.6, which is a good acceptable level for a scale for a quantitative study (Pallant 2013). A reliability test would also be performed to ensure the instruments are consistent over time.

1.12.5 Credibility

To ensure credibility, the researcher will take part in the actual data collection with prolonged engagement with respondents. There will also be participant checks to make sure that participants are highly qualified to answer questions. Before the field work, there will be peer briefings to ensure there are no inconsistencies.

1.12.6 Dependability

In order for the results to be dependable, it has to be consistent across time. The process will, therefore, be clear and open and an audit trail will be performed. Emerging themes will be derived from the interviews.

1.12.7 Confirmability

This is to ensure that the research is driven by the respondents and not the researcher so as to prevent bias. The data would thus be checked and re-checked.

1.12.8 Transferability

To enable readers generalize findings, all information regarding the research will be made available including instruments used in the research, along with a clear description of qualifications of respondents to show that the respondents can adequately respond to the research questions. All field experience would be recorded as well. This is referred to as thick description (Lincoln and Gruber, 1985) and serves as a means of ensuring transferability

1.12.9 Ethics

Ethical approval will be sought from UNISA's ethics committee before the collection of data which will ensure the protection of participants. The study will guarantee voluntary participation by ensuring that there is full disclosure to potential research participants about the research process and associated risks (no physical risk is anticipated in this study) involved in this research. Participants must give their consent to participate in the study. To help protect the privacy of participants, they will be assured that information that can easily identify a participant will not be given to anyone who is not directly involved in this research and the participant will remain unidentified throughout the research.

1.13 Limitations of the study

The study is a cross-sectional study where data collection is in one geographical location. With Ghana being a developing economy, the findings of the study could only be generalised to cover other developing countries since these economies have similar economic and political settings. Another limitation is that participants in this study would have interactions that are

offline. What cannot be controlled is how much these offline relationships would influence the opportunity evaluation process. The researcher will, therefore, try to control this in the model.

1.14 Delimitation

The scope of the thesis is delimited to individual nascent entrepreneurs enrolled in an incubator program in Ghana and does not include entrepreneurial teams or firms. Social media channels that would be included in the study are Facebook, Instagram, and WhatsApp which are popular online social interaction media used in Ghana. Facebook is one of the oldest forms of online social media channels, but it has not been researched into in the entrepreneurial literature. This research will concentrate on the construct of social interaction i.e. the effect that online interaction has on only opportunity evaluation and not identification, as opportunity identification has been researched into extensively. The theoretical perspectives will be network theory and the theories of causation and effectuation.

1.15 Definitions of the key constructs

1.15.1 Opportunity Evaluation (OE)

It is a first-person opportunity assessment (Shepherd, McMullen and Haynie, 2009) but not the same as the choice to create a venture. Opportunity evaluation is an activity that happens in the mind and involves analysing situations and conditions so as to decide what can be accomplished within the conditions (Wood and Mckelvie, 2015). It is a decision-making process where the entrepreneur makes his decision based on the attributes of the opportunity which include economic, environmental and social attributes.

1.15.2 Social Interaction (SI)

Social interaction refers to online social interaction where entrepreneurs connect with networks using social media tools like Facebook, Twitter, and Instagram as well as WhatsApp and Linked In.

1.15.3 Resource Availability (RA)

Barney (1991) classified resources into three categories. These are physical capital resources (e.g. plant and equipment, location), human capital resources (e.g. training, experience, judgment, intelligence) and organizational capital resources (e.g. internal structures and systems).

1.15.4 Causation (CS)

Causation relates to opportunity identification and developing a business plan (Chandler et al., 2011). Causation takes a certain effect as given and focuses on choosing between means to create that effect.

1.15.5 Effectuation (EF)

Effectuation relates to a strategy that is evolving (Chandler et al., 2011). Sarasvathy (2001) relates effectuation to the quilt approach where the opportunity needs to be developed, changing with the availability of new information

1.16 Layout of thesis

- Chapter One (Introduction): This chapter presents the background of the study, the problem statement, the problem, Research questions, objectives and hypothesis of the study, the significance of the study, scope and limitation of the study and at the end the layout of the study.
- Chapter Two (Theoretical Framework and Hypothesis Development): discusses the theoretical foundations relating to causation, effectuation, social networks and resource-based view.
- Chapter Three (Literature Review): provides a detailed literature review on opportunity evaluation and online social interaction
- Chapter Four (Methodology): Deals with different research methodologies and tools used in this study i.e. research paradigm, research design, research strategy,

- Chapter Five (Data Analysis, Results and Discussion): The analysis and discussion of the data collected within the existing literature
- Chapter Six (Conclusions): Conclusions, Limitations, and Recommendations for future study

1.17 Conclusion

The study sought to measure and understand the impact online social interaction via social media has on the entrepreneurial process of opportunity evaluation. To the best of the researcher's knowledge, most studies on factors affecting opportunity evaluation concentrated on the factor but did not measure the quantum of the impact, hence there is a gap in knowledge which this research seeks to fill. The results of this research may be useful to various stakeholders including entrepreneurs and incubator hubs.

CHAPTER TWO

2 THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

2.1 Introduction

Entrepreneurship research is by nature multi-disciplinary and thus integrates multiple theories to explain phenomena (Marvel, Davis, and Sproul 2016; Bögenhold et al. 2016). Research in entrepreneurship has drawn on theories from strategic management, economics, psychology and sociology (Simpeh 2011). This inter-disciplinary nature elicits a number of questions, such as (a) What theories are relevant to provide enhanced knowledge regarding the effect of social interaction and entrepreneurial opportunity evaluation? (b) How might these theories be applied to the construct of opportunity evaluation? This research will use causation and effectuation theories, the social network theory, social capital theory, and the social interaction theory to answer these research questions.

2.2 Theoretical framework

2.2.1 *Causation and Effectuation Theories*

The process of Causation considers a specific outcome and concentrates on choosing between various means to create the desired effect (S. Sarasvathy 2001). Entrepreneurs using the causation process have set out clear objectives and therefore actively search potential opportunities, which when exploited meet these set objectives (Fiet, 2002). Opportunities are evaluated and selected based on expected profits and the one with the highest return is chosen (Drucker, 1998). In causation, decisions are taken based on all relevant information and expected returns on each available choice (Viale, 1992). A considerable amount of works in entrepreneurship has theoretical fundamentals in the causation approach (Chandler *et al.*, 2011).

In the effectuation approach, an entrepreneur considers the availability of a certain number of resources and then concentrates on selecting between potential outcomes that can be created with a certain group of resources (S. Sarasvathy 2001). In this approach, entrepreneurs start the new venture creation with a broad objective of establishing a new venture, but as they progress through the decision-making process, they make use of new information and make modifications to their initial objective (Chandler *et al.*, 2011). Cognitive science undergirds the theoretical foundations in effectuation, especially as it relates to how entrepreneurs put together their thoughts regarding the future as they interact with other actors (Sarasvathy, 2009).

The theories of causation and effectuation point the path that entrepreneurs' chart when planning to launch new ventures, whether the entrepreneur has a set objective already or whether the entrepreneur has the means already. Either way, there is a need for evaluation of what he is trying to pursue and this theory will help to test if social interaction has an effect on one or both of the ways.

2.2.2 Social Network Theory

In simple terms, a network is a set of relationships. It is made up of a set of objects and an explanation of how the objects or nodes are related to each other. The simplest network comprises two objects with one relationship linking them. There need not be just one relationship mapped between 1 and 2. If there is more than a single relationship, it is known as a multiplex relationship. Relationships are most likely to be more than just sharing one or more attributes. In network theory, flows and exchanges are vital and these usually occur between the objects or the nodes. The depiction of relationships as sociograms allowed observers almost instant insight as to what was going on in small, simple, networks. The addition of graph theory to the tools for understanding networks further allowed for understanding and for manipulating

much larger and more complex networks. The simple networks of three units are called triads. Open systems are networks that do not necessarily have clear boundaries (Kadushin, 2012). A social network can be described as one or more relations linking a set of socially relevant nodes. Nodes are the elements that are linked by the relations whose patterns are studied. Social relations are usually inclusive of commonly defined relations, for instance, a friend or mental awareness. Interactions refer to behavioural actions such as talking with someone or inviting someone into one's home. Interactions typically happen within social relations with affective based measures often used as representations for each other (Carrington and Scott, 2011). Liu *et al.*, (2017) indicate that new media technologies, including social media, provide interesting opportunities to apply and extend social network theory while researching into the effects of social media. Hence the social network theory will help provide a deeper understanding of the part that networks play in entrepreneurship and understand how these networks affect opportunity evaluation.

2.2.3 Social Capital Theory

Social Capital is derived from social networks. Social capital, a neo-classical theory, is an investment in social relations with expected return (Lin 2001). It is a social asset consisting of the actors' associations and resources in a network, accessed through individuals engaging in interactions and networking. Social capital is entrenched in social networks and social relations and are accessed purposively by individuals (Bhandari and Yasunobu 2009). These networks are largely formed offline but with the growth in the use of the internet, these networks are also being formed online via social media. Individuals invest in social relations to enhance expected returns for their actions. The theory of social capital has however not been without controversies. In spite of the fact that some scholars perceive social capital from the societal-group stage or the relational stage, they all agree to the interpretation that it is the interaction

of actors that makes the maintenance and replication of social capital possible (Lin 1999; 2001). This theory explains how entrepreneurs have access to resources that they would need throughout the entrepreneurial process and how it helps them to easily achieve their objectives (Pena-López and Sánchez-Santos 2017). These resources might otherwise not have been accessible to them, but now available to entrepreneurs, aids them in taking vital decisions.

2.2.4 Resource Based View (RBV)

In considering whether a potential opportunity should be pursued or not, firms would evaluate the resources i.e. both tangible and intangible, that they have available to them to be able to profitably exploit the potential opportunity. The fundamentals of the study of entrepreneurship are identifying and exploiting valuable opportunities (Shane and Venkataraman 2000) and hence the Resource Based View can be applied in explaining how entrepreneurs would evaluate potential opportunities.

The Resource based view of the firm assumes that firms that possess resources that are heterogeneous and are not perfectly mobile across firms in an industry are able to identify how to gain sustained competitive advantage (Barney 1991). It is used to explain differences in the firm's performance over time (Hoopes *et al.*, 2003) which are not attributed to differences in the industry condition but to the firm (Peteraf 1993). The resource-based view studies the link between a company's internal characteristics i.e. resources and abilities and its performance against its competitors within the same industry. Barney (1991) classified the resources into three categories i.e. physical capital resources (e.g. plant and equipment, location), human capital resources (e.g. training, experience) and organizational capital resources (e.g. internal structures and systems). These resources of the firm are seen as heterogeneous and immobile across firms in an industry and have an effect on the firm's strategic progress although not all resources are strategically relevant at a point in time. Relevant resources must be valuable, rare,

imperfectly imitable and cannot have substitutes that are equally strategically relevant (Barney 1991).

A resource is of value when it enables a company to identify or implement strategies that exploit opportunities efficiently and effectively or neutralize threats. A resource is rare when it is not possessed by many firms and imperfectly imitable resources have no strategically equivalent resource i.e. cannot be substituted (Barney 1991).

However, Peteraf (1993) stresses the point that for resources to be immobile they must be specialized to the firm's specific needs and that the conditions of resources are not completely independent but are related. According to Peteraf (1993), external opportunities need to be matched to a firm's internal resources in order to have sustained competitive advantage.

2.3 Hypotheses Development

2.3.1 Relationship Between Online Social Interaction And Opportunity Evaluation

Venture creation which is born out of the discovery or creation of an opportunity benefits from Social Capital. Entrepreneurs obtain social capital from both pre-existing social networks and through proactive networking behaviour (Clough et al. 2019). Social Capital is resources acquired from networks and these resources include financial resources (Mollick, 2014; Banerji and Reimer, 2019) information (Upson *et al.*, 2017; Mention, Barlatier and Josserand, 2019; Scheaf *et al.*, 2019), and human resources (Hite, 2005). Resources from one's social capital are crucial to successful venture development. Networks have been proven to play a crucial role in opportunity formation and identification. For instance, entrepreneurship is shrouded in uncertainty but uncertainty can be reduced or eliminated by access to information (Beninger *et al.*, 2016; Keh *et al.*, 2002). Social Capital is obtained from physical contact with persons either through physical meetings or telephone conversations. Another means of obtaining resources is via online social interactions which provides access to a large amount of information,

especially via social media. Dimov (2007) points out that by obtaining resources through social interaction, the initial idea could either increase or decrease in scope given the wider set of interpretations that it could be subjected to.

From the review of literature, it has been established that factors such as uncertainty (McKelvie, Haynie and Gustavsson, 2011), idiosyncratic dispositions (Valliere 2013), emotions (Foo 2011a), prior knowledge (Haynie *et al.*, 2009) and values (Shepherd, Patzelt and Baron, 2013) and role identity (Mathias and Williams, 2017) influence the opportunity evaluation process. However, what has not been studied is how online social interaction can affect opportunity evaluation or affect all these factors, or if one factor impacts the process more than the other. A scale can be developed to measure the impact of these effects and their resultant changes to the opportunity. For instance, social interaction using social media can reduce uncertainty through the access of large amounts of information, give an indication on how emotions are formed or affected through the use of social media, provide insight on if gender responds differently when using social media and ascertain how the use of social media affects values and the creation of prior knowledge. Will an individual adjust mental images to fit others that they interact with on social media? Fischer and Reuber (2011) pointed out that social interaction plays a dominant role in effectuation processes including interaction via social media. However, the researcher believes that it is not the process of effectuation alone that is affected or is influenced by any form of interaction, including online interaction but also causation processes.

Social interaction and social capital are significantly impacted by social media. Social media is a collection of technology-based applications accessed via the internet which enables the formation and exchange of content developed by the users (Kaplan and Haenlein, 2010). It consists of social networks such as Facebook, micro-blogging services like Twitter and video-

sharing platforms like YouTube. Businesses use social media applications to interact with customers to enable them to improve performance. An example can be seen in how some banks use a variety of social media applications to interact with their customers (Setia, Venkatesh and Joglekar, 2013). Thus, it can be said that social media as a source of information is gradually becoming accepted in critical literature and in human interactions, being viewed as serving as an interactive and communicative medium. Apart from its role in social interaction and in aiding the opportunity evaluation process, social media offers a way of reaching potential customers and serves a source of new ideas and a means to share these ideas. Some entrepreneurs use it as an advertising and marketing tool as well as a means of expanding their networks (Park *et al.*, 2017).

The researcher considers the following hypothesis:

Hypothesis 1: Online social interaction increases the mean opportunity evaluation score.

2.3.2 Online Social Interaction And Using The Causation Or Effectuation Approach

Sarasvathy (2001, 2008) introduced the notions of causation and effectuation as processes by which new ventures are created. Venture creation is the result of either the discovery or creation of opportunities. It is the birth of opportunities. In other words, if there is no existence of an opportunity no ventures would be created. In her work Sarasvathy (2008) relates Causation to a jigsaw puzzle where an entrepreneur uses resources to take advantage of an existing market opportunity and creates a sustained competitive edge over his competitors. Here, the world is seen as one, having all the pieces readily available only needing to be assembled the right way to get the expected results (Chandler *et al.*, 2011). Sarasvathy (2008) relates Effectuation to a patchwork quilt. In this approach, the entrepreneur has to figure out the best way to develop an opportunity by using information as and when it becomes available. Here the world is seen as

still being developed with human action very crucial to this process. Several studies (Fisher, 2012; Harms and Schiele, 2012; Reymen *et al.*, 2015; Laine and Galkina, 2017; Ortega, García and Santos, 2017) have tested the use of the two processes in decision making, whether one is used more than the other or one being more effective than another. What has been found is that in the decision-making mechanism, there is the interplay of the effectual and causal logic and are key predictors of new venture growth. This means that whatever the case is, an entrepreneur will use one of the logics or use the two simultaneously and or interchangeably. Some researchers found that small companies use effectuation at the initial stages of setting up the venture and use causation during the latter stages (Berends et al. 2014). What has however not been studied is the outcome of the final opportunity using these.

It is hypothesized that;

Hypothesis 2: The effect of online social interaction is not the same across levels of effectuation and causation

2.3.3 The Effect Of Online Social Interaction On Opportunity Evaluation Mediated By Resource Availability

As mentioned in the Resource Based View, human capital is one of the resources that a firm possesses which can help it gain sustained competitive advantage. Human Capital has also been shown to be of distinct importance to entrepreneurship. Although some entrepreneurs have similar education and experience, the knowledge and skills they possess are different. Skills are required to function effectively. However, an entrepreneur may not possess all the skills, knowledge and abilities to pursue a potential opportunity and may thus rely on others to be able to do so. This is referred to as social capital. Baron and Markman (2003) differentiate social skills from social capital, indicating that entrepreneurs can get to know of an opportunity through social capital, but once such access is reached, entrepreneur's social skills influences

the outcomes they experience. In effect, the skills and resources that the entrepreneur does not have can be obtained from social capital and could influence their evaluation of identified opportunities. This study seeks to determine whether the relationship between online social interaction and opportunity evaluation is impacted by resource availability. The researcher thus hypothesizes that:

Hypothesis 3: Online social interaction has an indirect effect on opportunity evaluation through resource availability

2.4 Conclusion

This chapter sought to discuss the theoretical underpinnings of this study as well as develop the hypothesis that were tested in the study. The theories are the Social Network Theory, Effectuation and Causation Theory and the Resource Based View Theory.

CHAPTER THREE

3 LITERATURE REVIEW

“The digital world is part of our life. Wondering about the importance of social media nowadays is like wondering whether words are important.” (Arnaboldi, Azzone and Sidorova, 2017)

3.1 Concept of entrepreneurship

3.1.1 Definition of Entrepreneurship

Venkataraman (1997) defines entrepreneurship as unearthing, assessing and developing of future goods and services. This means the study of entrepreneurship entails the study of where opportunities come from, how they are discovered, their evaluation and exploitation as well as the individuals who go through this process and exploit these opportunities (Shane and Venkataraman, 2000). Researchers generally agree that opportunities discovered by specific individuals is the nexus of entrepreneurship (Grégoire *et al.*, 2010; Garud and Giuliani 2013; Venkataraman 1997; Shane and Venkataraman 2000). While Venkataraman (1997) postulates that the field of entrepreneurship is the existence of opportunities which are objective phenomena and subjectively discovered, Garud (2013) conceptualizes opportunities as both made and found through interactions of both the objective and subjective. Gregoire *et al.* (2010) see opportunities as arising from changes, be it the development of new knowledge, changes in behaviour of significant actors in the economy or simply changes in the macro-environment. These changes are not opportunities in themselves, but it is the actions that are taken due to these changes in order to derive benefits that are essential. Imperfect competition produces profit generating opportunities which can be either created or discovered (Alvarez, Barney and Anderson, 2013).

In this study, the creation of a new venture does not define the act of entrepreneurship

3.1.2 Global Perspective

Entrepreneurs are seen as vital components to the success of any country as they drive economic growth through innovation and job creation, not only for themselves but for others as well. In view of this, one of the major aims of governments is to promote the growth of entrepreneurship, which of course is not an easy task due to the heterogeneous nature of entrepreneurs (World Economic Forum, 2015; Chiara, Cesare and Bruno, 2017). The ratio in the growth of innovation is commensurate with an increase in economic development (Kelley et al. 2017) and growth in economic development includes technological innovations. It is therefore important that entrepreneurship is promoted in economies, especially developing ones. It is also imperative that current trends be incorporated into entrepreneurship training programs.

It is also interesting to note that the gender gap i.e. the number of women entrepreneurs to men entrepreneurs has narrowed by 5% (Kelley et al. 2017), which is a promising development for many economies that seeks to empower women, who make up a significant proportion of the population and contribute to national development if properly empowered.

3.1.3 Regional Perspective – The African Region

From a regional perspective, the age bracket for entrepreneurs for both male and female entrepreneurs is 25-34 and 35-44 respectively, indicating that it is a young section of the population that will be more open to adapt to changes that promote entrepreneurship. Unfortunately however, sub-Saharan Africa has the highest rate of entrepreneurs closing their business, followed by Latin America (Kelley et al. 2017). This is mainly because this region has more women entrepreneurs. Regrettably, female entrepreneurs face challenges such as unprofitability more than their male counterparts (Kelley et al. 2017), affecting the rate at which they close down their entrepreneurial ventures.

3.2 The Entrepreneurial Process

Entrepreneurs are individuals in an economy who pursue opportunities to create wealth (Dimov 2007; Alvarez *et al.*, 2013) and it is, therefore, important to understand the actions and behaviours of entrepreneurs (Chandler *et al.*, 2011). Entrepreneurship is a dynamic process (Muñoz 2017) which studies the discovery and exploitation of profitable opportunities. Although it has been widely accepted that entrepreneurship contributes to economic growth, there are some entrepreneurial ventures that may actually contribute little. However, these entrepreneurs may serve other objectives other than economic and in so doing promote societal transformation (Welter *et al.* 2017). Welter *et al.* (2017) define Entrepreneurship as social technology extensively accessible to anyone wanting to create a venture. The objectives for creating the venture may be countless. Entrepreneurship can thus be said to be heterogeneous and can sometimes be messy and at other times splendid. Before opportunities are eventually exploited, they would need to be assessed to ascertain their viability and profitability (Shepherd, McMullen and Haynie, 2009) through the process of Opportunity Evaluation.

Opportunity evaluation is a vital stage of the entrepreneurial process. It is the bridge between opportunity identification and exploitation. However, opportunity evaluation is a less studied phenomenon (Wood and Mckelvie, 2015) and if studied at all, the impact society has on the process, to our knowledge, has not been studied extensively (Shepherd 2015). Entrepreneurs do interact with their environment and it is most likely that this interaction has an impact on the entrepreneur's mind, causing the potential opportunity to be either refined or abandoned completely. Emotions, cost, high risk, and uncertainty impact entrepreneurial decision making as to whether to pursue or abandon an opportunity (Alvarez, Barney and Anderson, 2013; Emami and Dimov, 2017; Shepherd and Patzelt, 2017). Products and services churned out by entrepreneurs are solutions to problems and entrepreneurs identify these problems through

interaction with society. For example, Amazon changed its delivery services from the day to the night because during the day, most people are not at home.

Globally, technologies are changing very fast and these changes play significant roles in entrepreneurship but have not yet been captured by existing entrepreneurial theories (Shepherd and Patzelt, 2017). For instance, with the evolution of technology, there are new ways of attracting funding to exploit an idea such as crowdfunding. There is also growth in the use of social media, causing a change in the way individuals communicate, interact and make decisions (Wang, Van Fleet and Mishra, 2017). An increasing number of entrepreneurs are using social media, like Facebook, for the benefit of their businesses. They use social media applications to find new market opportunities for their products through online surveys and to collaborate and communicate, using it as a source of information for product improvement and to gain competitive advantage (Bashir, Papamichail and Malik, 2017). However, studies on social media have concentrated on how beneficial these tools would be to the business, with particular focus on using these mediums as marketing tools rather than on how social media use affects the individual entrepreneur's cognition and behaviour (Fischer and Reuber 2011). Often, these authors pointed out that social interaction plays a dominant role in effectuation processes, including interaction via social media but the researcher believes that it does not only affect effectuation processes, but also causation processes.

Through a mixed method methodology, the study is aimed at having a deeper understanding of how the use of social media by entrepreneurs affects the evaluation and refinement of potential opportunities through both effectuation and causation processes. It intends to elucidate how online social interaction causes changes in the mind of the entrepreneur (raising either doubt or belief) which in turn generates changes to the potential opportunity.

The literature review provides a comprehensive overview of entrepreneurial opportunities, opportunity evaluation, the process of effectuation and causation, the role of networks and the use of social media see figure 3.1 below.

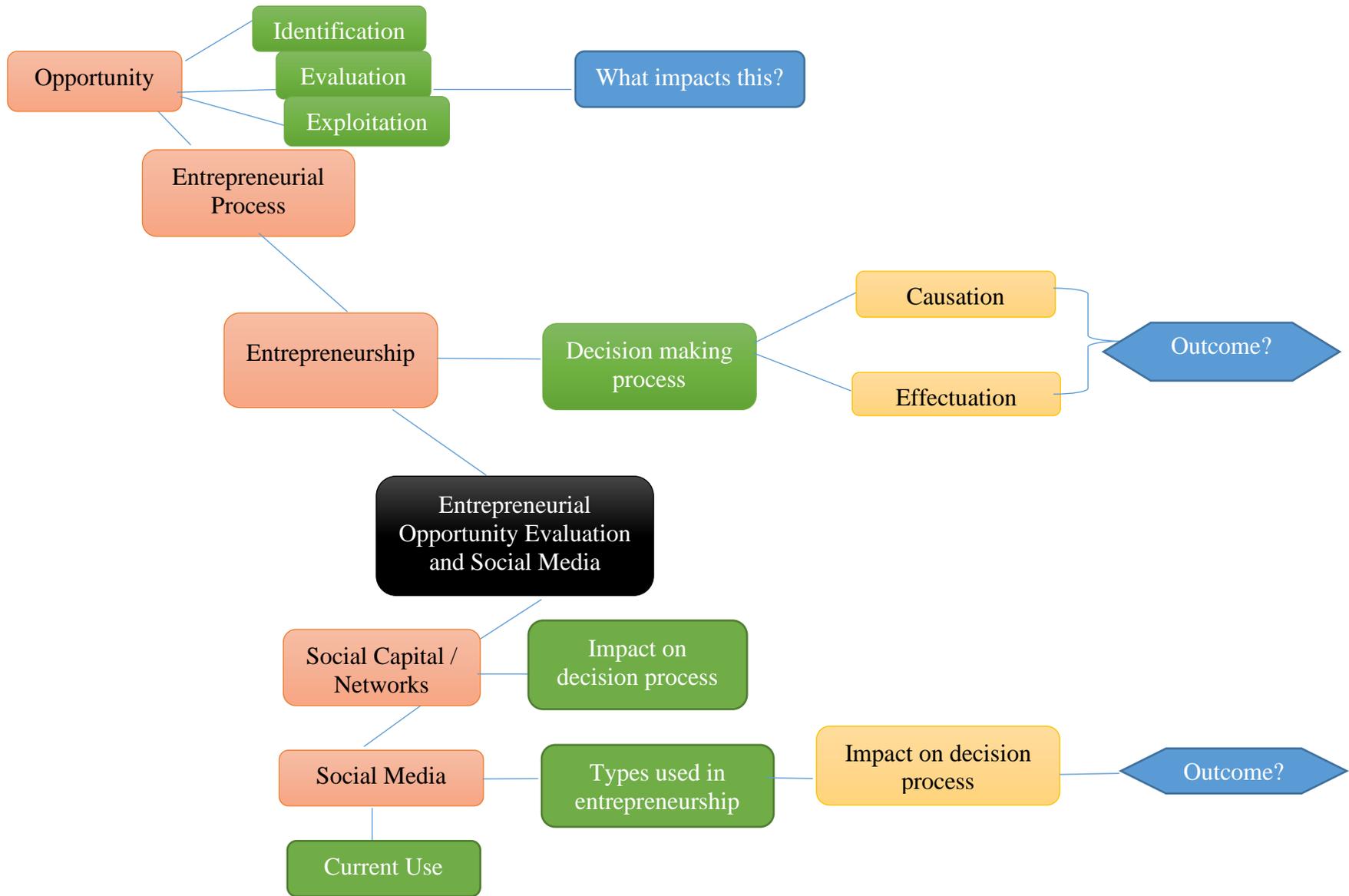


Figure 3-1 Concept map showing important points and concepts identified

3.3 Opportunities and Entrepreneurship – Philosophical views

The question of where opportunities come from has been one question that has been extensively researched into in the study of entrepreneurship. Davidsson (2015) described the concept of opportunity as very elusive. Opportunity confidence is a subjective assessment of an idea that triggers entrepreneurial activity (Davidsson 2015). There have been various debates on the concept of opportunity and this is also embedded in the larger philosophy of science about realist and constructionist paradigms (Alvarez, Barney and Young, 2010). To some, opportunities are discovered and to others, they are created.

3.3.1 A Realist Approach to Opportunity Formation

In simple terms, an opportunity is a market imperfection. In this paradigm, opportunities exist to be exploited but only individuals with certain qualities are able to discover them (Shane and Eckhart, 2003) and have a precise view of ‘reality’ (McMullen and Shepherd, 2006). Opportunities are seen to arise from market imperfections caused by changes in society such as technological changes and are waiting to be claimed by those who are alert and know of their existence (Alvarez, Barney and Young, 2010). Kirzner (1973) summarizes this by saying that entrepreneurs are more able to spot opportunities than non-entrepreneurs. The fundamental ontological position here is that opportunities exist whether the individual is aware or not but the knowledge necessary to know their existence can be attained. However, this view of opportunities is limited by the fact that it does not support ontologies that are not open to empirical analysis. Hence, in this view opportunities should be assessed and evaluated as being valid before an entrepreneur exploits them (Alvarez, Barney, and Young 2010).

3.3.2 A Constructionist Approach to Opportunity Formation

In this view, opportunities are created via interaction and interpretations of individuals. It is the individual who chooses what to create with available resources to achieve this task. Resources are put to novel use. Effectuation logic (S. Sarasvathy 2001) and bricolage (Baker

and Nelson, 2005) demonstrate this approach. In a constructionist view, an entrepreneur evaluates their environment and the resources available and sees what can be accomplished but this does not mean it can actually be accomplished in reality. The main purpose of the entrepreneur is to go through an iterative process to recreate an existing reality into a new one and hence, into opportunity. Opportunity creation and the entrepreneur cannot be treated separately. This is because the differences in the entrepreneur's perceptions and mental beliefs as well as the entrepreneur's interpretations are what construct these opportunities. This is a problem because those who hold this view pre-suppose the presence of an existing market that is redefined due to the introduction of a novel opportunity via human action (Alvarez, Barney and Young, 2010).

3.3.3 An Evolutionary Realist Approach to Opportunity Formation

In referring to Campbell's (1974) approach, Alvarez *et al.* (2010) indicate that the evolutionist method of opportunity development builds on the strengths of the first two approaches. It says that the existence of reality places constraints on individual action. In this approach, individual knowledge is validated via social cross-validation and then actions selected in favour of or not in favour depending on the disparity in the environment or culture. The action element distinguishes the constructionist approach from the evolutionary realist approach in the creation of opportunities. Unlike in the former, where action is not necessarily needed, the evolutionary realist approach does require action (Alvarez, Barney and Young, 2010).

Baron and Ensley (2006) combined the constructionist and realist view in defining opportunities, saying that opportunities are created through the interaction of multiple actors in social and technological processes and that they exist independently of an individual's cognitive perception. Therefore social, political, and technological changes are important factors that have an effect on the process of entrepreneurship (Eckhardt and Shane, 2010).

In summary, some entrepreneurs discover and develop opportunities within markets and Schumpeterian entrepreneurs exploit opportunities found outside the market and then introduce it to the market (Alvarez, Barney and Young, 2010).

Although this study agrees with Baron and Ensley (2006) that opportunities are developed through the interaction of multiple actors, the researcher does not see them as existing independently of an individual's cognitive perception because the individual is part of the social processes and these do affect cognition.

3.4 Opportunities and Entrepreneurship – Other views

Moving away from the philosophical definitions of opportunity, there have been variations in the opportunity literature as to the definitions of the construct. In his conceptual study, Davidsson (2015) noted that about 80% of studies relating to opportunity did not provide a definition. In studies that had a definition, there were diverging views on its nature and how they relate to entrepreneurs.

One of the earliest definitions of entrepreneurship was its description as a set of conditions that aid the introduction of new goods, new services, and new processes at a lower cost and sold at a profit (Shane and Venkataraman, 2000; Shane, 2012). Alvarez *et al.* (2013) suggest that there are opportunities once there are imperfect but competitive market conditions. Kornish and Ulrich (2011) defined opportunity as an innovative idea that may have value if a substantial investment is made while Wood and McKinley (2010) said an opportunity is a desired prospective condition that is viable in spite of the immediate resources not being available to the entrepreneur. For his part, Dimov (2007) defined it as the steady development of an initial idea and its associated actions to a completely formed idea including the start and operation of a new venture. Grégoire *et al.* (2010) explain opportunity to mean that it is a projected course of action in order to introduce new or improved goods and services that solve market failure

problems at a profit. Wood and McKinley (2010) see an opportunity as a subjective idea that has not yet been tested but can be transformed as it progresses steadily and eventually becomes “objective”. These definitions show the variations in the definition of the construct. While some researchers viewed it as action-oriented (Dimov 2007; Grégoire *et al.*, 2010), others see it as an objective phenomenon (Shane and Venkataraman, 2000), others thought of it as being subjective (Dimov, 2007; Kornish and Ulrich, 2011) and the inclusion of social actors (Shane and Venkataraman, 2000; Alvarez, Barney and Anderson, 2013).

Not only are there variations and inconsistencies as to the definition of the construct among authors, but within the articles of some authors themselves, there are variations as well as some authors who do not even stick to their own definition in subsequent studies (Shane, 2000; Shane and Venkataraman, 2000; Wood and Williams, 2014; Wood, McKelvie and Haynie, 2014).

According to Davidsson (2015), an opportunity can be said to be something that actors act upon to generate profit, whether created or discovered, for themselves or others. A new venture, on the other hand, is described as a mental picture of goods or services with a ready market to purchase them and the necessary resources to bring them into existence (Davidsson 2015).

From these definitions, although varied, it can be concluded that an opportunity identified should eventually lead to the production of goods or services to a market for profit and these opportunities are either created or discovered by an individual.

3.5 Identification of opportunities

The distribution of information is asymmetric, hence only some people will have information about market disequilibrium at any point in time. This disequilibrium also occurs because people specialize in information and at any point in time are exposed to the information that they have specialised in. Different people have different and varied access to information; this

can be explained by three factors: Knowledge corridors, search processes, and social networks (Eckhardt and Shane, 2010).

3.5.1 Knowledge Corridors

Being able to collect information about opportunities is developed through social relationships, work experiences, formal education (S Venkataraman 1997) and happenings known as knowledge corridors. These experiences trigger people's ability to know about available resources, new technology and changes in regulation before others do, thereby giving them an advantage in discovering opportunities (Eckhardt and Shane 2010). But having access to information is not the only determinant in opportunity discovery, as some people are more able to take advantage of changes and combine relevant resources profitably. It means that some people are able to place a better meaning of information and this may be explained by the differences in knowledge that each possesses. This is referred to as prior knowledge, which is derived from different life experiences including education and work thereby making it almost impossible for two individuals to have the same prior knowledge (Eckhardt and Shane, 2010). Park *et al.* (2017) pointed out that knowledge obtained through social networking and prior experience/knowledge gives an individual a better chance to recognize opportunities and new markets through heightened alertness.

In sustainable entrepreneurship, opportunity recognition is triggered by what is referred to as "experience corridors" which is seen as an extension of 'knowledge corridors' and points to the fact that individual life happenings, whether private or professional, also have an effect on opportunity recognition (Belz and Binder, 2017).

3.5.2 Search

People are in possession of information because they make a conscious effort to look for it as long as the cost of looking for that information is lower than the anticipated gains that would

be derived from it. The cost of searching for information is lower for some than others because of experiences gained from transacting in diverse markets. Local search is cheaper than distant search, hence the probability is that opportunities that are discovered are within their knowledge base (Eckhardt and Shane, 2010). However, with the increase in the use of the internet and with it the spurge of the formation of online networks, the world is now a global village and information search has become much easier and cheaper, thereby making it possible for opportunities anywhere to be discovered which would have under normal circumstances been out of reach to the potential entrepreneur.

3.5.3 *Social Ties*

Social network theory (Burt 1992; Granovetter 1973) advances the idea that individuals are more exposed to information through networks. The theory holds that people are embedded in networks that form conduits of information that aid in decision making (Upson et al. 2017). The quantity of information, the quality of that information and how quickly people are able to assess that information is essential in opportunity discovery and is determined by the structure of social relationships. How these relationships are structured depends on the individual and can be intentionally designed in such a way to enable the rapid discovery of opportunities. The structure of social networks impacts the number of innovative ideas identified by entrepreneurs (Eckhardt and Shane, 2010). These social networks are either pre-existing or formed through deliberate effort (Clough et al. 2019). Ripollés and Blesa, (2019) hold the view that the creation of social capital depends on the actions that the individual (s) carries out to build and maintain social capital.

3.6 Opportunity Evaluation

3.6.1 *Opportunity For Me or Someone Else*

Entrepreneurs evaluate opportunities based on performance and also on their own characteristics, which influence the decision to exploit an opportunity. It is not every

opportunity that an individual would want to exploit depending on their risk appetite and the expected value. Although an opportunity might be evident; it is not everyone who would want to exploit it. Skills are considered vital in the evaluation of an opportunity. An individual who recognises an opportunity may not have the requisite skills to exploit it or have the necessary social connections to implement it. There needs to be a fit between the individual and the identified potential opportunity (Davidsson 2015). Thus, a vital opportunity may not be exploited or will be exploited by a different person (Eckhardt and Shane, 2010). An opportunity is thus either seen as a 1st person opportunity, where the individual sees himself as being able or wanting to exploit an opportunity himself or as a 3rd person opportunity, where the individual thinks the opportunity should be exploited by someone else. The shift from a 3rd person opportunity to the 1st person opportunity is called Opportunity confidence, and it is when an individual now changes his mind from an idea being a 3rd person opportunity to a 1st person opportunity (Davidsson 2015).

To exploit an opportunity means that entrepreneurs must either create products or provide a service and sometimes construct new organizations. For that to happen, he or she must believe that the value of the recombined resources would be higher than if those resources were exploited in their current form. An entrepreneur who discovers an opportunity may solicit the help of others during the exploitation process and these sets of people may vary at each stage (Eckhardt and Shane 2010).

3.6.2 *An Idea to Pursue or Not to Pursue*

In their qualitative research, Conger *et al.* (2017) find that although entrepreneurs face tensions in trying to evaluate the potential opportunities they wish to pursue, this tension varies for prosocial entrepreneurs Conger *et al.* (2017). Entrepreneurship is seen as a journey that has non-linear processes, which requires that entrepreneurs make continual adjustments in order to proceed (Alvarez, Barney and Anderson, 2013; Garud and Giuliani, 2013; Muñoz, 2017).

Entrepreneurship, similar to health issues, has a lot of uncertainties which makes decision making a daunting task. Relating decisions in healthcare to decision-making in entrepreneurship is significant in the sense that in both situations there are constraints that determine how much of the available resources are going to be allocated in making a decision to move forward. In other words, decisions are made with inputs from credible sources in such a way as to minimize the negative consequences and at the same time ensure a better outcome (Sadovykh, Sundaram and Piramuthu, 2015). Evaluation in ventures therefore requires a lot of careful decision-making, time and effort. Opportunities must be evaluated and most likely refined to ensure competitive advantage and maximum returns. Like healthcare decisions, entrepreneurial decisions are complex by nature, prompting an instinct to share information and seek relevant advice to aid in good decision-making. Sometimes, the decision-making process can be nasty, narrowed, scattered or unclear (Sadovykh, Sundaram and Piramuthu, 2015).

In his empirical paper of sustainable entrepreneurship, Muñoz (2017) stressed that entrepreneurial action involves the interplay of a number of confounding elements, all of which are essential and interrelated. The three entrepreneurial processes of discovery, evaluation, and exploitation are not sequential but interrelated, and it is because of this interrelatedness that equal attention needs to be given to the evaluation process. To achieve a complete understanding of the entrepreneurial process, evaluation needs to be clearly distinguished from opportunity recognition and exploitation (Smith, Kickul and Fiona, 2010). The difference between opportunity recognition and evaluation is that recognition focuses on how opportunities emanate and the role that entrepreneurship plays in identifying them as 3rd person opportunities whereas evaluation involves entrepreneurs classifying them as 1st person opportunities i.e. finding the opportunity attractive enough to exploit it themselves after careful

assessment. Exploitation differs from evaluation in that the shift is now from cognitions to actions (Wood and Mckelvie, 2015).

3.6.3 Opportunity evaluation - A less studied construct in the Entrepreneurial Process

Opportunity evaluation has been understudied due to the difficulty in defining the construct, especially by entrepreneurs trying to grow their ventures (Shepherd, McMullen and Haynie, 2009). Dimov (2010) defined it as an entrepreneur's assurance that a recognized opportunity can be explored through the creation of a venture while Haynie, Shepherd and Patzelt (2012) defined it as being able to perceive that a potential opportunity can successfully create prospective goods and services. Yet another definition by Autio *et al.* (2013) described opportunity evaluation as assessing whether an opportunity recognized as a 3rd person opportunity is viable and seen as an appropriate 1st person opportunity worthy to be exploited. Primarily, opportunity evaluation is seen as a cognitive process (Keh, Foo and Lim, 2002). Thus, opportunity evaluation can best be defined as a cognitive, open-ended future-focused activity that depends on the actions of the entrepreneur (Dimov, 2007; Shepherd, McMullen and Haynie, 2009; Wood and Mckelvie, 2015). It is a first-person opportunity assessment (Shepherd, McMullen and Haynie, 2009) but not the same as the choice to exploit. Opportunity evaluation is an activity that happens in the mind and involves analysing situations and conditions so as to make a decision on what can be achieved within the conditions (Wood and Mckelvie, 2015). It is a decision-making process where the entrepreneur makes his decision based on the attributes of the opportunity which include economic, environmental and social attributes as well as on the satisfaction that the entrepreneur will derive from pursuing the opportunity (Smith, Kickul and Fiona, 2010). Opportunity evaluation in particular and entrepreneurship in general has been viewed as a process made up of different cognitive structures Muñoz (2017). In spite of this, Muñoz (2017) cautions that entrepreneurs should

not be seen as heroes in their field with exceptional cognitive abilities. Rather what an entrepreneur does should be viewed not as a static activity, but as changes in the individual over a period of time which can have an impact on how decisions are made. For example, an increase in knowledge in the entrepreneur can have an impact on the assessment of potential opportunities (Shepherd and Patzelt, 2017).

3.6.4 Prior Reviews on Opportunity Evaluation

Although understudied comparatively to opportunity recognition and exploitation, there are both conceptual and empirical studies on the concept of opportunity evaluation. In their conceptual work, Wood and Mckelvie (2015) grouped these studies under four main themes namely Mental Models, Integration, Congruence and Action Orientation. Three of these themes will be explored in the subsequent sub-headings.

3.6.4.1 Mental Models

Entrepreneurship researchers who fall under this theme (for instance Ardichvili *et al.*, 2003; Keh *et al.*, 2002) agree that entrepreneurs form mental images about ideas and circumstances representing future potential opportunities and from there assess how attractive these opportunities could be, based on the images that they have created in their minds. Muñoz (2017) puts it simply as cognition acting and impacting individual behaviour, thereby generating mental models of the world. These researchers point to the fact that opportunity evaluation is a gradual process that develops through individuals using personal experiences and information to create a mental image of the opportunity and use that to assess its viability and attractiveness (Wood and Mckelvie, 2015).

Keh *et al.* (2002) established that entrepreneurs use cognitive frameworks in evaluating opportunities. These frameworks, the authors argue, are developed by the perceived risk – a perception that is influenced by the entrepreneur’s previous experience. Perceived risks are a

constant factor in this model, because decision-making in relation to whether an idea is an opportunity or not is usually accompanied by uncertainty, and this uncertainty pertains to risk as entrepreneurial situations are most often new and unpredictable. In the Mental Model conception of opportunity evaluation, the less the perceived risk, the more likely that an idea would be favourably evaluated. However, uncertainty can be reduced or eliminated by access to information (Keh, Foo and Lim, 2002) which can be also obtained via social interaction which provides access to a large amount of information, especially via social media.

3.6.4.2 Integration

Studies here focused on understanding how individuals incorporate personal dispositions, knowledge, and goals into their mental images of potential opportunities. Thus this concept looks at the intersection of circumstances and individual specific factors influence cognition in the evaluation of opportunities (Wood and Mckelvie, 2015). Dave (2008) supports this position by arguing that the evaluation of opportunities is more than just an individual economic assessment of circumstances or situations, but rather an integration of other social and cultural contexts like religious beliefs. Religious beliefs especially, she found, act as a significant determinant of motivation in opportunity evaluation. In other words, religious values are integrated into the assessment process, thus moving the entrepreneurial process into the context of society.

Like beliefs, emotions are also integrated into the opportunity evaluation process, as emotions cause individuals to see risks differently (Foo 2011). Emotions have an effect on risk perception and risk preferences. For instance, entrepreneurs might evaluate an opportunity positively on a pleasant day mainly because of positive emotions arising out of that day while evaluating the same opportunity negatively on a bad day. Emotion has the ability to influence other processes that affect opportunity evaluation such as information recall or the processing of new information (Foo 2011). Similarly, Opportunity Evaluation is also affected by gender

differences (Gupta *et al.*, 2013). As indicated by Gupta *et al.* (2013) in their study, when it comes to opportunity evaluation, men more than women evaluated opportunities more positively.

3.6.4.3 *Congruence*

This theme investigates the degree of congruence between the individual's mental image of the opportunity and that held by others in relation to the same opportunity (Wood and Mckelvie, 2015). This conceptual theme dwells on the premise that it is not just the individual that evaluates potential opportunities but that there are other stakeholders involved in the decision to pursue a particular opportunity. The most prominent group discussed in this group of literature are financial investors who often are seen to be looking at the same set of circumstances in forming a mental representation in making a decision regarding an opportunity to be explored. The central theme here is the point to which there is a fit between the mental model constructed by stakeholders, especially investors, and that formed by the individual (Wood and Mckelvie, 2015).

Researchers in this theme have mainly centred on how there is congruence between the entrepreneur's evaluations and that of investors (Murnieks *et al.* 2011; Dimov 2010). Bammens and Collewaert (2014) added the issue of trust between investors and entrepreneurs when evaluating an opportunity and that perceived trust influences the assessment of how a venture would perform.

In spite of the fact that congruence has been seen to be an important factor in opportunity evaluation literature, to the best of the researcher's knowledge, no study has been done on how the evaluation process should or can be influenced by the congruence between the entrepreneur's mental representations of opportunities and other important stakeholders such as customers and suppliers (Wood and Mckelvie, 2015).

Although there appear to be different themes in the opportunity evaluation literature, the themes can be brought together in a comprehensive whole by explaining the process of opportunity evaluation. This explanation follows that the conception of ideas by individuals can be triggered by events or circumstances and as soon as these ideas are perceived to be a potential opportunity to be exploited by the individual himself then mental representations are constructed. These mental images are then influenced by the individual's existing knowledge and goals. These images are additionally shaped by social perception which is where individuals try to incorporate the views of significant others in their image formation and thus making them congruent with the image held by them (Wood and Mckelvie, 2015).

3.6.5 Role Identity and Opportunity Evaluation

Mental models, integration and congruence are only a few of the concepts that explain opportunity evaluation. Mathias and Williams (2017) found that decisions regarding opportunities were affected by the underlying role entrepreneur plays at the time of decision-making. The idea is that the entrepreneur's position affects both the consideration of the activity and its selection. The model makes the assumption that entrepreneurs take on different roles in their day to day work activity. In their entrepreneurial role, opportunities that would usually be considered are those that relate to the current business, irrespective of the risks and those that are closely commensurate with his human capital. On the other hand, an entrepreneur who finds himself making a decision while he has assumed a managerial role would be more cautious. Opportunity evaluation is thus affected by the situation the entrepreneur finds himself in at the time of making a decision. One is bound to ask the question, 'will an entrepreneur still decide to exploit an opportunity that is not aligned with his human capital if he can find that human capital elsewhere to complement his efforts?' The answer may be in if the entrepreneur can obtain human capital to back his efforts, and one way of obtaining human capital to exploit an

opportunity is through social interaction which may cause the entrepreneur to then evaluate a potential opportunity differently than before.

3.6.6 *Intensions and Opportunity Evaluation*

Kreuger’s (2009) intention model (shown in figure 3.2), highlights factors that affect entrepreneurial intensions in pursuing identified opportunities. These factors are an individual’s attitude towards entrepreneurship and social norms, an individual’s personal ability and collective ability, and the effect entrepreneurial ability has on the evaluation of outcomes. Of these factors, social norms refer to the degree to which one sees his behaviour as being consistent with the thoughts of other people he considers significant. Intentions to pursue a potential opportunity can be seen to be a form of evaluation. In their study with Iranian students and Tourism, Esfandiar *et al.* (2017) found out that the desire towards venture creation is higher when the attitude toward entrepreneurship is more positive. The study also found that the impact of social norms has a much bigger effect if the culture was collectivistic. In this study, it would be interesting to find out if online social interaction has any impact on any of these factors affecting opportunity evaluation.

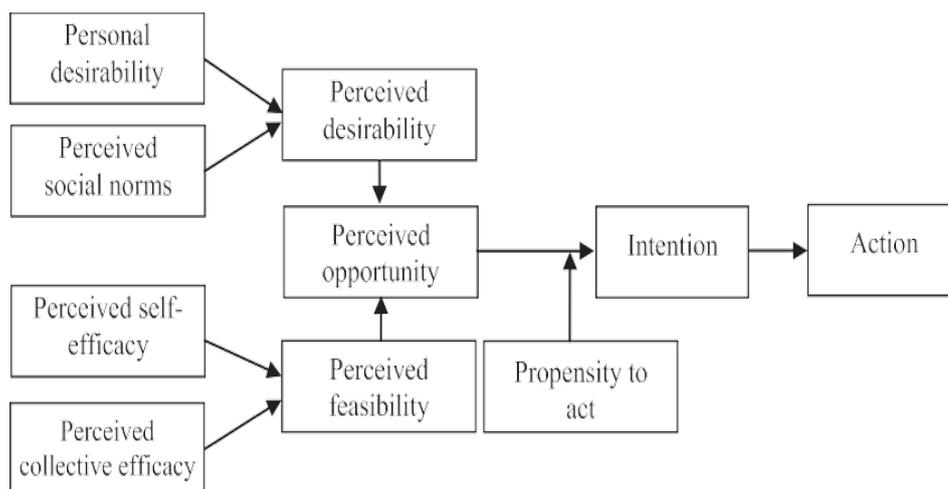


Figure 3-2 Model of entrepreneurial intention (Source: Krueger, 2009).

3.6.7 An Identity Control Model of Prosocial Opportunity

Opportunity evaluation, some authors suggest, happens in the context of social interactions. Some entrepreneurs are prosocial, and their evaluation of opportunities are dependent to some extent on the feedback they receive from their social networks. Conger *et al.* (2017) describe how prosocial entrepreneurs re-evaluated their opportunities after having received Certification. For some entrepreneurs, the re-evaluation of their opportunities caused them to do more and this Conger *et al.* labelled as “opportunity amplification” while for those who, although did a re-evaluation, did not commit resources to it and eventually abandoned the ventures and were labelled as “opportunity fracture”. For others, being a member of B Corp did not cause them to change the goals or evaluate their opportunities. This was labelled as “opportunity Stasis” in figure 3.3 below. Receiving certification results, whether good or bad results, caused entrepreneurs to rethink their goals and drew their attention to other possible opportunities. This means that interaction from environments outside the entrepreneur’s domain could have an effect on how opportunities are identified and existing ones evaluated.

Essentially, re-evaluation of opportunities depends on how open entrepreneurs are to change and how it would positively affect their bottom line (Conger et al. 2018). In prosocial entrepreneurship, opportunities are a reflection of an entrepreneur’s beliefs about how attractive and feasible the opportunities are. In such a situation, the entrepreneur will only re-evaluate them if the expansion of their ventures can be sustained and the expected outcomes are valuable (Conger et al. 2018). Entrepreneurs will only consider opportunity re-evaluation if they believe they can pursue the re-evaluated opportunity.

Feedback in any form could lead to entrepreneurs abandoning their venture ideas. For some entrepreneurs, feedback did not change their opportunities, and receiving feedback has little or

no effect on their decision. Such entrepreneurs will not change or re-evaluate potential opportunities regardless of the feedback received (Conger et al. 2018).

By studying entrepreneurs pursuing membership in the prosocial category, Conger *et al.* (2017) inductively developed a model of why and how category membership impacts opportunity re-evaluation of prosocial opportunities. In figure 3.2, the model shows that before an entrepreneur decides to adopt the new identity standard, the cost and benefits of obtaining that identity were weighed before a final decision was made to get the certification. After the certification had been obtained, the extent to which entrepreneurs engaged in opportunity re-evaluation was greatly influenced by whether the entrepreneur had taken a self-justifying identity position as opposed to a more open-to-change posture. The outcome of the final opportunity thus depended on the posture of the entrepreneur, which would then lead to further assessment of the opportunity against feasibility, internal conflict, power, and position.

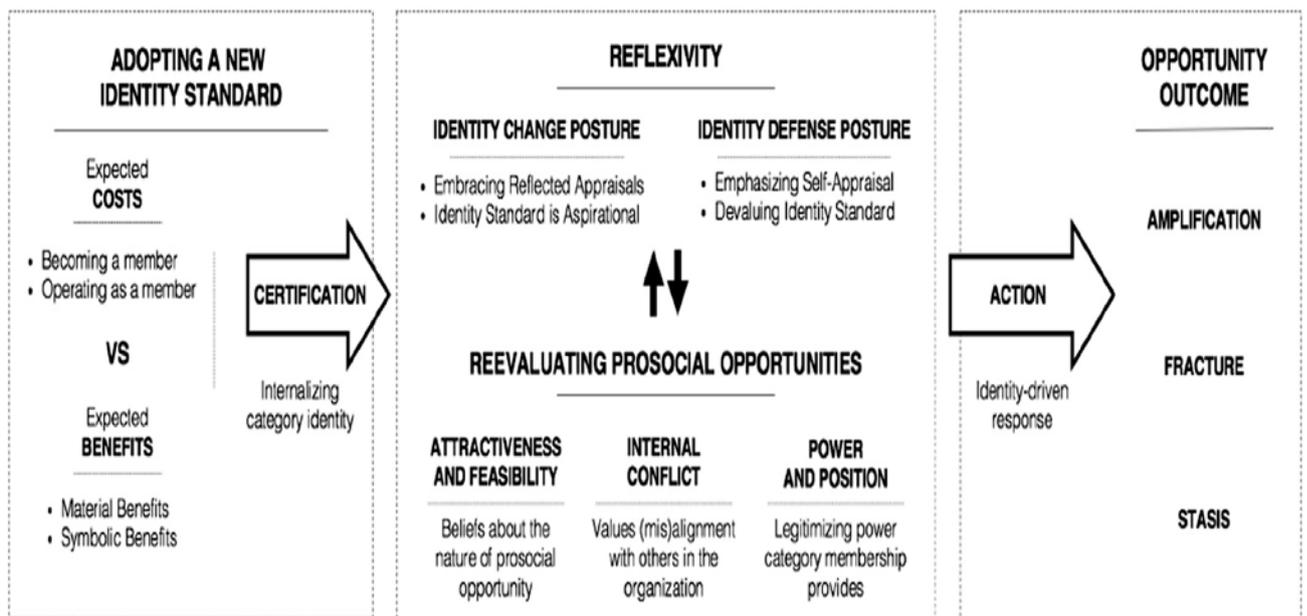


Figure 3-3 Identity control model of prosocial opportunity (Source: Conger et al., 2017)

3.7 Opportunity Evaluation from the Social Perspective

Ideas do not come fully formed and from every stage beyond the conception stage, ideas are usually different from how they were originally conceived. Ideas go through a dynamic non-linear process of refinement as entrepreneurs engage in information seeking and value exchange with other social actors (Dimov, 2007; Braun *et al.*, 2017). It can therefore be said that opportunities are the results of the successful combination of various actions towards pursuing a goal or motive (Conger *et al.* 2018). Simply, opportunities are the outcome of the continuous development and modification of an idea. In the modification process, not only are social actors engaged to help shape opportunities but they are also engaged in helping the entrepreneur gain legitimacy (Conger *et al.*, 2017; Dimov, 2007) . Before an opportunity emerges, it must have been an idea; it only becomes an opportunity after it has been ascertained that it has commercial viability and the ability to generate profits. Dimov (2007) describes opportunity development as a social, learning process which affects the entrepreneur's knowledge during the development of the idea into an opportunity. Hence opportunity evaluation is not the deed of a single person but is shaped by social interaction. In other words, although new venture ideas are cognitive in nature, they can still be shared with others to test their reactions (Davidsson 2015). New venture ideas can be pursued or not because they are either correctly or incorrectly assessed (Davidsson 2015).

3.8 Opportunity Evaluation - Resource Assessment and Networks

Entrepreneurs start out by assessing their capacities. In other words, an entrepreneur has to evaluate if he has all the necessary resources available because, in spite of the fact that an individual may recognize himself or herself as having strong abilities to pursue entrepreneurship, these abilities may not be enough to ensure the creation of a successful venture (Esfandiar *et al.* 2019). It is the entrepreneur's personal assessment, by exploring the various combinations of available resources, that would most likely succeed in generating a

desired innovation (Leyden, Link and Siegel, 2014). Yet nascent entrepreneurs are usually resource-constrained (Yu *et al.*, 2014; Rasmussen, Mosey and Wright, 2015) and lack the required competencies to be able to make valuable decisions, such as evaluating an opportunity. The evaluation procedure is affected by the ability of the entrepreneur to combine effectively and efficiently existing resources profitably and by how much new resources can be related to existing ones (Shepherd, McMullen and Haynie, 2009). Generally, opportunities are seen as more attractive when they are related to the individual's human capital i.e. knowledge, skills, and abilities, implying that specific human capital is vital in opportunity evaluation (Shepherd, McMullen and Haynie, 2009). However, needed human capital can be acquired from networks (Yu *et al.* 2014) bringing to the fore the possibility of evaluating ideas and opportunities in a different way. Entrepreneurs may stand to benefit from collective abilities (Esfandiar *et al.* 2019). Knowing that these abilities of others exist may influence entrepreneurial intentionality (Esfandiar *et al.* 2019) and consequently, the evaluation of potential opportunities.

Entrepreneurs embark on their entrepreneurial process by leveraging their networks and contingencies, leading to various conclusions (Nowiński and Rialp, 2016). They interact with both their immediate social network and with others outside their network to develop their ideas (Greve and Salaff, 2003). Depending on who the interaction is taking place with, the idea may take diverse forms or probably, get completely abandoned (Dimov 2007). The bigger the network, the bigger the knowledge base, leading to varied interpretations that the idea can be subjected to. The social impact on the opportunity development is the combination of interpretation and integration of inputs that the potential entrepreneur receives from the social audience (Dimov 2007). Entrepreneurial networking is important, as suggested by Braun *et al.* (2017) who make the cases that the focus of entrepreneurship should go beyond the individual (the leader), go beyond entrepreneurial teams and move in the direction of entrepreneurial organizations embedded in networks of interorganizational relationships to enable

entrepreneurial ventures exploit innovation and creativity. The work by Braun *et al.* (2017) contributes to the literature that sees networking as a vital activity in nascent entrepreneurship, attributing to networking the capacity for generating creative outcomes leading to the application of new technology, the implementation of a new business model or the final products or services.

From the analysis above, it is clear that factors such as uncertainty (McKelvie *et al.*, 2011), idiosyncratic dispositions (Valliere, 2013), emotions (Foo 2011), prior knowledge (Haynie *et al.*, 2009) and values (Shepherd *et al.*, 2013) and role identity (Mathias and Williams, 2017) influence the opportunity evaluation process. The availability of such literature on these factors not regarding, there exists a gap in knowledge on how social interaction can affect all the factors enumerated above. We know, for instance, that social interaction through the medium of social media can reduce uncertainty by availing the entrepreneur with a surfeit of information (Keh, Foo and Lim, 2002). What is unknown, however, are answers to questions such as: how are emotions formed or affected through the use of social media? Is there a different response from males and females when using social media? How does using social media affect values and the creation of prior knowledge? Will an individual adjust mental images to fit that of other people they interact with on social media? All these questions remain unanswered in the opportunity evaluation literature. The lack of critical exploration is especially so for the congruence theme which rests on social cognition by means of comprehending information about those involved in the entrepreneurial process. The existing literature on the theme has focused on how investors are involved in evaluation, and not so much on how social interactions interact with opportunity evaluation (Murnieks *et al.*, 2011; Bammens and Collewaert, 2014). In the light of these, Wood and Mckelvie (2015) advocate for social cognition research where the images created by entrepreneurs will have to be socially negotiated using the inductive approach to problem-solving, including effectuation (S.

Sarasvathy 2001). In other words, there is a need for research that investigates the social negotiation process and its outcomes.

3.9 Methodologies in Prior Research on Opportunity Evaluation

In a systematic review of 53 entrepreneurial opportunity evaluation studies conducted between 2002 and 2014, Wood and Mckelvie (2015) mention that a variety of empirical methods are routinely used in such studies, with the most common method being experiments, followed by surveys. For instance, Park *et al.*, (2017) in their study of social media influences on the entrepreneurial opportunity employed a survey approach. It was only after their findings were contradictory to their hypothesis of social media playing a moderating effect that post hoc interviews were conducted.

There are relatively very few qualitative methods in research that use structured interviews or even case studies. In these, one would have been expected more in-depth findings due to the nature of the construct (Wood and Mckelvie, 2015). Opportunity evaluation is a non-linear process that unfolds over time and events, and thus, the use of qualitative methods would yield more detailed and evaluative results. This is because the iterative and dynamic nature of opportunity evaluation will be best researched into through longitudinal studies. Against this backdrop, there still remains, to the best of the researcher's knowledge, the absence of longitudinal studies in opportunity evaluation. Similarly, there is a lack of triangulation of data, as most researchers did not use multiple methods. Only two such studies were identified by Wood and Mckelvie(2015) using more than one method.

For the existing study of opportunity evaluation, Wood and Mckelvie (2015) noted the lack of diversity in the samples used. The samples were taken mostly from the U.S. and Europe, with a few having been taken from Asia. A significant number of the samples were taken from single

countries; only a couple of countries had multiple samples in a single study. To improve upon the study that has been done, and to give more insight as to whether a universal opportunity evaluation approach exists, cross-country studies will be of value to the literature on opportunity evaluation (Wood and Mckelvie, 2015). There are some regions that are less represented in the opportunity evaluation literature such as Africa, the Middle East, and Latin America. Samples from these regions may provide useful information for a holistic understanding of the subject matter. It is hoped that in using a mixed-method approach with data collection in sub-Saharan Africa, some of the limitations identified in previous studies will be addressed.

3.10 Contrasting Between Causation and Effectuation

There are three types of means that entrepreneurs start with: capabilities and skills, knowledge corridors and social networks (S. Sarasvathy 2001). Causation relates to opportunity identification and business plan development while effectuation, on the other hand, relates to a strategy that is evolving (Chandler *et al.*, 2011). Causation processes accept a certain outcome as given and concentrate on choosing between resources to create that outcome. In other words, causation chooses between resources to get a specific effect. Sarasvathy (2001) relates causation to a jigsaw puzzle where the expected picture is already known, with the only variable that is unknown being how to put the pieces together in order to arrive at the pre-determined picture. The desired, however, outcome is known. On its part, effectuation is selecting between many outcomes, using a particular set of means. Sarasvathy (2001) relates effectuation to the quilt approach, where the opportunity needs to be developed, with the potential for modification depending on the availability of new information. Both processes are part of human reasoning and may happen concurrently. Effectuation allows the entrepreneur to generate one or more possible outcomes in spite of the general goal; it allows the decision-maker to change, shape or construct his goals over a period. As such, a causation goal is for

specific aspirations while effectuation better serves generalized aspirations. Sarasvathy (2001) relates causation and effectuation processes to the preparation of dinner. One can decide to have a pre-prepared menu and find the best possible means to cook that menu. Alternatively, one can decide to look at what is available in the fridge and then see the best combination of existing ingredients that can prepare a dinner. The goal is dinner, but there are two processes that use a variety of categories, such as varied decision-making and selection criteria, differences in competencies employed, the nature of the unknowns in each situation, the underlying logic and the outcomes. These differences nonetheless, the end result of both processes is still dinner.

Whether an individual has causation or effectuation goals, evaluation of either means or effects has to take place. Online social interaction provides a bigger and diverse platform to receive information that affects cognition, which plays a central role in opportunity evaluation literature. Thus, the creation of a new venture may conform to the causation approach where opportunities are identified and resources combined in an efficient manner to achieve a desired plan. Conversely, the venture may go through the process of experimentation, the assessment of the extent of how much loss can be accommodated and the extent of flexibility (Chandler *et al.*, 2011). In all of this, the important role of social interaction in shaping the process of evaluation remains pivotal.

3.11 Entrepreneurship not as a lone activity

Initial studies on entrepreneurship focused on the individual doing it all alone (Shane and Eckhardt, 2003; Van de Ven, Sapienza and Villanueva, 2007). Davidsson (2015), for example, proposed a fixed set of boundaries for a potential opportunity but with the evolution of technology, these boundaries are more flexible as ideas continue to evolve (Nambisan 2016) making the process non-linear. In other words, with the explosion in the use of technology, this phenomenon has changed, bringing to the fore the inclusion of several actors in the

entrepreneurial process, with these actors having varied goals (Nambisan 2016). The actors can potentially have an effect on entrepreneurial behaviour and actions, thereby affecting outcomes. Although some research has concentrated on entrepreneurial teams for instance (Klotz et al. 2014), the assumption is that the teams are well-defined, with each team member playing a specific role. With technology making entrepreneurship more dynamic and open-ended, this might be less significant. What this implies is that the opportunity development processes, from the view of the opportunity creation literature, are adjusted according to the response received from the market (Alvarez, Barney and Anderson, 2013). This view is reiterated by Garud and Giuliani (2013) who conceive of an opportunity development as a process that evolves through the interactions of the entrepreneur with other stakeholders.

3.12 The Business Model Canvass

Osterwalder *et al.*, (2010) define a business model using nine basic building blocks that illustrate how a company plans to generate money in a coherent way. These blocks are the four main parts of a business i.e. customers, offer, infrastructure, and financial viability. For Ladd and Ladd (2018), a business model is an outline for an organizational strategy executed via structures, processes, and systems. The nine-building blocks are as described below (Ladd and Ladd, 2018)

Customer segments (CS) – These are a variety of paying customers with mutual needs and attributes. Even though these customers are not homogenous and even though a single product or service can be targeted at different groups, most customers are often grouped according to priority. If an entrepreneur intentionally selects one group, then that is what he uses to develop his strategy (Ladd and Ladd, 2018).

The value proposition (VP) – This describes both the product or service and its related benefits in meeting the various customers' needs.

Channels (CH) – This is the method through which the venture interacts with the customer to deliver the product or service, thereby establishing a customer relationship (CR).

Customer Relationship (CR) is built through defined business transactions which could be face to face or automated.

Revenue streams (RS). This is the means through which the venture receives payments from customers. Payments could be one-time transactions or repeated transactions. Revenue streams also include the venture's pricing mechanism.

Key resources (KR) are a venture's tangible and intangible assets that are available for venture's key activities (KA) to create the goods/services that meet needs or build the platforms that form the foundation of the firm's value proposition. Key resources are important considerations in the formulation of the venture's strategy because it forms the basis for creating the firm's core capabilities.

With the increasing advancement in communications technology, there is the formation of key partnerships (KP) among firms. Entrepreneurs establish these key partnerships with the goal of attaining economies of scale and scope, reducing risk and increasing their capacity beyond the venture's available resources. The assumption behind such associations is the idea that resources, activities and partnerships influence the cost structure (CS) the venture is going to adopt.

A significant key partnership is customer feedback. Ladd and Ladd (2018) indicate that the probability that the product or service being offered will appeal to the customers can be determined by the nascent entrepreneur using customer feedback from prospective customers to validate hypotheses of their business model. This projection is supported by the theory of the Canvas, which states that every component of the canvas contributes to a successful venture

as each is part of an integrated whole. The Canvas is usually applied to test, shape and validate an entrepreneur's assumptions on a new business idea. In adopting the business model canvas for the formulation of a suitable strategy for a new venture, entrepreneurs are encouraged to develop relationships with customers, through various channels. In such an endeavour, it becomes imperative that entrepreneurs consider the availability of key resources such as human capital and develop partnerships for a competitive advantage. Social media has the ability to help the entrepreneur perform all these activities as the business model canvass can be seen as an opportunity evaluation tool.

3.13 Entrepreneurship And The Social Context

Firms and organizations, including entrepreneurs, are viewed as social entities. This is because their activities influence and are influenced by the society (Huang *et al.*, 2013; McKeever, Anderson and Jack, 2014). Entrepreneurial ventures and corporations are so social that Kuratko *et al.* (2017) emphasize that firms, in creating social value, need to create with the environment in mind. In doing so, it is required that stakeholders monitor the environment to ensure that creation and recreation incorporates social value.

Entrepreneurial ventures are situated in a social context because the society and the environment is a source of information and support to entrepreneurs, with entrepreneurs seeking legitimacy from various stakeholders (Dimov, 2007; Cornelissen and Clarke, 2010). For instance, in January 2016, to preserve its integrity, the confectionary company Mars made a decision to recall its some of its products after a customer found pieces of plastic in a Mars product while consuming it (Wang, Van Fleet and Mishra, 2017). These days, client dissatisfaction with products and services are often expressed on social media. What this means is that social media is a good way of monitoring the environment to create social value as it

provides access to real-time and diverse information spanning geographical boundaries (Kuratko et al. 2017).

The place of social interaction in the entrepreneurship process in general and to opportunity evaluation in particular, as this study hypothesizes, seems quite important. Opportunities and related economic outcomes are seen to be a result of the interaction between the entrepreneur and society as a whole (Garud and Giuliani, 2013; McKeever, Anderson and Jack, 2014). However, little is known about specific social processes that enhance entrepreneurial recognition or exploitation of opportunities. For instance, the social context exposes a nascent entrepreneur's idea to a wider frame of reference which can be both nurturing and supportive (Davidsson and Honig, 2003). Yet very little critical work explores the relationship between social context and opportunity evaluation.

Before the digital age, firms, industries and other institutions relied on contributions by actors outside their organizations. With the advancement of technology, innovations in communication have increased the adoption of openness as a business principle where, these actors are seen as part of the innovation process in the production of goods and services (Dobusch and Kapeller, 2018). The internet has made it possible to maintain geographically distant relationships, making it possible to have access to information in a less expensive and timely manner (Autio, Dahlander and Frederiksen, 2013). Thus, there are new opportunities to create networks due to the emergence of online networks (Song 2015). These avenues provide individuals with a large network, reduce the cost of searching (Leyden, Link and Siegel, 2014) and enhance the possibility of finding better means of implementing goals in the midst of several available options (Wang, Van Fleet and Mishra, 2017). This "openness" has the advantage of creating a greater and novel variety in the options available to the entrepreneur and in improving the quality of the outcomes (Dobusch and Kapeller, 2018).

Recent research in entrepreneurship highlights the interaction of the social (intersubjective), the individual (subjective) and the vital role of networks in the entrepreneurial process (Sarasvathy, 2003; Venkataraman *et al.*, 201; Erikson and Korsgaard, 2016). Some social media activity is such a blend of the virtual and real network element i.e. the contacts among the network stakeholders transpire both online and in real time, bringing to light the social aspect of entrepreneurship (Gustafsson and Khan, 2017)

3.14 Networks and Entrepreneurship

Entrepreneurial actions and outcomes, as it has been previously noted, are not the deeds of a single individual (Davidsson 2015). Various studies have indicated the importance of networks in providing resources that aid the entrepreneurial journey (Yu *et al.*, 2014; Rasmussen, Mosey and Wright, 2015). When networks make any form of resource contribution to the entrepreneurial activities, it is referred to as social capital (Burt 1992).

Within the literature on the building of networks exists divergent views on when to build networks; what remains the common ground is the view researchers hold with regards to the importance of social capital during the various stages of venture creation. Researchers agree that social capital is important. To accrue social capital requires repeated interactions with multiple people (Smith, Smith and Shaw, 2017) and what better way to do that than through online social interactions, which gives access to a broader group of people at less cost?

Social capital is seen to be gained or received from physical contact with persons either through physical meetings or telephone conversations. By obtaining these resources through social interaction, an entrepreneur's initial idea could either increase or decrease in scope, given the wider set of interpretations (Dimov, 2007). Social influences direct attention and make available new information and interpretations which help resolve any doubts that the entrepreneur might have during the evaluation process (Dimov, 2007). Thus, the activity of

networking is not only helpful for the generation of goals and ideas but also for the transformation of ideas (Engel, Kaandorp, and Elfring 2017).

It is necessary to state that the process of social interaction is an ongoing process (Fischer and Reuber 2011). The number and multiplicity of engagements matter in the acquisition of social capital (Xu and Saxton, 2019). Experienced entrepreneurs are able to create more social capital (Mosey and Wright 2007) than nascent entrepreneurs, just as entrepreneurial firms have the ability to gather significant resources through the establishment of networks. This ability is referred to as network competence (Yu et al. 2014). Capabilities need to be constructed during the early phase of entrepreneurship. As such, there is the need to establish networks, and that would require the entrepreneur to have the skill of network competence in order to have access to significant resources (Yu *et al.*, 2014; Rasmussen, Mosey and Wright, 2015). Although entrepreneurs may have received the same education, they differ in their propensity and capability to form network connections to attract social capital and receive feedback or gather information in relation to an opportunity. It is vital that entrepreneurship training includes the ability to extract capital from one's networks. Social capital is important for all aspects of the nascent entrepreneurial process (Davidsson and Honig 2003; Huang *et al.*, 2013).

The two most commonly described types of social capital are bridging and bonding. Bridging social capital is the formation and maintenance of weak ties, most likely in networks that are large. People within that network may not be deeply emotionally attached to each other, but knowing each other is enough to have enough trust to be ready to work together or disclose information, or have a mutually beneficial relationship. Weak ties link people to large networks, thereby providing both informational and economic benefits. Bonding social capital refers to closely-knit social relationships, limited to a small social circle. Both types of relationships are beneficial to humans. Intimate bonds give strong emotional satisfaction and

can offer important benefits without essentially expecting to receive something in return in the near future. (D. Liu and Baumeister 2016)

3.15 Type of Network ties

The categorization of ties is based on the amount of time that is spent with a person i.e. how frequently interaction occurs and the duration of the relationship, the emotional intensity that characterizes the relationship i.e. the closeness of the bond and the reciprocal services that define the tie. The more intense these variables, then the tie is termed a strong tie and the less intense, then it is referred to as a weak tie (Granovetter 1973). Strong ties are family and friends and weak ties are those connections that have been connected to the entrepreneur via a strong tie. Existing ties provide access to new ties (Rasmussen, Mosey and Wright, 2015). Weak ties have a bearing on creativity and new ideas while strong ties deal with integrity, with both ties being important to ensuring the effectiveness of the social structure (Leyden, Link and Siegel, 2014)

Individuals with few weak ties are likely to be lacking information that is not within their environment; this isolates them from the potential opportunities or ideas (Granovetter 1973). Weak ties are individuals from varied backgrounds with different experiences and friends than the focal actor and thus provide access to heterogeneous knowledge and perspectives (Leyden, Link and Siegel, 2014). Networks are a place where past experiences and knowledge can be shared and thereby the reduction of the cost of information (Fiorillo and Sabatini, 2011). However, social networks are a continuously evolving dynamic structure of which a part can be formed and actuated at any time depending on the stage of the venture creation process (Burt, 1992; Hite and Hesterly, 2001).

Although networks are normally seen as contributing positively to the entrepreneurial process they can sometimes be damaging and destructive through, for instance, withholding resources

(Jack 2010). It must also be noted that having access to a wider knowledge base can sometimes be costly in the sense that an entrepreneur may be compromising on speed, flexibility, and control and thus openness should be complementary to existing processes but should not be used as a substitute (Dobusch and Kapeller, 2018).

3.16 Benefits of Networks

Being embedded in a social network has an effect on entrepreneurial cognition and on the progress in establishing a new venture (De Carolis, Litzky and Eddleston, 2009). Entrepreneurs need to be looking for a supportive environment, both from within and outside their immediate society, from which they can gather resources (Mitchell et al. 2002) to enable them capitalize on an opportunity. Young enterprises, however, do not always have the luxury of easy access to needed resources and thus often have to rely on others to fulfil their venture idea or would have to abandon it completely.

Nascent entrepreneurs use networks for acquiring resources necessary for establishment (Huang *et al.*, 2013) and for performance (Hite and Hesterly, 2001). Being embedded in a network provides access to vital resources and enhance one's status and business opportunities (Bellavitis *et al.*, (2017). The locus of an individual within a network impacts the flow of information, which is vital in creating innovative ideas (Braun et al. 2018). There is, therefore, the need for entrepreneurs to establish networks which are high in compositional quality (Hite and Hesterly, 2001; Davidsson and Honig, 2003) because the entrepreneur's success depends on the quality and amount of information he can access (Huang et al. 2013). To develop their ideas, entrepreneurs create a portfolio of resources and the availability of these resources determines if the idea would be pursued or not. Networks are an important source of these potential resources (Hite and Hesterly, 2001; Hite, 2005). These resources include human capital (providing competencies or skills currently not possessed by the entrepreneur), physical assets, financial resources and exposure to a large amount of information (De Carolis, Litzky

and Eddleston, 2009; Semrau and Werner, 2014; Sullivan and Ford, 2014; Bucktowar, Kocak and Padachi, 2015; Song, 2015). This includes information on new opportunities (Autio, Dahlander and Frederiksen, 2013; Song, 2015; Nowiński and Rialp, 2016), information that aids commercialization of a new product (Bucktowar, Kocak and Padachi, 2015), understanding on markets and competition (Song 2015), knowledge on customer needs (Yu et al. 2014) as well access to gaining legitimacy (Song 2015). Therefore networks make it easier to reduce vulnerabilities and resource dependency and hence the importance of creating a diverse and large network cannot be overstated. (Sullivan and Ford, 2014). In their work, Brinckmann and Hoegl (2011), while reviewing new technology-based firms in Germany, realised that the ability to relate was dire to their performance. The greater the ability of a nascent venture to consistently relate to multiple and diverse intermediaries, the higher the likelihood of increased creativity and innovation. Dependence and interactions can happen between known persons who have close, intimate relationships or it can happen between unknown persons who are a little less than acquaintances. Initial networks connect to other networks thereby improving access to additional resources to address evolving resource dependencies, especially during early venture development as different networks provide different resources. This enables entrepreneurs to pursue opportunities beyond the resources that are under their control.

In summary, networks aid in making more apparent to the entrepreneur the existence of novel opportunities, show the existence of solutions to problems and make more evident potential partners (Braun et al. 2018). The deepening of ties is important for innovation (Braun et al. 2018). However, the general existence of a relationship does not automatically create an exchange of resources (Semrau and Werner, 2014) hence the need for a deliberate effort on the part of the entrepreneur to gain access to resources and a variety of exchanges (Sullivan and Ford, 2014) in order to successfully discover input combinations that would produce the

desired results (Leyden, Link and Siegel, 2014). The value derived from networks depends on the entrepreneur's ability to assimilate external knowledge (Gruber, MacMillan and Thompson, 2013).

Purely depending on offline friends for capital is not enough. With the increased growth in the use of the internet and social networking sites, it has become imperative to maintain not only offline network relationships but online ones as well (Davidsson and Honig, 2003). Online social capital is received from weak ties, thereby providing access to a variety of contacts and resources to promote venture creation. Not only do online relationships provide the opportunity to create new network relationships, it also has the ability to strengthen existing ones. In other words, it is a tool to build social capital (Liu and Baumeister, 2016). As said earlier, weak ties are the foundation of bridging capital and social networking sites allow for communication with large numbers of people both known and unknown to each other. Additionally, online interactions help transform latent ties into weak ties and sometimes even stronger ties. For example, crowdfunding is an option of capital source for entrepreneurs. Entrepreneurs who through the use of social media have created greater virtual networks would be better able to assess the crowd required to source for funds and are probably more likely to accept the risks associated with it, than those with weak virtual networks or stronger "traditional" networks (Shepherd and Patzelt, 2017). In international entrepreneurship, for instance, opportunity evaluation is linked to either serendipitous encounters or strong ties who are seen to influence the perception of an opportunity or the combination of resources at their disposal and the possible outcomes (Nowiński and Rialp, 2016).

3.17 Opportunities and Networks

Weak ties are seen as playing a vital role in opportunity refinement: they promote creativity (Leyden, Link and Siegel, 2014; Rasmussen, Mosey and Wright, 2015) and make it easier to

obtain information (Song 2015) whereas strong ties, on the other hand, are perceived to provide more complex knowledge important for venture launch (Rasmussen, Mosey and Wright, 2015)

From the initial discussions above, it can be implied that most research studies take the stance that an entrepreneur conceives an idea (Sarasvathy, 2001; Nowiński and Rialp, 2016) and then looks for the necessary resources to exploit it. It is only when the opportunity has been identified and available resources assessed that the entrepreneur turns to his networks for resources to fill the gap. Leyden and Link (2015) however have a different perspective of this, although they agree to the importance of networks in pursuing an opportunity. To them, an entrepreneur will only search for innovations based on his network; that means he depends on the resource combinations that he can put together. Thus, networks are created to help in deciding which ideas to pursue. This could limit the number of innovations open to the entrepreneur.

3.18 Social Networks and Innovation

In the creativity and innovation literature, research into the use of diverse knowledge across networks reiterates the importance of going beyond the individual. Studying creativity and innovation in MNC, Tippmann *et al.* (2017) chose MNCs located in Ireland, France and the U.K. who also had their countries of origin being different so as to enhance cross-national coverage. In the work, they posited that to ensure creative and innovative outcomes there is a need to use diverse knowledge combining novelty and efficacy. They again posited that the transformation of knowledge should not be the deed of an individual but a collective action of individuals through repeated micro-social interactions from different MNCs. Diverse knowledge is distributed geographically, thus producing specialized knowledge pockets. This can be translated into entrepreneurship, where collective knowledge transformation for diverse sources can enhance creativity. Social media has the ability to help entrepreneurs gain access to these geographically dispersed knowledge pockets.

Social media is also essential for problem solving. Problem solving involves problem formulation as well as finding a solution. The formulation aspect is understanding and defining a problem. Collective knowledge transformation increases the number of possible outcomes that can be used in problem formulation or responding to an identified opportunity. It also contributes to finding outcomes that are both appropriate and novel. Entrepreneurs who do not have the advantage of MNCs can still benefit from the process through social media. Although this study indicates the benefits of boundary spanning in MNCs where they benefit from diverse knowledge in creating novel outcomes, the degree to which variation takes place is not known. Problems need to be seen as opportunities to enable the development of creative solutions. From the onset, even outlining the problem would require collective and diverse expertise. Their findings propose that the problem can also be substantially redefined and thus causing creativity as a result of the interaction between individuals (Sonenshein 2014). The findings from Tippmann *et al.* (2017) showed that solving problems collaboratively could actually create innovative ideas and opportunities to exploit. Tippmann *et al.* (2017) respond to calls to look at problem solving in a richer context, reiterating the point that the focus should not be on individual differences in personality or cognitive abilities as being the qualities of an entrepreneur but instead, collective boundary-spanning activities are important. It is advisable to use the transformation of knowledge at an early stage as this opens new formulations of the problem and new solution ideas previously not considered (Tippmann, Sharkey Scott and Parker, 2017). However, it must be noted that understanding diverse views and knowledge requires both time and considerable effort.

3.19 Global Social Media Use

Social media can be defined as a range of communication mediums, inclusive of social networks like Facebook, video sharing platforms like YouTube and microblogging websites such as Twitter (Kaplan and Haenlein, 2010; Kietzmann *et al.*, 2011). Various researchers

outline the benefits, opportunities and the accompanying risks with the use of social media data (Dwivedi *et al.*, 2018; Nisar, Prabhakar and Strakova, 2019; Ogink and Dong, 2019). Twitter is one social media tool that has been used extensively in research in firms' use of social media (Fischer and Reuber, 2011; Brems *et al.*, 2017; Duffy and Pruchniewska, 2017; Lim, Heinrichs and Lim, 2017; Tata *et al.*, 2017).

Social media platforms can be related to food markets. Food markets provide a natural place for unplanned social interactions to occur among individuals with different goals and aspirations and utilizes a vast array of knowledge and skills to achieve integrity (Wang, Van Fleet and Mishra, 2017). Social Media provides access to a vast amount of free, real-time information and it does not matter where or from who the information was posted (Agostino and Sidorova, 2017). Data here is user generated. An organization with a social media account has access to a source of knowledge and action. Social media data has the characteristics of being open, thus giving the opportunity to everyone to access the same data and gain similar insights (Agostino and Sidorova, 2017). These authors advised that to still benefit from social media information, social media data can be used in conjunction with traditional data sources. They also advise that although social media data is generated at a higher rate than it previously was (Arnaboldi, Azzone and Sidorova, 2017) for this data to be used effectively, it needs to be cleaned and validated (Zikopoulos *et al.* 2013).

Between 2013 and 2015, there has been some increase in the percentage of people who access social networks across many emerging countries. In these countries, once people are online, they are socially interactive. A majority of adult internet users surveyed in almost every emerging and developing country indicated the use of social networking sites like Facebook and Twitter. This is in contrast to advanced economies where fewer online adults use social networks (Poushter 2016).

Research by Pew Research Centre indicates an increase in both the use of the internet and social media networking sites. In their 2015 survey on mobile messaging apps, they found that 85% of adults are internet users and 67% are smartphone users. Other key findings include the fact that the percentage of adults using Pinterest and Instagram has doubled since 2012. As of early 2019, Facebook maintained its position at the top of social media rankings with its monthly active users (MAU) gradually increasing over the past 12 months, with YouTube and WhatsApp being the next most popular social media platforms (Kemp 2019).

With a drop in the cost of technology, there are more user innovations and the emergence of bottom-up entrepreneurship (Aldrich 2014). Research in the service delivery validates the fact that technology has been significant in enabling innovations (Sipe 2017). Networks contribute to the ideas that entrepreneurs generate. Products are solutions to problems in our society. With the advent of the internet, user participation in product development has increased as interactions on social media platforms allow for co-creation and this enhances effects on cognition (Rayna, Striukova and Darlington, 2015). The invention of the Nokia concept Lounge and Fat Mio are examples of co-creation activities between consumers and the firm.

As indicated earlier, there is an increase in the use of the internet globally and social media is giving rise to new forms of social interaction (see figure 3.5). Social media can be used not just as a marketing tool by firms but can also be used to identify more opportunities (Fischer and Reuber 2011). Social media technology provides the means to bring together different sources of information thereby creating fresh information. Hence people actively engaging in social media activities have access to more information that can be combined, compared and evaluated for opportunities and can also trigger innovation especially for new entrepreneurs (Park *et al.*, 2017).

In their empirical study, Liu and Baumeister (2016), found that the relationship between social networking sites and gender was stronger in men than women, and that bridging capital use was stronger in Western economies than Eastern economies. The question is will this also hold in developing countries? In addition, Autio *et al.* (2013) in their empirical analysis demonstrated that information is obtained through social interaction and this information shapes opportunity evaluation and provides social information which aids in testing the viability of potential opportunities. Interaction with stakeholders and the temporary outcomes that result from that cause individuals to alter their initial evaluation of an idea as the interaction has presumably revealed more details about the nature of the idea (Davidsson 2015). This evaluation can be either favourable or unfavourable. An entrepreneur's network exposes him to information regarding opportunities. In her empirical study in the attractions industry, Sipe (2017) pointed out that employees and guests help in idea generation and in the creation of value. Some novel ideas and innovations in the industry are as a result of senior management interaction with other stakeholders. These highlight the importance of the interaction of an entrepreneur with others in the creation of value and competitive advantage. Her research encouraged co-creation. In their empirical research, Gustafsson and Khan (2017) found out that business models they identified were based on opportunity co-creation where the identification and evaluation of an opportunity were done by the corporate stakeholders but the exploitation was carried out via a joint effort.

Social networking sites allow for the sharing of large amounts of information and facilitates interpersonal exchanges that help maintain and strengthen relationships. Intimate relationships, however, are difficult to develop online but enables acquaintances to be developed into stronger relationships. For a large network to function properly, it does not require that members love each other. For instance, the community of science is a large network where knowledge has progressed through the sharing of information, hence benefits accruing to everyone (D. Liu and

Baumeister 2016). The benefits of social interaction can be related to health, where the quality of social connections is positively related to individual health, with quality being defined as the subjective satisfaction obtained from a relationship (Fiorillo and Sabatini, 2011). Relating it to entrepreneurship, can the quality of interaction be correlated positively to the evaluation of ideas? For instance, in their empirical study, Fischer and Reuber (2011) found out that one entrepreneur had incremental modifications to his initial idea. They also pointed out that too much or too little interaction may also impede the progression of the entrepreneurial process.

Leyden and Link (2015) in their research advocated for public policy to concentrate on the formation of weak ties by increasing the potential points of social interaction through, for instance, a vibrant educational system.

In some industry studies, opportunity identification and successful innovation has been associated with interaction with external stakeholders, including customers who are seen as initiators and source of idea generation, with managers having to decide which one to act on (Priem, Li and Carr, 2012; Skåln *et al.*, 2015). In his empirical study of service industries, Sölvell (2017), found that although there were purposeful interactions with customers during product development in order to test the idea with some companies actually using social media platforms like Facebook to encourage customers to give their suggestions for improvements, only a small portion of ideas resulted from customer interaction.

However, managers had opportunities to engage in different forms of interactions which also stimulated the creation of new ideas as these contexts gave them a broad knowledge base. These interacting moments helped provide them with knowledge of gaps that exists in their market. In other words, it can be said that to create innovation in the service industry there are a number of interacting contexts. One of the conclusions from this study is that opportunity development or innovation is an ongoing process (Sölvell 2017) and not the deed of a single

individual or a team, neither are ideas merely brought into the venture from outside but new ideas are generated and stimulated through networking. It is therefore vital that a mechanism to not only to initiate but also maintain relationships is put in place to ensure continuous innovation (Braun et al. 2018). Online social interaction can be the mechanism that is used to initiate and maintain these vital relationships.

3.20 Social media as a Tool for Professionals

Social media is a tool used by several professionals for different reasons, including interacting. The most recent reason for social media use identified by Brems *et al.* (2017) is the use of social media tools, specifically Twitter, by freelance journalists for self-branding activities. Self-promotion was also mentioned by (Duffy and Pruchniewska, 2017) when they conducted research of female entrepreneurs. They found that Twitter served as an interactive platform for journalists and other Twitter users to interact and share their thought processes which could be personal or professional or both. Thus, social media has opened so many opportunities for actors to seize.

The significance of the influence of social media should not be belittled as actors such as management accountants are gradually adopting the use of social media to see how it influences their reporting. These accounting professionals can use this information for performance measurement purposes through constructing indicators (Arnaboldi, Azzone and Sidorova, 2017). In spite of this reality, some accountants are reluctant to use social media information and are focusing more on their conventional routine operations based on traditional data (Arnaboldi, Azzone and Sidorova, 2017).

In their empirical study on Bed and Breakfast providers in New Zealand, Prayag *et al.* (2017) confirmed the importance understanding the value of User Generated Content (UGC) to small businesses as this is a source of information and an invaluable feedback tool to improve the

services that they provide. In their study, it became apparent that not all providers of Bed and Breakfast services valued the use of social media as providers had different levels of understanding. The researchers therefore proposed training for those struggling to accept the concept to enable them take full advantage of the resource.

Similarly, Agostino and Sidorova (2017) show how social media reshapes an organization's actions towards its customers and how social media facilitates an ongoing interactive activity between two groups with each being equally important. Knowledge gathered about existing and potential customers can be replicated by anyone anywhere. Anyone with access to the internet (Arnaboldi, Azzone and Sidorova, 2017) can use and be affected by knowledge gained from social media but how it is utilized by different users is the issue (Arnaboldi, Azzone and Sidorova, 2017).

Another form of social media is through blogging, and according to Gustafsson and Khan (2017) in their research on monetising blogs which is a type of social media entrepreneurship, this form of social media activity encourages opportunity co-creation. Although the bloggers do not identify the opportunities themselves, they play a receptive role while other members of the network identify the opportunities (Gustafsson and Khan, 2017). This implies that social media such as blogging helps others identify opportunities. Innovative products created through blogging help reduce the uncertainty associated with entrepreneurship. The point here is that the evidence of the research supports the fact that opportunities are co-created within the social media space. What is however not known is the process that this co-creation goes through.

In their empirical study of independently employed female professionals, most of who were in the field of digital media/creative fields so as to comprehend the role of social media in their start-ups, Duffy and Pruchniewska (2017) found that their participants constantly stressed that

social networks – Facebook, Twitter, LinkedIn, and Instagram – aided their development and maintenance of personal relationships and provides the ability to extend their audience. Their research subscribed to the saying that “word of mouth is the best referral”. This also applies to social media because it gives people the opportunity to talk about someone and sharing with others not just information but also their perspective on the information that they have received. In answer to the question: what this does for entrepreneurs receiving shared information from friends, participants indicated receiving a lot of feedback from interacting on Facebook and providing the opportunity of peer networking and building relationships of economic value (Duffy and Pruchniewska, 2017). Some participants also term social media as basically a feminized space due to the fact that it provided the unrestrained ability to communicate (social media for females). It was found being on social media was however time consuming.

3.21 Social media as a Tool for Entrepreneurs

Not only do entrepreneurs engage in social interaction to clear uncertainties, they do so to gain support for their ideas (Dimov 2007). Resource limitations stimulate social interaction, which in turn affects the way in which potential opportunities are evaluated (Cantù 2015). For instance, Mollick (2014) established in his research that, having a large number of friends on social networks has been linked with successful crowdfunding. That is to say that the size of the network determines the success of the project. Social network ties, and thus social capital, are important aspects of successful crowdfunding. Crowdfunding actually does provide resources that go beyond the traditional capital provision which helps entrepreneurs gain competitive advantage (Mollick 2014).

Some researchers in international entrepreneurship (Crick and Spence, 2005; Vasilchenko and Morrish, 2011) believe that social interaction can lead to the formation of accidental networks and serendipitous relationships, which generates social capital with the potential for evolving

into more formalized relations capable of generating credibility and access to knowledge. These serendipitous relationships and accidental networks can be easily formed online.

The potential social media sources hold have been commented on by Tata *et al.* (2017) in their study on Twitter users. They compare the emotions of both entrepreneurs and non-entrepreneurs and conclude that social media sources act as an excellent avenue for researchers to study the field of entrepreneurship as well as the cognition of entrepreneurs.

Social media provides firms with the opportunity to engage in co-creation and as mentioned earlier, has enabled users to be part of the production process (Rayna, Striukova and Darlington, 2015). External resources have been important to innovation since the 1980s. The term “open innovation” was introduced by Chesbrough in 2003 to describe what was largely an “outside-in” role played by consumers. Chesbrough (3003) used this term to explain how customers serve as a source of ideas to products, both new and existing, and play a role of showing potential markets to sell products (Rayna, Striukova, and Darlington 2015). Hitchen *et al.* (2017) define Open innovation as the ability to control incoming and outgoing knowledge to hasten innovation and increase its markets. This new idea is increasingly emerging through social networks. Crossing ideas and diverse knowledge from various industrial sectors and different technologies with entrepreneurial ideas generate entirely new potential opportunities, like the connection between food and pharmaceuticals, computing and mobility or economics and physics (Hitchen et al. 2017). To compete successfully, it becomes essential for companies to collaborate. Open innovation has been highly accepted by major global players such as Phillips, Xerox, Siemens and Bayer (Gassmann, Enkel and Chesbrough, 2010). Usually suffering from a lack of resources at the initial stages, Hitchen *et al.* (2017) indicate that start-ups and entrepreneurs have an even bigger motivation to collaborate. It is difficult, if not entirely impossible, to create or have all the necessary knowledge and skill internally and to identify all potential opportunities (Hitchen et al. 2017) hence the need for collaboration

through networking. Open innovation can be enhanced through the use of social media because it can serve as a vital means to improve the flow of knowledge (Mount and Martinez, 2014). Due to the small size of SMEs, it is almost impossible to hire researchers. Its physical size and the size of its financial resources affects processes such as production, marketing, and distribution. The lack of resources also impacts negatively on several processes such as manufacturing, distribution, marketing, and R&D thus making it imperative to search outside the firm for collaboration (Hitchen et al. 2017). This requires the firm to network and practice social interaction, turning that into innovation. Online Social interaction encourages sharing (Hitchen et al. 2017).

Access to knowledge can be obtained through collaborative means. It involves identifying both the required knowledge and the person or persons holding this knowledge (Hitchen et al. 2017). Although the desired connections should be based on trust and understanding, open innovation becomes more beneficial if connections are made to less known diverse knowledge sources (Hitchen et al. 2017). This is achieved via social media not being limited by physical distance thus increasing the probability of being more likely to find what is needed (Hitchen et al. 2017).

Social media without the limit of physical space encourages more frequent interactions. This increased interaction makes collaboration easier and more detailed (Hitchen et al. 2017). Frequent interactions must be guided to take place where it will result in creativity. For some entrepreneurs, interactions are just a social chat (Hitchen et al. 2017) but in one way or the other, these social chat does affect their cognition.

Open innovation is different from co-creation in the sense that open innovation involves the commercialization of a product that has taken into consideration customer suggestions. This contribution is only said to be made by consumers but does not mention the contribution of other stakeholders in the creation process. The process of co-creation can be either autonomous

or sponsored. Autonomous co-creation is done independently “without any incentive” while the sponsored is at the incentive of the company. “Co-creation can happen at different stages of the production process” (Rayna, Striukova and Darlington, 2015).

With the advent of new technologies, the nature and uncertainty associated with entrepreneurship has reduced (Nambisan 2016). Digital technologies have made entrepreneurial processes and their associated outcomes less bounded and provided an avenue for people with different backgrounds to come up with entrepreneurial opportunities (Nambisan 2016). It has also provided a broader and more diverse access to resources e.g. crowdfunding. This has opened up doors for what is termed collective entrepreneurship (Nambisan 2016). The question, however, is how do digital technologies affect entrepreneurial cognitions and behaviour and the resultant outcomes that occur? New technologies have opened up an avenue for co-creation through interactions that occur on social media. Prior studies incorporating digital technologies into their studies for instance (Vissa and Bhagavatula, 2012) focused on entrepreneurs operating in environments that are largely technology-driven but not how these affect entrepreneurial processes and their outcomes (Nambisan 2016). Digitization has caused entrepreneurship to be more democratic, where a larger number of individuals with different backgrounds are allowed to be part of the entrepreneurial process (Aldrich 2014). For instance, crowdfunding and crowdsourcing provide an avenue for engagement of the entrepreneur and potential funders. Social media is seen as being able to support the entrepreneurial process.

3.22 Social Media Usage

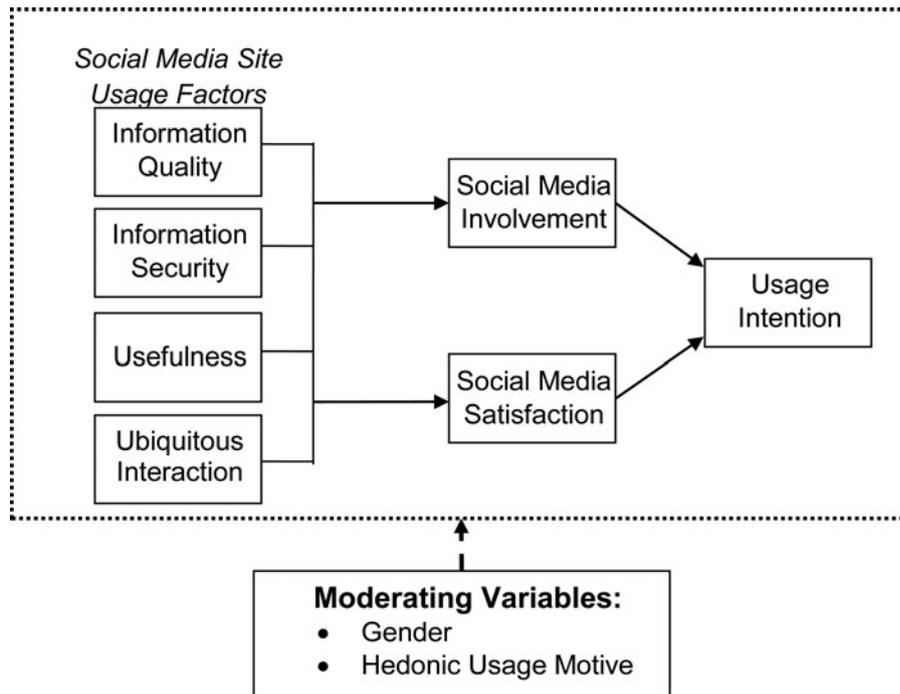


Figure 3-4 Social media site usage behaviour model

Source : (Lim, Heinrichs and Lim, 2017)

Lim *et al.* (2017) present (as shown in Fig 3.9) a model indicating factors that would affect the usage of social media. They found that men and women used social media for different reasons. While females used social media to chat with friends, males, on the other hand, used it more to air their opinions. Curiosity and interest influenced the use of social media by females. Males, they suggested, would be more satisfied and use social media applications that provide useful information whereas females would be more satisfied with sites that offer social interaction opportunities. For females, the most important factor for using social media is information quality and the satisfaction they derive from its use. Male customers are more concerned with security. The question is, what factors will influence an entrepreneur to use social media in opportunity evaluation?

Social media sites provide the avenue for users to voice their opinions on any topic. Although social media allows the integration of users at different stages of the creativity process, the

extent to which this is useful is a decision that has to be made, which would in turn guide the degree of openness of the company especially via social media (Linde 2017). In her paper, Linde (2017) developed a theoretical concept which points to the fact that the extent to which open innovation is implemented is dependent on the industry sector a company finds itself in. Managerial attitude towards the implementation of open creativity is critical but with an inclination for open innovation, it is likely that social media would be used as a tool for creativity (Linde 2017). It may be a low managerial attitude towards the use of social media that accounts for its low adoption in German-speaking companies (Linde 2017).

Motives perform a significant role in social media. It is must, therefore, be noted that some users use social media sites because they derive enjoyment from it which serves as a motivator and not necessarily because they seek information source from social media, although these users engage a lot in social interaction and online conversations (Lim, Heinrichs and Lim, 2017). However, whether they use it for enjoyment or for information seeking, it is possible that the activity can affect cognition and consequently, entrepreneurial thought patterns such as opportunity evaluation.

3.23 Online Social Interaction And Entrepreneurship

A substantial amount of research has been done on social interaction and its advantages in other fields such as health (Fiorillo and Sabatini, 2011) . The findings of some of these studies suggest that the level and quality of social interaction has proven to determine the level of benefits a person derives from it, including access to information and improvement to the health of individuals. In their study, Xu and Saxton, (2019) found that the social networking process and information search is quite advanced for first-time mothers and that being able to link up with other mothers, both in-person and online, at any time provided exceptional support that most thought they could not have obtained from any other source. The challenges of a first-

time mother can be related to a nascent entrepreneur, as they also give birth to new opportunities to pursue.

As far as we know, there is very little information regarding social interaction and entrepreneurship, specifically, the impact of interaction (Fischer and Reuber, 2011; Shepherd, 2015) especially as social media's provision of newer means of interaction progresses. To the best knowledge of this researcher, this is the first empirical study between social interaction and opportunity evaluation. Studies on social interaction have not focused on online interaction but on offline interactions. Social capital, causation, Effectuation, social network and opportunity evaluation in entrepreneurship have all been studied and shown to individually contribute to entrepreneurship, but the simultaneous interaction on venture creation and opportunity evaluation has rarely been seen. For instance, human capital, in terms of prior knowledge and experience, can help identify opportunities due to an entrepreneur's level of education or past work experience. Regardless of these two resources, an entrepreneur might still not have enough resources or information to pursue or carry out that opportunity/idea. It is hypothesized that social capital can provide the needed resources, but how does an entrepreneur gain access to these if he is unable to interact properly or is not aware of the most effective ways of accessing these resources or is not able to interact properly? Opportunities do not come fully formed due to the lack of information to properly evaluate the idea. Refinement of ideas can be given by networks. Feedback from a community, leading to gaining legitimacy, is also an important factor in entrepreneurship. With the increase in the innovation and use of digital technology and with it the subsequent growth in social media use for communicating across continents and time zones, it will be important to find out if this has affected the process of opportunity evaluation by entrepreneurs and what is the outcome if it has.

3.24 The Essence of Online Social Interaction and Entrepreneurship

3.24.1 The Entrepreneur and the Economy

The entrepreneur is seen as a very important actor in boosting economic growth through the creation of both jobs and incomes. Not only do entrepreneurs create jobs for themselves, they also create jobs for others. Innovative entrepreneurs create new products, ideas, and processes which then fuels economic development and growth (Bosma et al. 2018; Parker 2018). Innovations enhance living standards and help breed new wealth. For successful entrepreneurship, there is a need to have access to resources, most especially the resources of finance, social networks and experience. The greater the quantity of resources an entrepreneur is able to gather at the beginning, the higher the probability of longevity and growth (Dy, Marlow and Martin, 2017). This applies to both online and offline ventures. Access to some of these enabling resources can be obtained via social interaction including online social interaction.

There is an increase in the use of the internet and users of social media in communication. In other words, people are interacting more and more online with people both in their country and outside their country. This provides access to resources and information that otherwise would have been out of reach. Social media has thus become another means of accessing social capital for nascent entrepreneurs, serving as a feedback mechanism or a medium through which entrepreneurs can test their ideas. Hitherto, social media platforms were mainly used as marketing tools for their products and services; presently they have led to the complete transformation of the mode of communication and the exchange of information, information that can play a vital role in evaluation of opportunities identified by entrepreneurs.

3.24.2 Social Media and the Economy

Advances in technology have significantly impacted processes in organisations, including communication (Packard and Bylund, 2017). It is widely known that these advances in

communication technology have improved marketing communication and with it, afforded an avenue for the more rapid introduction of innovations unto the market, thereby generating profits quicker (Packard and Bylund, 2017). It would, however, be interesting to know how communication technology has affected other processes in organisations such as opportunity evaluation.

Being on social media presents one with a lot of information and feedback. It also provides the ability to access resources which were otherwise unavailable. Entrepreneurs are known to draw on prior knowledge and experience when undertaking the entrepreneurial journey. What we know little about is how this information and feedback from the social community affects entrepreneurial decision-making on identified first-person opportunities, as well as how access to social capital affects opportunity evaluation. Identification of opportunities is seen as an individual cognitive process with social resources occasionally playing a supporting role (Shepherd 2015). For instance, Amazon's new strategy of doing deliveries in the night was done after realizing that most people were not at home in the day time and this decision was most likely based on feedback received from the society. However, what is missing is information on how Amazon's new idea changed, i.e., how this feedback from stakeholders led to the idea undergoing several changes before finally being implemented.

Dimov (2007) described opportunities as being ideas first, only becoming opportunities if an individual takes steps towards evaluating how plausible that idea would be if exploited. This evaluation will be done within the social context. However, there was no empirical study to test this. What is also not known is how differently individuals interact in order to test their ideas or to evaluate them. Do all individuals do it the same way and get the desired results or is there is a difference in the propensity with which they interact? With the increase in the usage of both the internet and social media worldwide, it is important to know how this medium can be used to promote entrepreneurial activities and in turn promote economic development. It is

also imperative to recognise that entrepreneurs having access to resources needed online can change the way opportunities are evaluated. Again, it is not only immediately available resources that play a role in opportunity evaluation, but better evaluation processes can also be identified and their use encouraged by young entrepreneurs.

In as much as online sources provide access to useful information for opportunity evaluation, there are trust issues in the use of information sourced from social media. We trust knowledge and resources because it was recommended by someone we know. Although social media has the ability to give recommendations, trust is more disposed to the things we share in common with a partner. e.g. a farmer may trust more if the knowledge comes from other farmers than if it was given by a research centre and this outlook in the farmer may not create diversity in innovation (Hitchen et al. 2017). Park *et al.* (2017) indicated that the use of social media did not really help entrepreneurs in identifying or creating opportunities mainly due to the fact that there were issues of trusting whatever information that was received via social media. The use of social media, they said, had less effect on prior knowledge in relation to finding opportunities. Respondents to their survey said that information received so was overwhelming and a waste of time that there was little need in trying to identify opportunities through that. This has also been supported by other researchers such as Duffy and Pruchniewska (2017) who indicate from their research that using social media can be a time-consuming activity.

Gustafsson and Khan (2017) call for research into entrepreneurial activities that takes an inclusive, network-oriented view of entrepreneurial actions, seeing entrepreneurship as more than just starting and growing new ventures. Jack (2010) advocates that networks have been seen to be important throughout the entire process of entrepreneurship. The most important aspect of that process is to investigate how useful network roles are to the business start-up, specifically the impacts and outcomes and the nature of interactions between actors in a

network. This will advance our knowledge of the dynamic changes. One aspect of the start-up process is the evaluation of ideas.

3.25 The Way Forward to understanding opportunity evaluation from a social interaction perspective

Although an increasing number of entrepreneurs are using social media for the benefit of their businesses (Fischer and Reuber, 2011) and while the evidence for the support of networks in entrepreneurship is persuasive, what remains unknown is how this new phenomenon influences entrepreneurial opportunity evaluation. In other words, research-to-date has not systematically examined the potential effect of online social interaction in opportunity evaluation. It is imperative to obtain an in-depth insight into the nature of this feedback.

Networking has been shown to be an entrepreneurial action which is beneficial for the formation and transformation of entrepreneurial ideas (Engel, Kaandorp and Elfring, 2017). Research in other fields such as education has proven that well-designed online discussions results in increased interaction, thereby improving academic performance (Zheng and Warschauer, 2015). It seems, however, that there is little literature on social interaction and entrepreneurial outcomes and how it might affect other areas of interest. Austin *et al.* (2012) in their paper pointed out that innovators deliberately engage in social interaction with the aim of seeking opportunities and encountering them. Sometimes seemingly “normal” interactions between the entrepreneur and others have the potential of creating extreme outcomes (Crawford, McKelvey and Lichtenstein, 2014). The power of such interactions may be so significant (Tasselli *et al.*, 2015) as indicated by an empirical study carried out by Lechler (2001) on social interaction within entrepreneurial teams. Relating his study to the success of entrepreneurial ventures, Lecher (2001) concluded that the quality of social interaction was crucial for venture success. Social interaction among individuals in an online community sometimes triggers the development of an idea (such as in user entrepreneurship (Shah and

Tripsas , 2007), the testing of that idea, or its adaptation and refinement (Engel, Kaandorp and Elfring, 2017). Only a few studies have explicitly included (online) social interaction as a variable of interest in the study of entrepreneurship (Lechler, 2001; Fischer and Reuber, 2011; Smith, Smith and Shaw, 2017). For his part, Kusumasondjaja's (2017) research on social interaction among customers in an online travel community showed that most users hardly posted any information. They spent most of the time reading but not creating information and yet, this pattern influenced their travel decisions, making it easier for them to make choices. Relating this to entrepreneurship, can this same finding be transferred to entrepreneurs, where the reading of online posts affects cognition, which in turn affects opportunity evaluation?

This study concentrates on the use of online networking by entrepreneurs; it is an empirical step for understanding the opportunity evaluation decisions of nascent entrepreneurs from a social interaction perspective. It aims at understanding nascent entrepreneurial activities and how opportunities are evaluated via the social structure. In their study of journalists and their use of social media to project themselves, Brems *et al.* (2017), used a mixed-method approach where the quantitative content analysis was followed up with in-depth interviews so as to provide a better understanding of their social media habits. This study will also follow a mixed-methods approach to provide deeper insight into the use of social media by young entrepreneurs as regards opportunity evaluation.

This research sees the value of opportunities derived from knowledge, skills, abilities, and resources available. Most nascent entrepreneurs are resource-constrained, which can affect the evaluation of opportunities. Social interaction can be improved through guidance to potential entrepreneurs to consciously evaluate opportunities with business potential via social interaction. The aim then is to find out the influence of social interaction (Jack 2010; Shepherd 2015) on opportunity evaluation process of young entrepreneurs.

In agreement with Dimov (2007a), to avoid bias in the success or emergence of a business, this study focuses on the progress of an idea from its initial trigger to its eventual refinement and development concentrating on how it is refined and verified, with who and when.

A number of studies emphasize the essence of ties and their contribution to entrepreneurship but their effect on entrepreneurial activities, such as evaluation, is absent. The study aims at understanding nascent activities and how opportunities are evaluated through the social structure. Social interaction can be improved and guidance may be offered to aspiring entrepreneurs to mindfully evaluate opportunities/ideas with business potential via online social interaction.

Welter *et al.* (2017) categorize entrepreneurs into a left side and a right side, carefully pointing out that most entrepreneurship research and literature concentrates on how entrepreneurs operate and succeed but that not much work has been done for enhancement. The left side is where entrepreneurship is viewed as opportunity-driven and male-dominated, being innovative and growth-oriented. The right-side entrepreneurship is the category where entrepreneurship is done out of “necessity” and is usually not seen as having the potential to be innovative. It is female-dominated. Entrepreneurship researchers have not yet tried to understand the corridors through which these necessity entrepreneurs have travelled and then to see if there is a chance for them to innovate and grow. To explore this, this study will be one way to unearthing how useful online social interaction are to entrepreneurs as a whole and how its benefits can be taught to these entrepreneurs to use as a tool in opportunity identification and evaluation to make them more innovative and thus grow.

Entrepreneurship is seen as the mechanism of economic growth with exceptional growths in economies where disruptive innovation was encouraged and this was the contrary for nations where this was not the case. Successful disruptive entrepreneurship creates solutions for both

the rich and the poor, thereby reducing inequality in the wellbeing of people in a society (Packard and Bylund, 2017). It is likely that online social interaction could be used as a tool to encourage disruptive innovations, thereby bridging inequality gaps and in that way improving societal wellbeing. The question is, how does social interaction support the decisions of entrepreneurs and how does social interaction influence opportunity evaluation of entrepreneurs? Arnaboldi *et al.* (2017) found in their empirical study that actors interested in interacting with outsiders sped up the decision-making cycle. This study responds to a call for research that investigates factors that have an influence on decision making inputs and the resultant changes to the initial choices (Shepherd, 2015; Shepherd andPatzelt, 2017). It also follows the suggestion made by Park *et al.* (2017) for future research to study why entrepreneurs use social media. To get a deeper understanding of how the use of social media facilitates cognition and behaviour affecting opportunity evaluation, the study builds on the following existing research streams.

- Uncertainty (S Shane and Venkataraman 2012; McMullen and Shepherd 2006)
- Effectuation and Causation (S. Sarasvathy 2001)
- Entrepreneurial Cognition (Grégoire, Corbett, and McMullen 2011)
- Social networking (Hite and Hesterly, 2001; Jack, 2010)

Welter *et al.* (2017) suggest that not enough is known about the field of entrepreneurship, thus research in this field is in an exploratory mode, making it exciting to research into, as many phenomena still remain unexplored. Exploring them will provide better insight into the richness of the diversity of the field, but the researcher has to decide what is interesting and useful to explore. The explosion in the use of social media is an interesting phenomenon to be studied and it would be useful to find out and know more about how it can impact entrepreneurship, specifically the evaluation of opportunities.

3.26 Conceptual framework of the study

Based on the research objectives and the review of literature, below, as displayed in figure 3.4, is the conceptual model to be tested empirically. How much of online social interaction that goes on during the evaluation of entrepreneurial opportunities could depend on whether an entrepreneur is using the causation or effectuation approach, with one approach possibly being more prominent more than the other. The effect of online social interaction on entrepreneurial opportunity evaluation could be either direct or indirect through a mediator, which in this case has been identified the resources available to the entrepreneur at the time of evaluation.

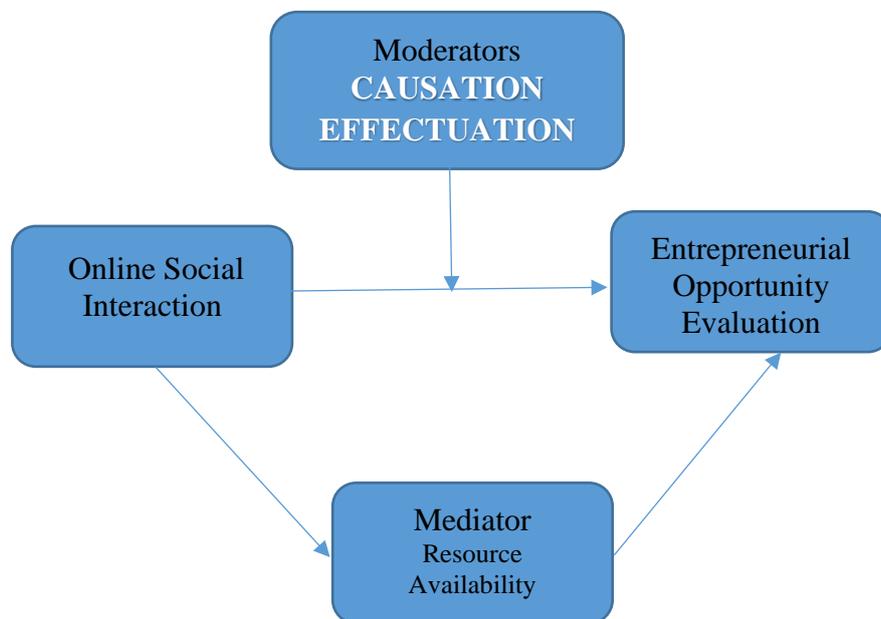


Figure 3-5 Conceptual Framework of the study

3.27 Conclusion

Various studies have been carried out on opportunity evaluation as a concept. Even though opportunity evaluation is the bridge between opportunity identification and exploitation, there is a dearth of research on evaluation as compared to the research that exists on opportunity identification and opportunity exploitation. Various factors have been identified to affect the evaluation process, amongst them are religion, emotions, and gender. Over the past few years,

there has been significant growth in internet usage and a corresponding increase in social media users, a phenomenon which has changed the way individuals interact. Interactions are characterized by more online engagements with diverse people both in and outside the countries of the users. This provides access to resources and information required for an entrepreneur to succeed, resources which otherwise would have been out of reach. Social media has thus become another means of accessing social capital for nascent entrepreneurs, serving as a feedback mechanism or a medium through which entrepreneurs can test their ideas. What we do not know, however is how the use of social media affects entrepreneurial evaluation of opportunities. This is important because social media has become part of our daily lives, and we must understand its implications for entrepreneurship.

CHAPTER FOUR

4 RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This research investigates the impact of online social interaction on entrepreneurial opportunity evaluation. Extant literature has fairly covered research on opportunity evaluation by entrepreneurs (Alvarez *et al.* 2010; Ardichvili *et al.* 2003; Davidsson 2015; Dimov 2007b; Keh *et al.* 2002; Der Foo 2011) as well as the importance of networking / social networking by entrepreneurs (Jack 2005; Hite and Hesterly 2001; Hite 2005) and the use digital technology especially social media tools (Nambisan 2016; Mollick 2014; Fischer and Reuber 2011). These three concepts have been studied separately but not studied together within the framework of entrepreneurship literature. All three have been proven to be of essence in the entrepreneurial sector. There is a need to gain an in-depth understanding of the effect of online social interaction on the process of opportunity evaluation by entrepreneurs.

This chapter presents a detailed description of the research process. It provides information on the philosophy, the method used in conducting the study research, information on the participants (inclusion criteria) and sampling method used. In addition, the chapter explains how the analysis of the collected data is used to address the research objectives and questions. Reasons and justifications for the research design, research instruments, data sources, and data collection techniques are also given. The procedures that were followed to carry out this study are included as well as the ethical issues that were followed in the entire process. Reliability and Validity are also discussed.

4.2 Objectives

The aim of this research is to develop a model which measures the impact of online social interaction during the evaluation of a potential opportunity. The model provides a deeper

understanding of the impact on opportunity evaluation as a result of social interaction via social media. Specifically, the objectives of the study include the following:

1. To develop and validate scales for social interaction and opportunity evaluation
2. To estimate the effect of online social interaction on entrepreneurs' opportunity evaluation.
3. To examine if the effect of online social interaction depends on effectuation and causation
4. To examine the mechanism by which online social interaction affect entrepreneurs' opportunity evaluation using resource availability as a mediator
5. To understand the nature of feedback and the pattern of resultant changes to a potential opportunity as a result of online social interaction

4.3 Research Questions

Main Question: How does online social interaction affect opportunity evaluation?

Based on the research question, the following research questions are deduced to guide the conduct of the research.

1. What is the possibility of developing and validating scales for social interaction and opportunity evaluation?
2. What is the effect of online social interaction on entrepreneurs' opportunity evaluation?
3. What is the impact on opportunity development and refinement when an entrepreneur is using the causation or effectuation approach?
4. What is the effect of social interaction on opportunity evaluation when resource availability is used as a mediator?
5. What is the nature of feedback received as a result of online social interaction that impacts opportunity evaluation?

4.4 Research Hypothesis and Proposition

The following hypotheses are to be tested in this study.

H1: Online social interaction increases the mean opportunity evaluation score.

H2: The effect of online social interaction is not the same across levels of effectuation and causation.

H3: Online social interaction has indirect effects on opportunity evaluation through resource availability.

The following proposition has been set for this study.

P1: Potential opportunities experience transformations due to the feedback received from online social interaction.

This is a proposition because it seeks to test the qualitative aspect of the study.

4.5 Research Philosophy

Research philosophy involves the development and nature of knowledge (Saunders, Lewis and Thornhill, 2008). The research philosophy selected by a researcher shows how the researcher sees the world; the philosophy of the study also underpins the strategy adopted for a study. Philosophy can be thought about in two ways, ontology, and epistemology. Ontology is concerned with the nature of reality and, which is either objectivism or subjectivism, and epistemology concerns itself with what forms acceptable knowledge in a discipline (Saunders, Lewis and Thornhill, 2008).

There are four philosophical domains namely, Positivism, Realism, Interpretivism, and Pragmatism. To decide which one is right for a researcher to adopt depends on the research question that a researcher is trying to answer. In practical terms, individual research questions seldom fall perfectly into a single philosophical domain (Saunders, Lewis and Thornhill, 2008). Positivism embraces the philosophical position of the natural scientist. The results of such research are similar to law-like generalisations which can be compared to physical and natural

scientists' creations. Interpretivism stresses the need for the researcher to appreciate differences among humans as social actors of this study. Realism as a philosophy postulates the existence of things whether perceived or not and uses the scientific approach in knowledge creation. Pragmatism holds a multiple view and promotes a balance between positivism and interpretivism and allows results to be used in different ways to gain a deeper insight into a phenomenon (Saunders, Lewis and Thornhill, 2008). Here, it is basically the research question that influences the selection of research philosophy. Hence, subject to the kind of research question, it is possible to use positivism and interpretivism at the same time.

This research takes the philosophical domain of Pragmatism. This is because it is practical and allows itself to merge various methods (quantitative and qualitative methods). The choice for this philosophical stand assumes that insights obtained should be premised on experiences of entrepreneurs and the process of opportunity refinement. Opportunity evaluation is seen as a social product that can be appreciated through the views of the individuals directly engaged in the process (Dimov 2007). The study attempts to gain valuable insights and a practical understanding of the experiences of participants. Entrepreneurs perceive different situations in different ways hence the different interpretations would impact their decisions (Gruber, Kim, and Brinckmann 2015).

Brinckmann and Hoegl (2011) comment on entrepreneurs and the way they interact with others socially. There is a need to make sense of their actions in a meaningful way. Thus, aside from collecting quantitative data that would provide objectivity, it is equally important to appreciate the motives for using social media, how it is used and why it is used the way it is being used. Pragmatism allows for the integration of different viewpoints to enhance understanding and this makes it possible to use a mixed-method approach to answer the research question (Creswell 2013)

4.6 Research Strategy

This study used a mixed-method (quantitative and qualitative) approach, specifically a sequential explanatory mixed-method approach, beginning with the quantitative and followed up with a qualitative method. A survey, followed by in-depth interviews was employed. This was used for explanatory purposes and to ensure that the findings are consistent. This is depicted in figures 4.1 and 4.2, following the approach that Park *et al.* (2017) used in their study of social media influences on entrepreneurial opportunity i.e. a survey followed by post hoc interviews to obtain an in-depth understanding of the results they obtained.



Figure 4-1 Explanatory mixed-methods Design

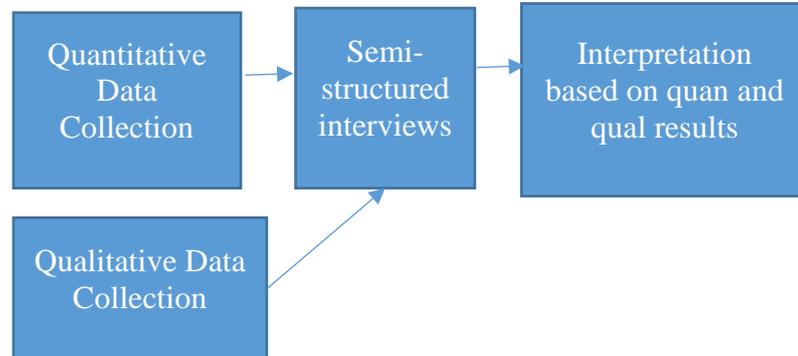


Figure 4-2 Explanatory sequential design

The motivation to select a mixed method of approach is because of the nature of the subject matter vis-vis International Business. International Business is seen as a multi-faceted area of research that inspires some appreciable amount of complicated research questions (Hurmerinta-Peltom and Nummela, 2006). International Business researchers recommended that it is better to answer such research questions by using multiple methods (Hurmerinta-

Peltom and Nummela, 2006) to enhance validity and create knowledge. Entrepreneurship research can be linked to International Business research in terms of complexity and thus the use of the mixed method in this research. The mixed-method approach enhances validity, since the focus is on both processes and outcomes thereby providing a greater understanding and also helps to obtain the richness and details required to understand how online social interaction impacts opportunity evaluation.

There is a lack of qualitative methods in research that use structured interviews or even case studies, although it would have been expected that more qualitative methods would have been used due to the nature of the construct (Wood and Mckelvie, 2015). Opportunity evaluation is a non-linear process that unfolds over time and events would have been better detailed and evaluated using qualitative methods. There is also a lack of triangulation of data as most researchers did not use multiple methods. Only two such studies using more than one method were identified by (Wood and Mckelvie, 2015) using more than one method. Hence the decision to use a mixed-methods approach for this study.

4.7 Research Design

A research design is a general plan that guides how the research is to be undertaken (Zikmund, W., Babin 2007). It connects the conceptual research problem to the relevant empirical research (Xie 2016). It gives a framework that guides the data collecting procedures relevant for a particular research. Bryman (2012) noted that the research problem has a significant influence on the choice of research design.

Bryman (2012) discusses five major types of research designs, namely experimental, cross-sectional (survey), longitudinal, case study and comparative research designs. Although a longitudinal study would have answered the research question in a much more detailed way, due to time constraints and resources, the study adopted a cross-sectional design and a multiple-

case study to achieve its aims and objectives. This design allowed the study to employ a large sample which was necessary to be able to develop the scale. Boateng *et al.* (2018) recommend that to develop a scale a minimum recommended sample should be 300.

4.8 Study and Target Population

Bryman (2012) simply defines a population as the universe of units from which the sample is to be chosen. He defines it as units because a population does not necessarily mean human beings. Creswell (2012) on the other hand, defines it as a group of individuals with the same characteristics. The study population was young nascent entrepreneurs in Ghana who have not been in business for more not more than 5 years. Young here does not refer to the age of the entrepreneur, but the age of the business. Relating the study of opportunity evaluation to the sample that was used in various studies, Wood and Mckelvie (2015) noted the diversity in the samples used. The samples were taken mostly from a population in the U.S. and Europe with a few taken from Asia. There are some regions that are less represented in the literature on opportunity evaluation literature such as Africa, the Middle East and Latin America (Wood and Mckelvie, 2015). In using a mixed-method approach with a data collection in sub-Saharan Africa, the limitation of non-representation of the Africa region has been addressed.

4.9 Unit of analysis

The unit of analysis in this research took a micro perspective and analysed individual nascent entrepreneurs.

4.10 Sampling Techniques

A sample is a subcategory of the target population that the researcher intends to study for generalizing about the target population (Creswell 2012). In other words, it is the section of the population that is selected for investigation and the method used for the selection is called sampling technique (Bryman 2012). It can be said to be a group of people selected from a larger

population purposely for a survey (Fridah 2002). The sampling technique can be a probability or non-probability approach. The probability approach makes sure that each unit in the population has been randomly selected so that each one has an equal chance of selection while in non-probability sampling a sample that has not been chosen by means of a random selection method implying that some units in the population have the likelihood of being chosen than other units within the population (Bryman 2012). Simple random sampling is the basic form of probability sampling and each unit of the population has an equal chance of being included in the sample (Bryman 2012) and has the highest freedom from bias (Taherdoost 2018). It must, however, be noted that the cost of this method can be high in terms of standard errors of estimators and the cost of obtaining data (Taherdoost 2018). This sampling technique was used for the quantitative data collection.

4.11 Sampling Criteria

To ensure adequate geographical representation of the sample for the survey, the listings of the National Entrepreneurship and Innovation Plan (NEIP), a policy initiative of the government of Ghana whose primary objective is to provide an integrated national support for start-ups and small businesses, was used. Through the Business Hubs Network, the NEIP program has trained 7000 entrepreneurs across Ghana since the program commenced in 2017. To ensure there was also a representation from Social Enterprises, a list was obtained from Social Enterprise Ghana. These organisations serve as incubators for young entrepreneurs and they organise a variety of training programs and raise start-up capital for these young entrepreneurs. The simple random sampling method was preferred because Social Enterprise Ghana (SEG) and the NEIP have a large representation of young entrepreneurs from a wide area of disciplines across Ghana and selection at random would ensure that each member of the larger population had an equal chance of being selected. This would also avoid researcher bias. A list of 800 contact numbers was obtained from NEIP. This was sampled from 7000 entrepreneurs

available at NEIP. In addition, another list of 118 social entrepreneurs was also obtained from SEG. The list provided indicated that entrepreneurs were located in all the regions of Ghana.

A list of all entrepreneurs in the 7 regions in Ghana (Greater Accra and Central for the Coastal belt, Ashanti, Brong Ahafo and Eastern for the Middle belt, Northern and Upper West for the Northern Belt) was obtained from the National Entrepreneurship and Innovation Program and the Social Enterprise Foundation and used as the sampling frame for the study. The list had the names, company name, telephone and location of 900 registered entrepreneurs.

Text messages were sent to all the 800 entrepreneurs to inform them of the study and an expected call. After the text message, a telephone call was placed to all the 800 entrepreneurs to further explain the study to them and to seek for their consent to participate in the study.

After the call, only 483 of the 800 entrepreneurs consented to participate in the study. All the 483 who consented to participate in the study were recruited. Therefore, about nine hundred entrepreneurs were contacted through the telephone to seek their consent and availability for the study. About 405 entrepreneurs (representing 44.11%) gave their consent and availability to participate. Three hundred and eighty-three (383 – representing 94.56%) responded to the telephone interviews.

For the qualitative data collection, entrepreneurs who had been in business 5 years or less were contacted and the snowball technique was used for the selection. When an entrepreneur was recommended, the person was contacted through the telephone to seek their consent and availability to participate in the study.

4.12 Sample Size

Creswell, (2012) advocates for a researcher to pick a possibly large sample from the population so as to ensure a smaller potential error that the sample will differ from the population. In other words, a sample must be of the required size so as to have the required amount of accuracy in the results and also to be able to recognize any substantial differences or associations that may

exist in the study population. So in research design, in order to achieve the research objectives, estimating the required minimum sample size is of essence (Omair 2014).

For scale development, various researchers have proposed different sample sizes. One of the factors that determine the sample size of a study includes the degree of variation among the variables, and the ratio of variables to the number of factors (Maccallum and Widaman, 1999). Nunnally and Bernstein (1978) state that for each scale item there has to be a minimum of 10 participants while others suggest that sample sizes do not depend on the number of survey items. Clark and Watson (1995) recommend using 300 respondents once preliminary testing has been done. Some researchers have recommended between 200–300 as suitable for factor analysis (Comrey, 1988; Guadagnoli and Velicer, 2014). Guadagnoli and Velicer (2014) conducted various simulations using different sample sizes after which they recommended a minimum range of 300–450 suitable to study comparability of patterns. They do not recommend a sample size of less than 300 otherwise there would be a need for replication. For scale development, Comrey and Lee (1992) propose a classified scale of sample sizes, where 100, 200, 300, 500, 1000 represented poor, fair, good, very good, excellent respectively. In this study using simple random sampling, a minimum sample size of 350 was selected based on the various discussions of sample sizes by the various researchers.

For the qualitative data collection, purposive sampling was used so as to ensure that participants selected are able to provide information that can best inform the research questions. Once saturation is reached (the same information is being repeated by different participants) no new participants would be engaged.

4.13 Data Collection Procedure

A cross-sectional design was used for quantitative data collection. This is the method where the researcher takes information at one-time point. It is mostly used when the research interest is in the know of what has happened or is happening at a particular point in time. The data

collection tool for the quantitative part of this research was a questionnaire with close-ended questions and responses based on a 5-point unipolar Likert scale. The concepts of analysis were identified through literature review.

Pretesting is generally undertaken as a pilot run, especially when the measures are taken from various sources. During pretesting, the instrument is administered to a small representative group of the population. Here, participants are requested to point out areas that can be improved to enhance understanding of the questions. Suggestions are also made to the data collection process itself and any identified problem areas corrected. There are times a re-test is done to ensure that the instrument is suitable to use to collect the required data (Hair et al. 2014)

For this study, a first pilot study was undertaken after the concepts had been identified in order to understand the more relevant ones to help discover as far as possible the relationships between the key variables in the study. The entrepreneurs for this part of the research were selected conveniently, specifically from a University incubator, so as to reduce costs and time. After the initial pilot study and the feedback received, the questionnaire was also then sent to 5 entrepreneurial and scale development experts. After this, another pilot study was done. This was to ensure that the questionnaire was valid and reliable. Due to the nature of the widespread location of respondents, the was collected using telephone interviews were used to collect the data. Six research assistants who had attained university level of education (two postgraduates and four undergraduates) were recruited and made to sign a confidentiality form. A one-day training was then organised by the researcher to train the research assistants. The research assistants were trained to have an in-depth understanding of the research as well as the questionnaire as well as equipped with skills to administer a questionnaire through telephone interviews. They were also introduced to key terminologies and agreed on definitions of these terminologies in the local language. The quantitative data collection took 4 weeks: 1st – 21st March 2019.

4.14 Validating Scales for Social Interaction and Opportunity Evaluation

The validation of the scale followed the approach recommended by SLavEc and Drnovsek, (2012) as depicted in figure 4.3 below. Boateng *et al.*, (2018) recently proposed a similar approach although not specific to entrepreneurship. In their view on scale development in entrepreneurial research, SLavEc and Drnovsek, (2012) propose a ten-step process classified into three stages. The first stage is the importance of theory and existence of the construct followed by how representative and appropriate the data collected is and the final stage is the statistical analysis and evidence of the construct. It must however be noted that, it was only item 3 that was followed in the first stage which is the content validity evaluation. This is because the constructs already had scales that could be used for our purpose but still needed to go through validity to ensure that the scales picked were appropriate.

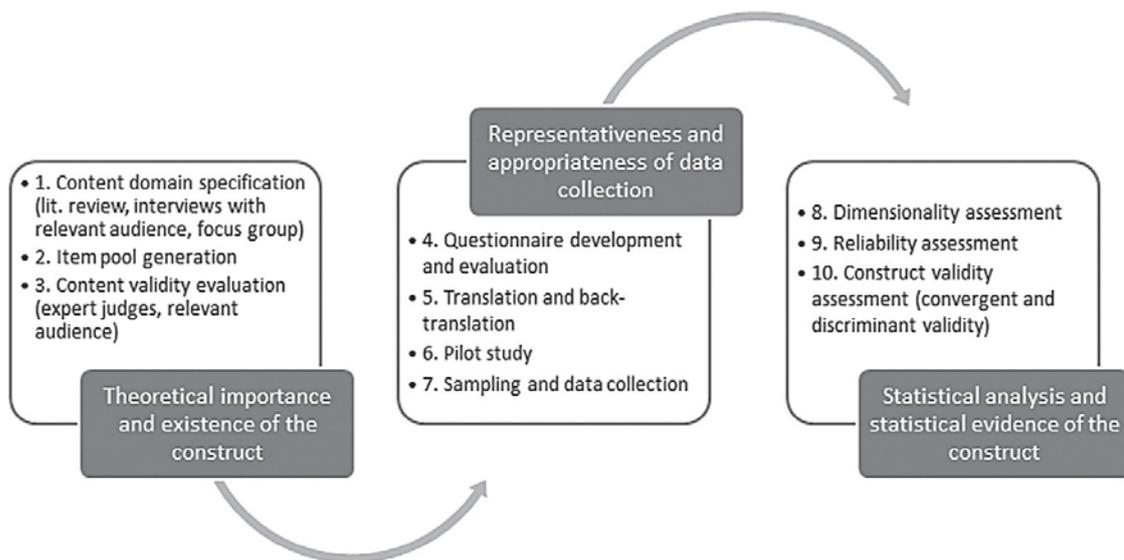


Figure 4-3 Ten steps and three phases in scale development

Source: (Slavec and Drnovsek, 2012)

4.15 Theoretical Importance and Existence of Construct

Domain(s) Identification, Item Generation and Content Validity

The initial step is the specification of the content domain because the creation of a new measure commences with delineation of the domain of the new construct attained through in-depth literature review (Netemeyer, Bearden and Sharma, 2003). Then a pool of possible items that sample the domain of the construct is created which will be used to develop the new scale. After this, it is checked for content validity which is the evaluation of how adequate the proposed items are from the item pool by the appropriate audience (Nunnally and Bernstein, 1994).

Opportunities are central to the study and practice of entrepreneurship (Shane and Eckhardt, 2003). Extant research has been done on opportunity identification, discovery and exploitation (Jarvis, 2016; McMullen and Dimov, 2013; Shane and Venkataraman, 2000; Van de Ven, Sapienza, and Villanueva, 2007), but much less research on evaluation of opportunities identified. The first step in the entrepreneurship activity starts when people notice favourable business opportunities. Opportunity evaluation is essential in the study of the entrepreneurship process because an individual takes action in creating a venture in order to produce a good or service only if he or she is convinced that an imagined future is attractive enough to pursue (Wood and Mckelvie, 2015). Opportunity evaluation 3rd person opportunities are assessed to see if they are attractive for themselves i.e. 1st person opportunities (Shepherd *et al.*, 2009). Unlike Opportunity evaluation, exploitation is the phase of the entrepreneurial process which involves taking action such as the search for resources (Autio, Dahlander and Frederiksen, 2013) in relation to 1st person opportunities (Wood and Mckelvie, 2015). Opportunity Evaluation can thus be said to be the bridge between opportunity recognition and exploitation and thus very important to understand how this construct works when it is being affected by

other factors. To the best of the researcher's knowledge, there are currently no existing instruments that currently serve that purpose.

The deductive approach of literature review and assessment of existing scales was used for the item generation. The variables included in the conceptual framework are social interaction/social capital, effectuation, causation, and opportunity evaluation. In order to clearly establish the relationship between online social interaction and opportunity evaluation, the questionnaire included control variables and these are competition, technological capabilities, and offline social interaction. Responses were based on a 5-point unipolar Likert scale.

The first step taken to ensure content validity was to conduct a pilot study with a target of population judges. This was also to ensure face validity. After the initial feedback received, the questionnaire was sent to a panel of 6 judges. These were experts in entrepreneurship, biostatistics, and ethics who carried out independent reviews to indicate the questions that were suitable, accurate, and interpretable. Items were accepted, rejected, or modified.

4.16 Representativeness and Appropriateness of Data Collection

After the questions had been reduced, there was a pre-testing to make sure that items would be easily comprehended and that they were relevant to the target population before the actual survey was carried out. This was to minimize misunderstanding, as was noticed from the first pilot study and subsequent measurement error. It was also to eliminate poorly worded items and phrasing of the questions to ensure that they were very well understood and to reduce the cognitive burden on research participants (Boateng et al. 2018). The questionnaire was also revised during the training of field workers to put in another stage on content validity.

4.16.1 Survey Administration

The data was collected using Computer Assisted Personal Interviewing (CAPI) on mobile phone devices. The software that was used is CS Entry. This was to reduce errors with data

entry. The data collected was directly stored on Dropbox in real-time. This was in line with the recommendation made by Boateng *et al.* (2018). As indicated earlier, the sample size that was used is 384 as recommended by several researchers in scale development (Comrey, 1988; Comrey and Lee, 1992; Clark and Watson, 1995; Guadagnoli and Velicer, 2014)

4.17 Statistical Method and Data Analysis

This section gives the details of the statistical methods used to test dimensionality assessment, reliability assessment, and to construct validity assessment.

4.17.1 Statistical Method

Firstly, the questionnaires were evaluated with SPSS and later exported to STATA for the data analysis. Factor analysis to ensure unidimensional scales were performed. A measure that is considered unidimensional has only one dimension, meaning that its items underlie a single factor (Slavec and Drnovsek, 2012). This study used exploratory factor analysis. After the unidimensional test, the study proceeded with assessing the reliability of the measures as per the recommendation by (Slavec and Drnovsek, 2012). Reliability tests were also performed to ensure that the scales were reliable measures. It should be noted that various normality tests were performed to ensure the accuracy of the data using the skewness and kurtosis test as well as the Shapiro-Wilk and Shapiro-Francia tests for normality. Internal consistency evaluation was also performed, specifically item-to-total correlations and inter-item correlations.

The internal consistency or reliability of the adapted tools for measuring opportunity evaluation, effectuation, causation, online social interaction, and social media adoption was assessed using Cronbach's alpha. Construct reliability was determined with 20 responses by determining Cronbach Alpha coefficients for each construct after a pre-testing of the questionnaire. Table 4.1 indicates the various statistical analysis that would be performed to test each hypothesis.

4.17.2 Study Variables

Bryman, (2012) defines a variable as a characteristic on which cases differ where 'Cases' are people and also other things such as households, cities, organizations, schools, and nations. Variables can be classified into independent variables and dependent variables. The study variables in this research are classified into dependent (outcome) and independent variables. Opportunity Evaluation is the outcome variable and the independent variables are comprised of causation, effectuation, social interaction, resource evaluation, and other background characteristics.

The scales that were retrieved from literature review of other researchers that were used as a guide for item development can be found in the appendix.

4.18 Opportunity Evaluation (OE)

Opportunity evaluation can thus be defined as a cognitive, open-ended future-focused activity and that depends on the actions of the entrepreneur (Dimov, 2007; Shepherd, McMullen and Haynie, 2009; Wood and Mckelvie, 2015). It is a first-person opportunity assessment (Shepherd, McMullen and Haynie, 2009) but not the same as the choice to create a venture. Opportunity evaluation is an activity that happens in the mind and involves analysing situations and conditions so as to decide what can be accomplished within the conditions (Wood and Mckelvie, 2015). It is a decision-making process where the entrepreneur makes his decision based on the attributes of the opportunity which include economic, environmental and social attributes. It will also be based on the satisfaction that the entrepreneur will derive from pursuing the opportunity (Smith, Kickul and Fiona, 2010). Muñoz (2017) agrees that entrepreneurship is made up of different cognitive structures but cautions that in spite of this, entrepreneurs should not be seen as heroes in their field with exceptional cognitive abilities. It should therefore not be viewed as a static activity but as changes in the individual over a period

of time which can have an impact on how decisions are made e.g. an increase in knowledge which includes the assessment of potential opportunities (Shepherd and Patzelt, 2017).

The assessment of opportunity evaluation was done using a set of 18 questions out of which 8 had responses to be given on a 5 point-Likert scale and the remaining 10 were measured on a 100-point scale. The questions measured on a 100-point scale were later converted to a 5-point scale. The overall average of all the 18 items was used as a measure of OE. The scales from these researchers were used as a guide for item development for this construct.

4.19 Social Interaction (SI)

Social interaction refers to online social interaction where entrepreneurs connect with networks using social media tools like Facebook, Twitter, and Instagram as well as WhatsApp and LinkedIn. Social Interaction was assessed using 10 questions measured on a 5 point-Likert. The scores ranged from 1-5 (1- Not as all 2- Rarely 3-Sometimes 4- Almost Always 5- Always). The overall average score was estimated as the measure of SI. The scales from these researchers were used as a guide for item development for this construct Walter *et al.* (2006) based on Mohr and Speakman (1994), Keller and Holland (1975),

4.20 Resource Availability (RA)

Barney (1991) classified resources into three categories. These are physical capital resources (e.g. plant and equipment, location), human capital resources (e.g. training, experience, judgment, intelligence) and organizational capital resources (e.g. internal structures and systems). These resources of the firm are seen as heterogeneous and immobile across firms in an industry and have an effect on the firm's strategic progress although not all resources are strategically relevant at a particular point in time. Six Likert-scale questions were used to assess resource availability. The scores are rated from 1 – 5, with 1 being the lowest score (Not at all)

and 5 being the highest (Always). The overall average score was estimated as the measure. The scale from Hughes, M *et al.* (2015) was used as a guide for item development for this construct.

4.21 Causation (CS)

Causation relates to opportunity identification and developing a business plan (Chandler *et al.*, 2011). Causation takes a certain effects as given and focuses on choosing between means to create that effect. Sarasvathy (2001) relates causation to a jigsaw puzzle where the expected picture is already known but what is left is how to put the pieces together in order to arrive at the pre-determined picture. The measurement of causation was done using seven questions measured on a 5-point Likert scale with the highest being 5 (Always). The overall average of all the 7 items was used as a measure of Causation.

4.22 Effectuation (EF)

Effectuation relates to a strategy that is evolving (Chandler *et al.*, 2011). Sarasvathy (2001) relates effectuation to the quilt approach where the opportunity needs to be developed, changing with the availability of new information. Effectuation is selecting between many outcomes using a certain set of resources; it enables the entrepreneur to develop one or more possible outcomes irrespective of the generalized goal. It also allows the decision maker to modify his goals and create his or her goals over time. This construct was assessed by 7 questions measured on a 5-point Likert scale with the highest being 5 (Always). The overall average of all the 7 items was used a measure of effectuation.

Table 4-1 Statistical analysis performed to test each hypothesis

Hypotheses/Propositions Research questions	Research instrument questions	Variable type	Analysis
<p>Do entrepreneurs use social media tools during the entrepreneurial process?</p> <p>An entrepreneur uses at least one social media tool during the entrepreneurial process</p>	<p><u>Use of Social Media Tools</u> Section A: Q.6-Q7</p>	<p><u>Social Media Tools</u> Categorical variables measured on the nominal</p>	<p>Descriptive statistics: Frequencies and percent frequencies</p>
<p>What is the impact of online social interaction on opportunity development and refinement when an entrepreneur is using the causation or effectuation approach?</p> <p>The effect of online social interaction is not the same across levels of effectuation and causation</p>	<p><u>Effectuation</u> Section F: Q 1 – 13 <u>Opportunity Evaluation</u> Section B: Q 1-9</p>	<p><u>Independent variable</u> Causation is a quantitative continuous covariate generated from a 14 point Likert scale items via mean composite score analysis</p> <p><u>Effectuation</u> Effectuation is a quantitative continuous covariate generated from a 13 point Likert scale items via mean composite score analysis</p> <p><u>Outcome variable</u> Opportunity Evaluation measured on a continuous scale. This will be obtained by generating composite mean scores from the Likert scale</p>	<p>Explore the relationship between causation/effectuation and opportunity evaluation with a scatter plot. Quantify relationship using Pearson correlation/spearman rank. Multiple linear regression analysis to assess the impact of causation on opportunity evaluation. Residual analysis will be performed to check the regression model assumption. Sensitivity analysis will also be conducted after re-categorizing the outcome into ordinal scale using ordinal logistic regression</p>
<p>What is the effect of online social interaction on entrepreneurs' opportunity evaluation</p>	<p><u>Social Interaction</u> Section C: Q 1 – 22</p>	<p><u>Social Interaction</u> Independent Variable <u>Outcome variable</u></p>	<p>Ordinal Logistic Regression Analysis</p>

<p>Online social interaction increases the mean opportunity evaluation score..</p>	<p><u>Opportunity Evaluation</u> Section B: Q1-9</p>	<p><u>Opportunity Evaluation</u> measured on a continuous scale. This will be obtained by generating composite mean scores from the Likert scale</p>	<p>This study will re-categorized opportunity evaluation into four ordinal levels (high, medium, low and no opportunity evaluation) based on a clearly defined threshold. Frequencies and percent frequencies will be used to determine the proportion of study participants that had high, medium, low and no opportunity evaluation</p>
<p>Is the relationship between opportunity evaluation and online social interaction mediated by resource availability? The relationship between opportunity evaluation and online social interaction is mediated by resource availability</p>	<p><u>Resource Availability</u> Section D: 1-3 <u>Opportunity Evaluation</u> Section B: Q1-9 Social Interaction Section C: Q 1 – 22</p>	<p><u>Mediation variable</u> <u>Resource Availability</u> Nominal / Independent online social interaction <u>Outcome variable</u> <u>Opportunity Evaluation</u> measured on a continuous scale. This will be obtained by generating composite mean scores from the Likert scale</p>	<p>Mediation Analysis based on structural equation models</p>

4.23 Quantitative Data Analysis

4.23.1 Item reduction and Extraction of factors

Item reduction analysis was carried out to ensure that only valid, functional, and internally consistent items were included in each construct. An item is considered functional if it correlates with other items, discriminates between individual cases and underscores a single or

multidimensional domain as well as contributes substantially to the construct. Eleven items measured on a 5-point Likert scale and polychoric correlation coefficient was used to assess the correlation between items in each construct. Items with a correlation coefficient of ≥ 0.3 were desirable while those with values < 0.3 were discarded. The Item Response Theory (IRT) model was used in estimating the discrimination indices. Items with statistically significant index (p-value < 0.05) were considered (Popham and Husek, 1969; Brennan, 1972). Using Exploratory factor analysis (EFA) factors were extracted and to assess the contribution of each item to the construct, rotated factor loadings were used. Eigenvalues of factors were used to determine the number of factors to extract. Factors with eigenvalues more than 1, were considered for extraction. Items with oblique or orthogonal rotated factor loadings < 0.35 were further excluded (Nunnally and Bernstein, 1994; Raykov and Marcoulides, 2011). STATA 15 MP (StataCorp, College Station, TX, USA) was used in performing all analyses.

4.23.2 Scale Evaluation

To assess the internal consistency of the scale items, Cronbach's alpha was used, in terms of the extent to which the set of items in the scale co-vary, in relation to their sum score (Raykov and Marcoulides, 2011; DeVellis, 2012). An alpha coefficient of 0.70 was set as an acceptable threshold for reliability.

Descriptive statistics for continuous variables were presented in terms of means and standard deviations for normally distributed data. Categorical variables were reported in terms of frequencies and percentages. Skewness and kurtosis and Shapiro-Wilk were used to test the normality continuous variables. One-way ANOVA test and Welch t-test were used to compare the average construct scores by the background characteristics of the entrepreneurs. Pearson's correlation coefficient values were used to measure the association between the measured construct scores. To measure the effect of social interaction on opportunity evaluation with resource availability as a mediator, Structural Equation Modelling (SEM) was used. The

moderation effect of causation and effectuation on the relationship between online social interaction and opportunity evaluation was measured using a linear regression model with an interaction effect. All statistical tests were done at the 5% significance level.

Other explanatory data analyses to be studied include socio-demographic/economic factors (age in years, sex, educational level, etc.). Bivariate analysis of socio-demographic factors and how they relate with opportunity evaluation will be based on the Welch t-test/ Wilcoxon rank-sum test, one-way analysis of variance/Kruskal Wallis test, Pearson correlation coefficient / Spearman rank correlation coefficient.

4.23.3 Validity

The study used face value validity to make sure the questionnaires measured what they were expected to measure. Pre-testing of the questionnaire was conducted among a small diverse number of people to ensure correctness in the questions and reduce possible ambiguities in the questionnaire. Validated scales which have been previously used and tested by other scholars were used as a guide to collect data. In addition, factor analysis was performed to ensure unidimensionality and reliability tests.

4.23.4 Reliability

Cronbach's alpha level was set at 0.7, which is a good and acceptable level for a scale for a quantitative study. The analysis follows a similar study conducted by Pallant (2013).

4.24 Qualitative Data

4.24.1 Data Collection Procedure

Usually, expert knowledge is not available publicly because it is seen as confidential, sensitive or privileged (Christopoulos 2007). The qualitative part of the study was to gain an in-depth understanding of results, specifically to find out the nature of feedback and the pattern of resultant changes to a potential opportunity as a result of online social interaction.

To achieve this, a snowball sampling approach was used which is a type of convenience sampling. Here, the researcher initially contacts a small group of people who are appropriate to the study and who then help the researcher to establish contacts with others (Bryman 2012). This was to ensure that participants selected are able to provide information that best informs the research questions and reflects the impact of online social interaction of opportunity evaluation. Beninger *et al.*, (2016) used this method to get a better understanding of the contextual aspect of their study and to provide some richness to the data. It is expected that the sample size would be small, but enough to ensure that potential respondents guarantee diversity. The sample size was obtained when a point of data saturation was reached. i.e. the same information is being repeated by different participants, with no new participants being engaged. This was assumed to occur around 20.

Park *et al.*, (2017) carried out in-depth interviews with 4 entrepreneurs to get a rich understanding of the context of entrepreneurship, social interaction and opportunity refinement. The interviews conducted were semi-structured where the questions and order of presentation are determined but the questions were opened-ended. This was to allow gathering of as much information as possible regarding online interaction activities of entrepreneurs and opportunity evaluation context.

Interview questions were focused mainly on an entrepreneur's use of social media, the benefits of networks and the impact that this has on evaluating potential opportunities. A guide was developed, based on the review of literature and on an understanding of the concepts of social interaction, networking, and opportunity evaluation. Participants for the qualitative study were individual entrepreneurs who had been in business for at least one year. A total of 13 key informant interviews were conducted for this study.

4.24.2 Data Analysis

All the key informant and in-depth interviews were audio-recorded and transcribed using Microsoft word. The thematic analysis approach was used to analyse the transcriptions. Firstly, thorough reading and re-reading enabled the identification of codes from the transcripts. These codes were used to develop a codebook which in turn was then used to sort and categorize all data. The transcripts were imported into Nvivo software version 11 and the codebook used as nodes. The imported transcripts were studied line-by-line and relevant quotes were selected for coding under appropriate nodes. The themes and sub-themes that were developed from this process led to the formation of tentative linkages between concepts and data. The narrative was then written using all the information gathered through the analysis and supported by illustrative quotes from the respondents. This strategy aided in the explanation of the relationship between online social interaction and opportunity evaluation.

4.24.3 Trustworthiness in Qualitative data

Trustworthiness is a very important notion that enables researchers to explain the intrinsic worth of qualitative terms beyond the general constraints in quantitative research. The rationale in qualitative research is to back the case that researchers' findings are significant. Lincoln and Guba (1985), postulated that trustworthiness includes four key aspects which are credibility, transferability, dependability, and confirmability as further discussed below.

4.24.4 Credibility

To ensure credibility, the researcher was involved in administering the questionnaire and the actual data collection with prolonged engagement of respondents. Participant checks were done to make sure participants were highly qualified to answer questions. This was done by contacting the participants twice before conducting the actual interviews and was also the reason why they were selected using snowball sampling. In addition, before the fieldwork, peer briefings were held to ensure there were no inconsistencies.

4.24.5 Dependability

For the research findings to be reliable and dependable, the manner in which the research is conducted needs to be consistent across time, researchers and analysis techniques. The process by which the results are produced must be clear and open. This, according to Lincoln and Guba, (1985) is achievable by carefully monitoring the emerging research design. In addition, for the study to be dependable, the information must be accurate and consistent, while the results have to be consistent across time. The process was therefore clear and open and emerging themes were derived from the interviews.

4.24.6 Confirmability

The research was driven by the respondents and not the researcher so as to prevent bias. Lincoln and Guba (1985) explained that to achieve confirmability, a researcher needs to bring together data and present the strategy and procedure used in checking and rechecking the data collected. The researcher used the approach of Lincoln and Guba (1985) to ensure that the findings of the study were the experiences of the respondents and not the opinion of the researcher.

4.24.7 Transferability

To enable readers to generalize the findings of the results, all information regarding the research is available, as well as a vivid description of respondents to show that the respondents could adequately respond to the research questions. The details of how the research was conducted have been explicitly written in a way to enable those who wish to transfer the methods to do so. Other researchers will also be able to assess the extent to which the conclusions derived from this research are transferable to other times, settings, situations, and people.

4.24.8 Benchmarking

Existing scales and measures used in similar research settings were identified to make the findings of this research valid and reliable. Work by other researchers also helped confirm the relevance of this research. The study used existing research studies to support the results obtained from the final results. The researcher tested for uni-dimensionality of the scales, the linearity of the data and performed a reliability test on the validated scales used.

4.25 Ethics

Ethical approval was sought and obtained on 13th September 2018 from UNISA's ethics committee before the collection of data to ensure the protection of participants. The Social Enterprise Ghana (SEG) and the National Entrepreneurship and Innovation Programme (NEIP) gave permission to undertake the study on 9th February 2018 and 14th February 2019 respectively. Prospective participants were given a full brief about the processes involved in the research. Informed consent was impliedly obtained from participants after they had accepted voluntarily to be part of the study. Participants were guaranteed anonymity and confidentiality to help protect the privacy of participants.

The interviews for the qualitative part of the study was conducted via telephone and in person at a location convenient for the participant. To avoid researcher bias, the qualitative data collection used both open-ended and closed questions to ensure that a better perspective of the scope of the research is understood. With participant consent, the interviews were recorded and later transcribed.

4.26 Delimitation

The scope of the thesis was individual nascent entrepreneurs enrolled in an incubator program in Ghana. Social media channels that would be included in the study were Facebook, Instagram, Twitter and WhatsApp, the popular online social interaction media in Ghana. This research concentrated on the construct of social interaction: that is the effect that online

interaction had on opportunity evaluation and not identification, as opportunity identification has been researched extensively. The theoretical perspectives were network theory, resource-based view and the theories of causation and effectuation.

4.27 Time Horizon

This study is considered cross-sectional because the change in the dependent variable was measured in terms of change between two points in time: start-up time and at the time of the survey.

4.28 Conclusions

This chapter outlined the research method that was used to answer the research questions for this study. The study used a mixed-method approach specifically a Quan-qual approach. It discussed the research philosophy, the data collection procedure, the participants and the statistical analysis that was used. The quantitative data was analysed using STATA and the qualitative data was analysed using NVIVO 11.

CHAPTER FIVE

5 RESULTS AND DISCUSSION

5.1 Introduction

This chapter discusses the research results with reference to the main objective of the study which was to determine the effect of online social interaction on opportunity evaluation. It then discusses the findings in relation to other literature. The first part provides the quantitative results and the second part gives the qualitative.

5.2 Quantitative Results

5.2.1 *Background characteristics of Entrepreneurs*

A survey response rate of 83.2% of the administered questionnaire was achieved. In total, data was collected from 383 respondents who responded to telephone interviews. Eight out of every ten selected participants (i.e. 305/383~ 80%) were males. The average age of all the participants was 33.83 ± 7.03 years. More than half (i.e. 194/383~50.7%) of the respondents were first-degree graduates while about one-tenth (i.e. 10.4%, 40/383) of them had masters and doctoral degrees. The proportion of people with no formal education was less than one percent (i.e. 3/383~0.8%). The commonest type of business engaged in by the participants was Service Industry, and Agric-business while Education and Health/Pharmaceuticals were above five percent. About 9 out of every 10 selected participants were on social media (i.e. 363/383 or 94.8%). Among the participants on social media, almost all of them were WhatsApp users (i.e. 351/363 ~ 96.7%,). Facebook was also used by most participants (i.e. 335/363~92.3%,) however, Twitter users were about three out of every ten (i.e.112/363 or 30.9%,). Details of the background characteristics of the study participants are shown in Table 5.1.

Table 5-1 Distribution of background characteristics of entrepreneurs in Ghana

BIOGRAPHICAL DATA	Frequency	Percent
Age (Mean ± SD)	33.83 ± 7.03	
Gender		
Male	305	79.63
Female	78	20.37
Education		
No education	3	0.78
Primary	19	4.95
WASSCE/SSCE	49	12.79
HND/Diploma	72	18.8
Undergraduate Degree	194	50.65
Masters	38	9.92
DBA / PhD	2	0.52
Technical	6	1.57
Type of business		
Health/Pharmaceuticals	11	2.87
Digital Technology	39	10.18
Service Industry	127	33.16
Consumer goods	31	8.09
Agri-business	120	31.33
Education	14	3.66
Others	41	10.7
Social media sign up		
Yes	363	94.78
No	20	5.22
Type of Social media used^a		
WhatsApp	351	96.69
Facebook	335	92.29
Instagram	169	46.56
Twitter	112	30.85

a: Multiple responses for only those who are on social media

5.3 Distribution of responses to individual questions of the various constructs

5.3.1 Opportunity Evaluation

More than eighty percent of respondents (84.3% or 323/383) found the activity of searching for new ideas for products/ services either very enjoyable or extremely enjoyable with less than one percent (0.52% or 2/383) indicating it as not being an enjoyable activity. More than half of the participants (58.22% or 223/383) were extremely motivated to improve their existing products and services while one third (33.16% or 127/383) of them were very motivated to do

so. Almost half of the respondents (48.56% or 186/383) indicated that the product they have now is not substantially different from what they initially imagined but a third (34.36% or 148/383) had a substantially different product/service than what they first imagined. Four out of every ten participants (41.78% or 160/383) had made very major changes to their business model with some (17.49%, 67/383) actually making extreme major changes to their business model. With regards to slight adjustments to the business model (like a price change or product design), one-third of the respondents (34.99%, 134/383) made very major changes and about 2 out of every 10 (21.67%, 83/383) made slight changes. There were also some that made extremely major changes in relation to minor adjustments to their business model (14.88%, 57/383). More than half of the respondents (52.22%, 200/383) described the process of opportunity development as increasing over the period while for some, it was described as being average (26.89%, 103/383). Details of the participants' responses to individual opportunity evaluation questions are shown in Table 5.2.

Table 5-2 Responses to Opportunity Evaluation Questions

Opportunity Evaluation	Mean \pmSD	Frequency	Percent
Searching for new ideas for products/services to offer is enjoyable to me	4.31\pm0.83		
Not Enjoyable		2	0.52
Slightly Enjoyable		10	2.61
Enjoyable		48	12.53
Very Enjoyable		132	34.46
Extremely Enjoyable		191	49.87
I am motivated to figure out how to make existing products/services better	4.48\pm0.69		
Slightly Motivated		4	1.04
Motivated		29	7.57
Very Motivated		127	33.16
Extremely Motivated		223	58.22
The product/service that we now provide is substantially different than we first imagined.	2.78\pm0.48		
Not Different		110	28.72
Slightly Different		76	19.84
Different		49	12.79
Very Different		83	21.67
Extremely Different		65	16.97
Have you made major changes to my business model?	3.31\pm1.35		
Not at All		62	16.19
Slightly		53	13.84
Somewhat		41	10.7
Very Major		160	41.78

Extremely Major		67	17.49
Have made minor adjustment (pricing change, product design change, etc	3.21±1.25		
Not at All		43	11.23
Slightly		83	21.67
Somewhat		66	17.23
Major		134	34.99
Extremely Major		57	14.88
I would describe my idea refinement process as	3.45±1.05		
Slow		41	10.7
Decreasing over time		8	2.09
Average		103	26.89
Increasing overtime		200	52.22
Radical		31	8.09
I have made major changes to my business model after receiving feedback from customers or potential investors	3.46±1.25		
Not at All		47	12.95
Slightly		36	9.92
Somewhat		45	12.4
Major		174	47.93
Extremely Major		61	16.8
I have made minor adjustment (pricing change, product design change, etc) as a result of feedback from potential customers or investors	3.07±1.16		
Not at All		41	11.29
Slightly		80	22.04
Somewhat		79	21.76
Major		137	37.74
Extremely Major		26	7.16

In assessing the level of major changes participants had made to their business model after having received feedback from customers or potential investors, more than half (64.73%,235/363) indicated that they had made very major/extremely major changes to their business model. In relation to minor changes, only a third (33.33%,121/383) indicated that they either did not make or made slight minor changes to their business model after receiving potential customer and investor feedback.

In measuring factors that influence the initial business models of participants, half of the participants rated the influence of speaking with potential customers to be about 70%, while speaking to potential customers was rated 40%. Speaking with family and friends, using social media and desk research were all rated at 60% by half of the participants. The factor that had the highest influence on their current business model was feedback received from customers rated at 80%, followed by social media rated at 70% by half of the participants. Family and friends and desk research ratings remained unchanged by 50% of the customers. The results are as shown in table 5.3.

Table 5-3 Responses to Influence on Business Model

	Median	Lower quartile	Upper quartile
A. Influence on initial Business Model			
Speaking with potential customers	70	40	90
Speaking with potential investors	40	1	80
Speaking with friends and family	60	40	80
Social media	60	5	90
Desk Research	60	30	80
B. Influence on the current business model			
Customer feedback	80	60	90
Investor feedback	25	1	80
Friends and Family feedback	60	40	80
Social Media	70	30	90
Desk Research	60	30	80

5.3.2 Online Social Interaction

In measuring participants' use of online social interaction in the development of their business opportunities, majority (63.9% or 232/363) indicated to have been really excited to always/almost always use it in scanning the environment for new opportunities. Exchanging information with and learning from others online was almost always/always done among most of the participants (63.6% or 231/363). A quarter (25.1% or 91/363) of the participants rarely/have not successfully acquired professional information needed for their new business (e.g. research and development information for new products or services) from online social interaction. About thirty percent (30.6% or 111/363) of the participants obtain a substantial amount of their important information on customer needs and trends from online social interaction. In making business decisions, about one out of every three selected (32.2%, 117/363) participants almost always/always rely heavily on online market information. Most of the participants (72.2%, 262/363) felt that their online contacts were very/extremely important for their businesses. Details of participants' responses to Online Social Interaction are shown in table 5.4.

Table 5-4 Responses to Influence on Business Model

	Mean ± SD	Not at all n (%)	Rarely n (%)	Sometimes n (%)	Almost always n (%)	Always n (%)
Online Social Interaction						
Scanning the environment using social media for new opportunities really excites me.	3.68±1.18	31 (8.54)	21 (5.79)	79 (21.76)	135 (37.19)	97 (26.72)
I exchange information with and learn from others online	3.59±1.27	43 (11.85)	26 (7.16)	63 (17.36)	136 (37.47)	95 (26.17)
I exchange ideas with others online to analyse and solve problems	3.31±1.33	57 (15.7)	37 (10.19)	77 (21.21)	120 (33.06)	72 (19.83)
I have successfully acquired professional information needed for the new business (e.g. research and development information for new products of services) from online social interaction.	3.28±1.30	61 (16.8)	30 (8.26)	75 (20.66)	141 (38.84)	56 (15.43)
I have been capable of acquiring marketing information for the new business (e.g. market trends, competition, and sources of supplies) from online social interaction.	3.13±1.35	75 (20.66)	34 (9.37)	70 (19.28)	135 (37.19)	49 (13.5)
I get most of our valuable information on customer needs and trends from online social interaction	3.03±1.27	70 (19.28)	41 (11.29)	99 (27.27)	115 (31.68)	38 (10.47)
Because I interact online, we are able to obtain a tremendous amount of technical know-how online	3.17±1.33	70 (19.28)	36 (9.92)	70 (19.28)	137 (37.74)	50 (13.77)
I rely heavily on online market information to make decisions	2.71±1.25	96 (26.45)	47 (12.95)	103 (28.37)	100 (27.55)	17 (4.68)
I use online market information to solve specific problems.	2.77±1.27	93 (25.62)	45 (12.40)	98 (27.00)	106 (29.20)	21 (5.79)
		Not at all	Slightly important	Somewhat important	Very important	Extremely important
My online contacts are very important for my work	3.85±1.27	31 (8.54)	34 (9.37)	36 (9.92)	120 (33.06)	142 (39.12)

5.3.3 Resource Availability

In evaluating both the participants' ability to obtain financial resources through social interaction and having financial resources obtained from online social interaction, both questions had more than half of the participants saying they did not at all or rarely did. The responses for being able to obtain it represented was 81.8% (297/363) and responses for having it available was 71.4% (259/363). This was in contrast to the ability to obtain information and having substantial access to information. A fourth of the participants (45.4% or 165/363) are able to almost always/always obtain information via online social interaction and 1 out of every 3 (34.4% or 125/363) have access to information at their discretion due to online social interaction. A quarter of the participants (25% or 94/363) are almost always/always able to obtain human capital from online social interaction and about 2 out of every 10 participants (22.5%, or 99/363) almost always/always have substantial human capital obtained via online

social interaction at their discretion for supporting strategic initiatives. Summarised details can be found in table 5.5.

Table 5-5 Responses to Resource Availability

Resource Availability	Mean ± SD	Not at all n (%)	Rarely n (%)	Sometimes n (%)	Almost always n (%)	Always n (%)
I am able to obtain financial resources on short notice to support new strategic initiatives from online social interaction	1.64±0.97	225 (61.98)	72 (19.83)	39 (10.74)	24 (6.61)	3 (0.83)
I have substantial financial resources at my discretion for funding strategic initiatives obtained via online social interaction	1.81±1.04	203 (55.92)	56 (15.43)	76 (20.94)	25 (6.89)	3 (0.83)
I am able to obtain information on short notice to support new strategic initiatives from online social interaction	3.25±1.21	58 (15.98)	30 (8.26)	110 (30.3)	128 (35.26)	37 (10.19)
I have substantial access to information obtained via online social interaction at my discretion for making decisions on strategic initiatives.	3.04±1.14	55 (15.15)	33 (9.09)	150 (41.32)	93 (25.62)	32 (8.82)
I am able to obtain human capital on short notice to support new strategic initiatives from online social interaction	2.37±1.34	152 (41.87)	37 (10.19)	80 (22.04)	75 (20.66)	19 (5.23)
I have substantial human capital obtained via online social interaction at my discretion for supporting strategic initiatives	2.28±1.31	161 (44.35)	37 (10.19)	83 (22.87)	66 (18.18)	16 (4.41)

5.3.4 Causation

In assessing the way of thinking of the participants that serve them in their process of venture creation, specifically causation, 3 out of 4 (i.e. 75.6% or 290/383) analysed long-run opportunities and selected what they thought would provide the best returns to a high extent/very high extent. More than half to a high extent/very high extent (i.e. 82.9%, or 318/383) designed and planned business strategies. 9 out of 10 (i.e. 91% or 349/383) to a high extent/very high extent had clear and consistent vision of where they wanted to be. 4 out of 10 participants (i.e. 40.2% or 154/383) integrated surprising results and findings to a high extent when the original project target was at risk. More than 50% (i.e. 63.5% or 243/383) to a high extent/very high extent

carried out project planning basically at the beginning. Almost 9 out of 10 participants (i.e. 89.8% or 344/383) always paid attention to the original project target to a high extent/very high extent. The details are as in table 5.6.

Table 5-6 Responses to Causation

Causation	Mean ± SD	Not at all	Little Extent	Somewhat	High Extent	Very High Extent
		n (%)	n (%)	n (%)	n (%)	n (%)
I analysed long run opportunities and selected what I thought would provide the best returns	3.92±0.88	6 (1.57)	21 (5.48)	66 (17.23)	194 (50.65)	96 (25.07)
I designed and planned business strategies.	4.05±0.91	9 (2.35)	19 (4.96)	37 (9.66)	196 (51.17)	122 (31.85)
I had a clear and consistent vision for where I wanted to end up	4.31±0.78	4 (1.04)	10 (2.61)	20 (5.22)	179 (46.74)	170 (44.39)
I only integrated surprising results and findings when the original project target was at risk	3.07±1.12	47 (12.27)	68 (17.75)	96 (25.07)	154 (40.21)	18 (4.7)
My R&D process focused on reaching the project target without any delay	3.61±1.13	31 (8.09)	36 (9.4)	53 (13.84)	195 (50.91)	68 (17.75)
The project planning was basically carried out at the beginning of the project	3.50±1.16	33 (8.62)	48 (12.53)	59 (15.4)	179 (46.74)	64 (16.71)
I have always paid attention to reach the original project target	4.17±0.71	3 (0.78)	8 (2.09)	28 (7.31)	225 (58.75)	119 (31.07)

5.3.5 Effectuation

In assessing the way participants think that effectuation serves them in their process of venture creation, more than half (66.5% or 255/383) tested varied products and business models on what they thought would offer the best returns to a high extent/very high extent. Eight out of 10 (84.3% or 224/383) adapted their resources to what they had to a high extent/very high extent. To a high extent/very high extent, almost 9 out of 10 (88% or 337) were open-minded, taking advantage of available opportunities. Planning and implementation were done gradually by 76.5% (293/383) participants to a high extent/very high extent. To a high extent/very high

extent, more than half of the participants (66.8% or 256/383), allowed the project to develop as opportunities arose although the opportunities have not been in line with the original project.

Table 5.7 provides a summary of the detailed results.

Table 5-7 Responses to Effectuation

Effectuation	Mean ± SD	Not at all n (%)	Little Extent n (%)	Somewhat n (%)	High Extent n (%)	Very High Extent n (%)
I experimented with different products and/or business models what I thought would provide the best returns	3.49±1.31	58 (15.14)	30 (7.83)	40 (10.44)	178 (46.48)	77 (20.1)
I adapted what I were doing to the resources we had	4.03±0.75	4 (1.04)	11 (2.87)	45 (11.75)	234 (61.1)	89 (23.24)
I was flexible and took advantage of opportunities as they arose	4.14±0.80	5 (1.31)	14 (3.66)	27 (7.05)	212 (55.35)	125 (32.64)
I avoided courses of action that restricted my flexibility and adaptability.	3.90±0.90	8 (2.09)	23 (6.01)	59 (15.4)	201 (52.48)	92 (24.02)
I always tried to integrate surprising results and findings during the R&D process even though this was not necessarily in line with the original project target	3.25±1.14	38 (9.92)	59 (15.4)	96 (25.07)	151 (39.43)	39 (10.18)
The project planning was carried out in small steps during the project implementation	3.87±1.06	21 (5.48)	23 (6.01)	46 (12.01)	187 (48.83)	106 (27.68)
I allowed the project to evolve as opportunities emerged even though the opportunities have not been in line with the original project	3.67±1.02	19 (4.96)	30 (7.83)	78 (20.37)	188 (49.09)	68 (17.75)

5.3.6 Control Factors

Most participants' (83%, 318/383) market assessment of strong competition in their markets was high/very. The extent to which participants' customers constantly looked for new products was high/very high was more than half (i.e. 68%, 281/383). For 7 out of 10 (i.e. 70%, 269/383) participants, in order to stay in the markets, they needed to often update technology in order to remain competitive. Half of the participants (i.e. 50.8%, 195/383) investment in research and development was high/very high. Eight out of 10 participants highly/very highly engaged in

in-person interaction to solve problems (i.e.79% or 304/383), exchange information with and learn from others (i.e.84.6% or 325/383) and exchange ideas to analyse and solve problems in person (i.e.81.9% or 314/383). Table 5.8 gives a summary of the findings.

Table 5-8 Responses to Control Factors

CONTROL FACTORS	Not at all n (%)	Very Little n (%)	Somewhat n (%)	High n (%)	Very High n (%)
Our market is characterized by strong competition	10 (2.61)	26 (6.79)	29 (7.57)	116 (30.29)	202 (52.74)
Customers constantly look for new product/service	36 (9.4)	41 (10.7)	45 (11.75)	141 (36.81)	120 (31.33)
Products and services become old very fast in our market	103 (26.89)	91 (23.76)	58 (15.14)	93 (24.28)	38 (9.92)
In our market, you must often update technology in order to stay in the market.	38 (9.92)	38 (9.92)	38 (9.92)	143 (37.34)	126 (32.9)
The technology that our business is based on, is not subject to large changes	87 (22.72)	109 (28.46)	66 (17.23)	86 (22.45)	35 (9.14)
We invest heavily in R&D	60 (15.67)	67 (17.49)	61 (15.93)	135 (35.25)	60 (15.67)
I almost always solve problems constructively	5 (1.31)	23 (6.01)	51 (13.32)	159 (41.51)	145 (37.86)
I exchange information with others and learn from others in person	9 (2.35)	18 (4.7)	31 (8.09)	163 (42.56)	162 (42.3)
I exchange ideas with others to analyse and solve Problems in person	9 (2.35)	21 (5.48)	39 (10.18)	160 (41.78)	154 (40.21)

Table 5-9 Table of mean and standard deviation for Control Factors

Variable	Mean	Standard deviation
Competition		
Our market is characterized by strong competition	4.24	1.03
Customers constantly look for new product/service	3.70	1.27
Products and services become old very fast in our market	2.67	1.36
Overall	3.53	0.91
Technology distinctiveness		
In our market, you must often update technology in order to stay in the market.	3.73	1.29
The technology that our business is based on, is not subject to large changes	2.67	1.30
We invest heavily in R&D	3.18	1.32
Overall	3.19	0.81
Offline Social Interaction		
I almost always solve problems constructively with others in person	4.09	0.93
I exchange information with others and learn from others in person	4.18	0.93
I exchange ideas with others to analyse and solve problems	4.12	0.96
Overall	4.13	0.83

5.4 Results as Per Each Objective

5.4.1 Objective 1: To develop and validate scales for social interaction and opportunity evaluation.

To be able to measure the effect on online social interaction via social media on opportunity evaluation, there was a need to first develop a scale. To be able to do this, various statistical analyses were performed. Below are the various indices that were obtained for social interaction and opportunity evaluation.

5.4.1.1 Indices for Opportunity Evaluation

Table 5.8 gives details of the correlation matrix of the individual items of SI scale. The individual items correlated positively with one another with correlation values from 0.3 to 0.7. The discrimination index of the individual items ranged from 0.49 to 4.52 with all them being statistically significant ($p < 0.05$). From the item response theory model, item B7BII discriminated better than any other item on the scale while item B1 had the least discrimination index of 0.49. Table 5.9 provides details of the discrimination indices of the individual items on the scale. Two items had poor factor loading and were eliminated (rotated factor value loading value < 0.35). In all, sixteen items were functional to SI construct with rotated factor loadings of 0.37 to 0.77 (Table 5.10). Of the sixteen items, ten of them loaded well on factor 1 while and the other six loaded well on factor 2. Factor 1 describes the opportunity evaluation process and the outcome being affected by some factors including social media while factor 2 describes factors affecting the opportunity evaluation process.

The scale derived has an estimated overall correlation of 0.87 (Table 5.11) between this battery of sixteen items and all other sixteen-item batteries from the same scale. The estimated correlation between the scale and the underlying factor it measures is $\sqrt{0.8728} \approx 0.9342$ indicating the scale to be reasonable.

Table 5-10 Polychoric coefficient of correlation between individual items

	B1	B2	B3	B4	B5	B6	B7AI	B7AII	B7AIII	B7AIV	B7AV	B7BI	B7BII	B7BIII	B7BIV	B7BV	C11	C12
B1 Searching for new ideas for prds/serv to offer is enjoyable to me	1.00																	
B2 I am motivated to figure out how to make existing pdts better	0.70	1.00																
B3 The product/service that we now provide is substantially different than we first imagined.	0.12	0.22	1.00															
B4 I have made major changes to my business model?	0.16	0.27	0.66	1.00														
B5 I have made minor adjustment (pricing change, prdt design change, etc)?	0.10	0.18	0.52	0.58	1.00													
B6 I would describe my idea refinement process as	0.05	0.12	0.36	0.35	0.28	1.00												
B7AI Speaking with potential customers	0.21	0.24	0.46	0.40	0.33	0.25	1.00											
B7AII Speaking with potential investors	0.22	0.29	0.56	0.46	0.43	0.28	0.71	1.00										
B7AIII Speaking with friends and family	0.05	0.07	0.11	0.15	0.11	0.04	0.39	0.29	1.00									
B7AIV Social media	0.15	0.26	0.49	0.35	0.33	0.25	0.64	0.73	0.35	1.00								
B7AV Desk Research	0.26	0.17	0.18	0.19	0.19	0.14	0.48	0.48	0.46	0.44	1.00							
B7BI Customer feedback	0.23	0.21	0.33	0.31	0.28	0.13	0.60	0.53	0.26	0.52	0.40	1.00						
B7BII Investor feedback	0.24	0.30	0.53	0.41	0.38	0.32	0.70	0.93	0.30	0.75	0.46	0.46	1.00					
B7BIII Friends and Family feedback	0.17	0.10	0.09	0.16	0.10	0.02	0.31	0.25	0.66	0.34	0.36	0.39	0.26	1.00				
B7BIV Social Media	0.23	0.28	0.41	0.34	0.28	0.20	0.58	0.63	0.32	0.84	0.41	0.52	0.67	0.38	1.00			
B7BV Desk Research	0.21	0.22	0.18	0.22	0.12	0.21	0.42	0.39	0.28	0.40	0.71	0.43	0.49	0.37	0.44	1.00		
C11 I have made major changes to my business model after receiving feedback from customers or potential investors	0.16	0.17	0.46	0.58	0.40	0.24	0.37	0.38	0.10	0.34	0.19	0.35	0.35	0.11	0.31	0.21	1.00	
C12 I have made minor adjustment (pricing change, prdt design change, etc) as a result of feedback from potential customers or investors	0.03	0.06	0.39	0.43	0.58	0.22	0.32	0.34	0.15	0.30	0.20	0.16	0.38	0.04	0.25	0.19	0.61	1.00

Table 5-11 Item discrimination index in ascending order

	Discrimination index	95% CI	p-value
B1	0.48	0.28 - 0.68	<0.001
B2	0.63	0.39 - 0.87	<0.001
B7BIII	0.65	0.4 - 0.89	<0.001
B7AIII	0.70	0.48 - 0.93	<0.001
B6	0.75	0.53 - 0.96	<0.001
C12	0.83	0.59 - 1.06	<0.001
C11	0.94	0.7 - 1.19	<0.001
B5	0.95	0.69 - 1.21	<0.001
B7BV	1.12	0.86 - 1.38	<0.001
B4	1.15	0.87 - 1.42	<0.001
B7AV	1.18	0.91 - 1.44	<0.001
B7BI	1.31	1.02 - 1.61	<0.001
B3	1.34	1.04 - 1.64	<0.001
B7BIV	1.86	1.45 - 2.27	<0.001
B7AI	2.12	1.72 - 2.52	<0.001
B7AIV	2.26	1.76 - 2.75	<0.001
B7AII	4.00	2.67 - 5.33	<0.001
B7BII	4.18	2.68 - 5.67	<0.001

Table 5-12 Factor extraction with oblique varimax rotated factor loadings above absolute 0.35

Variable	Factors Affecting the process of Opportunity Evaluation	The effect on Opportunity Evaluation
B3		0.6491
B4		0.6851
B5		0.6606
B6		0.3777
B7AI	0.5634	
B7AII	0.5491	
B7AIII	0.6188	
B7AIV	0.6298	
B7AV	0.7384	
B7BI	0.5469	
B7BII	0.5909	
B7BIII	0.6559	
B7BIV	0.6372	
B7BV	0.6775	
C11		0.6267
C12		0.6449

Table 5-13 Cronbach alpha test of item reliability and consistency index

Item	Sign	item-test correlation	item-rest correlation	Average inter-item covariance	alpha
B3	+	0.62	0.54	0.58	0.86
B4	+	0.60	0.53	0.59	0.86
B5	+	0.54	0.46	0.61	0.87
B6	+	0.41	0.33	0.63	0.87
C11	+	0.58	0.51	0.60	0.87
C12	+	0.53	0.46	0.61	0.87
B7AI	+	0.72	0.66	0.56	0.86
B7AII	+	0.77	0.71	0.54	0.85
B7AIII	+	0.49	0.40	0.61	0.87
B7AV	+	0.61	0.53	0.58	0.86
B7BI	+	0.58	0.52	0.61	0.87
B7BII	+	0.77	0.71	0.53	0.85
B7BIII	+	0.45	0.36	0.62	0.87
B7BIV	+	0.63	0.54	0.58	0.86
B7BV	+	0.60	0.52	0.59	0.87
Test scale				0.59	0.87

5.4.1.2 Indices for Social Interaction

Table 5.12 gives details of the correlation matrix of the individual items of ten. The individual items of the OE construct had a correlated coefficient of 0.47 to 0.82. The discrimination index of the individual items ranged from 1.05 to 2.80 with all them being statistically significant ($p < 0.05$). From the item response theory model, item C5 discriminated better than any other item on the scale while item C1 had the least discrimination index of 1.5. Table 5.13 provides details of the discrimination indices of the individual items on the scale. In all, the ten items were functional to OE construct with rotated factor loadings of 0.62 to 0.77 (Table 5.14) which loaded well on only one factor.

The derived scale is reasonable as it has an estimated overall correlation between the scale and the underlying factor it measures as $\sqrt{0.9118} \approx 0.9549$ indicating the scale to be reasonable. The derived scale has an estimated overall correlation of 0.91 (Table 5.15) between this battery of ten items and all other ten-item batteries from the same scale.

Table 5-14 Polychoric coefficient of correlation between individual items

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
C1 Scanning the environment using social media for new opportunities really excites me.	1.00									
C2 I exchange information with and learn from others online	0.52	1.00								
C3 I exchange ideas with others online to analyse and solve problems	0.45	0.77	1.00							
C4. I exchange ideas with others online to analyse and I have successfully acquired professional information needed for the new business (e.g. research and development information for new products of services) from online social interaction solve problems	0.43	0.49	0.55	1.00						
C5. I have been capable of acquiring marketing information for the new business (e.g. market trends, competition, and sources of supplies) from online social interaction	0.45	0.52	0.54	0.60	1.00					
C6. I get most of our valuable information on customer needs and trends from online social interaction	0.53	0.46	0.45	0.47	0.65	1.00				
C7 Because I interact online, we are able to obtain a tremendous amount of technical know-how online	0.54	0.51	0.56	0.65	0.62	0.59	1.00			
C8 I rely heavily on online market information to make decisions	0.42	0.37	0.45	0.41	0.63	0.66	0.55	1.00		
C9 I use online market information to solve specific problems.	0.44	0.47	0.48	0.45	0.64	0.62	0.55	0.82	1.00	
C10 My online contacts are very important for my work	0.48	0.44	0.45	0.38	0.53	0.58	0.48	0.53	0.47	1.00

Table 5-15 Item discrimination index in ascending order

	Discrimination index	95% CI	p-value
C1	1.52	1.16 - 1.87	<0.001
C10	1.52	1.18 - 1.86	<0.001
C2	1.71	1.29 - 2.13	<0.001
C4	1.85	1.39 - 2.31	<0.001
C3	1.89	1.43 - 2.35	<0.001
C8	2.38	1.79 - 2.96	<0.001
C7	2.44	1.88 - 3.00	<0.001
C9	2.48	1.89 - 3.06	<0.001
C6	2.48	1.93 - 3.04	<0.001
C5	2.80	2.24 - 3.37	<0.001

Table 5-16 Factor extraction with orthogonal varimax rotated factor loadings above absolute 0.35

Variable	Volume of Online Social Interaction
C1	0.62
C2	0.69
C3	0.71
C4	0.68
C5	0.79
C6	0.75
C7	0.75
C8	0.76
C9	0.77
C10	0.64

Table 5-17 Cronbach alpha test of item reliability and consistency index

Item	Obs	Sign	item-test correlation	item-rest correlation	Average inter-item covariance	alpha
C1	363	+	0.67	0.59	0.88	0.91
C2	363	+	0.72	0.65	0.85	0.90
C3	363	+	0.74	0.66	0.84	0.90
C4	363	+	0.72	0.65	0.84	0.90
C5	363	+	0.81	0.76	0.81	0.90
C6	363	+	0.78	0.71	0.83	0.90
C7	363	+	0.79	0.72	0.82	0.90
C8	363	+	0.77	0.70	0.84	0.90
C9	363	+	0.78	0.71	0.83	0.90
C10	363	+	0.69	0.61	0.86	0.91
Test scale					0.84	0.91

Table 5.26 provides details of the mean score of the opportunity evaluation process and outcome and the correlation values between them. All four constructs had a significantly positive relationship. Averagely, the study participants rated OE 3.07 ± 0.89 . Significantly, it correlated positively with SI, RA, CS, and EF. From the one-way ANOVA tests, OE use was significantly associated with a participant's level of education and a type of business they were into ($p < 0.05$). For educational level, Participants with HND/Diplo recorded the highest mean score of OE usage while those with primary and professional coarse certificates had the least

mean OE score. With regards to business type, those into health/pharmaceutical related businesses had the highest mean OE whilst those with other forms of businesses (fashion, creative art, bead making, tourism, food) used the least of it (2.66 ± 0.58).

Table 5-18 Mean score of Variables and their Pearson product moment correlation coefficient

Variable	Mean	Std. Dev.	OE	SI	RA	CS	EF
OE	3.07	0.89	1				
SI	3.25	0.90	0.61*	1			
RA	2.40	0.84	0.60*	0.71*	1		
CS	4.01	0.59	0.1851*	0.27*	0.20*	1	
EF	3.81	0.54	0.20*	0.27*	0.27*	0.47*	1

Comparison of Mean Score of the opportunity evaluation process by background characteristics of participants

The average usage of SI among participants was 3.25 ± 0.90 . It was significantly associated with the educational level. Those with primary education use it the least while those with Technical qualification used it the most. On average, participants rated resource availability 2.40 ± 0.84 . Its association was significant with the educational level of the participants, especially for those with WASSCE and first degree. Averagely, study participants rated CS 4.01 ± 0.59 . CS was associated with sex with females being higher than males. EF was on the average rated 3.81 ± 0.54 by participants. The distribution of the constructs by demographic characteristics can be found in table 5.25.

Table 5-19 Comparison of Mean Score of the opportunity evaluation process by background characteristics of participants

	OE			SI			RA			CS			EF		
	Mean	SD	P-value												
Sex			0.528			0.987			0.527			0.006			0.428
Male	3.05	0.85		3.25	0.92		2.42	0.85		4.06	0.56		3.82	0.57	
Female	3.13	1.02		3.26	0.84		2.35	0.84		3.82	0.69		3.77	0.42	
Education			0.009			<0.001			0.008			0.05			0.050
None	3.11	1.11		-	-		-	-		4.13	0.12		3.94	0.10	
Primary	2.24	0.94		1.91	0.94		1.57	0.74		3.82	0.57		3.46	0.61	
WASSCE/SS	3.16	1.04		3.28	0.97		2.45	0.92		3.80	0.67		3.69	0.60	
HND/Diplo	3.30	0.95		3.29	0.94		2.41	0.94		3.98	0.55		3.80	0.51	
Prof coar	2.99	0.86		3.72	0.68		2.33	0.53		4.03	0.59		3.83	0.28	
First deg	3.06	0.80		3.32	0.82		2.45	0.79		4.06	0.55		3.86	0.51	
Masters/m	2.98	0.78		3.28	0.75		2.43	0.78		4.17	0.73		3.89	0.61	
Type of business			0.001			0.114			0.082			0.306			0.164
Health/Ph	3.66	0.90		3.63	0.64		2.71	0.71		4.11	0.27		3.80	0.45	
Digital T	3.16	0.69		3.52	0.72		2.58	0.88		4.04	0.60		3.80	0.62	
Service I	2.97	0.94		3.20	0.89		2.41	0.81		3.95	0.62		3.78	0.53	
Consumer	3.05	0.98		3.03	1.02		2.39	0.93		3.94	0.63		3.62	0.50	
Agricbusi	3.18	0.89		3.23	0.94		2.41	0.88		4.11	0.52		3.92	0.52	
Education	3.55	0.91		3.63	0.80		2.61	0.70		4.06	0.73		3.74	0.39	
Others	2.66	0.58		3.17	0.94		2.04	0.76		3.91	0.69		3.78	0.65	
Social media user			0.495									0.804			0.40
Yes	3.08	0.89		n/a	n/a	n/a	n/a	n/a	n/a	4.01	0.60		3.82	0.54	
No	2.93	0.93		n/a	n/a	n/a	n/a	n/a	n/a	4.04	0.50		3.71	0.55	

5.4.2 Objective 2: To estimate the effect of online social interaction on entrepreneurs' opportunity evaluation

After the indices had been obtained and the reliability been performed and satisfactory results obtained, linear regression analysis was performed on the data to determine the average direct effect of Social interaction on opportunity evaluation. As shown in Table 5.2, in both instances (with or without controls) there was a direct relationship between SI and OE. Before adjusting for the control variables every one-point increase in social interaction score resulted in 0.32 points increase in opportunity evaluation score. However, after adjusting for controls and RA, the effect reduced to 0.25. That is, for every unit increase in SI score, it now results in 0.25 points increase in OE.

Table 5-20 Effect of online social interaction on entrepreneurs' opportunity evaluation

	Without controls			With controls		
	β	95% CI	P-value	β	95% CI	P-value
Direct effect						
SI	0.32	0.22 - 0.41	<0.001	0.25	0.15 - 0.35	<0.001
R-squared	55.38%			24.45%		

5.4.3 Objective 3: To examine if the effect of online social interaction depends on effectuation and causation (Moderation)

In order to measure this, in addition to the indices obtained above for social interaction and opportunity evaluation, indices for causation and effectuation were also derived from the data collected.

5.4.3.1 Indices for Causation

Table 5.16 gives details of the correlation matrix of the individual items of ten. The individual items of the CS construct correlated positively with one another from 0.31 to 0.53. The discrimination index of the individual items ranged from 0.65 to 2.42 with all them being statistically significant ($p < 0.05$). From the item response theory model, item E2 discriminated better than any other item on the scale while item E1 had the least discrimination index of 1.22. Table 5.17 provides details of the discrimination indices of the individual items on the scale. All items loaded on one factor with E4 and E6 discarded as they loaded poorly on the factor

(<0.35). In all, the five remaining items were functional to CS construct with rotated factor loadings of 0.50 to 0.63 (Table 5.18).

The derived scale is reasonable as it has an estimated overall correlation between the scale and the underlying factor it measures as $\sqrt{0.6855} \approx 0.8279$ indicating the scale to be reasonable. The derived scale has an estimated overall correlation of 0.69 between this battery of ten items and all other ten-item batteries from the same scale (Table 5.19).

Table 5-21 Polychoric coefficient of correlation between individual items

	E1	E2	E3	E5	E6	E7
E1. I analysed long-run opportunities and selected what I thought would provide the best returns	1.00					
E2 I designed and planned business strategies	0.51	1.00				
E3 I had a clear and consistent vision for where I wanted to end up	0.35	0.53	1.00			
E5 My R&D process focused on reaching the project target without any delay	0.22	0.41	0.42	1.00		
E6 The project planning was basically carried out at the beginning of the project	0.06	0.27	0.17	0.26	1.00	
E7 I have always paid attention to reach the original project target.	0.32	0.44	0.44	0.40	0.31	1.00

Table 5-22 Item discrimination index in ascending order

	Discrimination index	95% CI	p-value
E6	0.65	0.32 - 0.97	<0.001
E1	1.22	0.84 - 1.6	<0.001
E5	1.24	0.88 - 1.6	<0.001
E7	1.51	1.06 - 1.96	<0.001
E3	1.79	1.27 - 2.31	<0.001
E2	2.42	1.72 - 3.12	<0.001

Table 5-23 Factor extraction with oblique varimax rotated factor loadings from absolute 0.40 and above

Variable	Factor1
E1	0.462
E2	0.6767
E3	0.5901
E5	0.4969
E7	0.5089

Table 5-24 Cronbach alpha test of item reliability and consistency index

Item	Obs	Sign	item-test correlation	item-rest correlation	Average inter-item covariance	alpha
E1	383	+	0.61	0.36	0.27	0.67
E2	383	+	0.76	0.57	0.20	0.57
E3	383	+	0.67	0.49	0.24	0.62
E5	383	+	0.70	0.40	0.23	0.67
E7	383	+	0.61	0.43	0.27	0.65
Test scale					0.24	0.69

5.4.3.2 Indices for Effectuation

Table 5.22 gives details of the correlation matrix of the individual items of seven. The discrimination index of the individual items ranged from 0.76 to 1.84 with all them being statistically significant ($p < 0.05$). From the item response theory model, item F3 discriminated better than any other item on the scale while item F5 had the least discrimination index of 0.76. Table 5.21 provides details of the discrimination indices of the individual items on the scale. One item had poor factor loading and was eliminated (rotated factor value loading value < 0.35). In all, six items were functional to EF construct with rotated factor loadings of 0.37 to 0.50 (Table 5.22).

The scale derived has an estimated overall correlation of 0.58 between it and the underlying factor it measures is $\sqrt{0.58} \approx 0.7616$ and the estimated correlation between this battery of sixteen items and all other sixteen-item batteries from the same domain is 0.58 (Table 5.23).

Table 5-25 Item discrimination index in ascending order

	Discrimination index	95% CI	p-value
F5 I always tried to integrate surprising results and findings during the R&D process even though this was not necessarily in line with the original project target	0.76	0.42 - 1.11	< 0.001
F1. I experimented with different products and/or business models what I thought would provide the best returns	0.80	0.46 - 1.13	< 0.001

F6 The project planning was carried out in small steps during the project implementation	1.02	0.59 - 1.46	<0.001
F4 I avoided courses of action that restricted my flexibility and adaptability	1.10	0.55 - 1.64	<0.001
F7 I allowed the project to evolve as opportunities emerged — even though the opportunities have not been in line with the original project	1.14	0.65 - 1.63	<0.001
F2 I adapted what I was doing to the resources we had	1.26	0.86 - 1.67	<0.001
F3 I was flexible and took advantage of opportunities as they arose	1.48	0.85 - 2.11	<0.001

Table 5-26 Factor extraction with oblique varimax rotated factor loadings above absolute 0.35

Variable	Factor1
F2	0.40
F3	0.50
F4	0.49
F5	0.41
F6	0.37
F7	0.44

Table 5-27 Cronbach alpha test of item reliability and consistency index

Item	Obs	Sign	correlation	correlation	covariance	alpha
F2	383	+	0.51	0.31	0.19	0.55
F3	383	+	0.55	0.34	0.18	0.53
F4	383	+	0.55	0.31	0.18	0.54
F5	383	+	0.62	0.33	0.16	0.54
F6	383	+	0.58	0.30	0.17	0.55
F7	383	+	0.62	0.36	0.16	0.52
Test scale					0.17	0.58

In assessing whether the effect of online social interaction on OE depends on effectuation and causation, the interaction effect from the linear regression model showed that although there is a positive relationship between effectuation and SI while causation interacts negatively with SI, the moderation effects were not statistically significant ($p > 0.05$).

Table 5-28 Effect of online social interaction on entrepreneur's opportunity evaluation using effectuation and causation as moderators

	Without Controls		With Controls*	
	β (95% CI)	P-value	β (95% CI)	P-value
SI	0.51(0.29, 0.74)	<0.001	0.48(0.25, 0.71)	<0.001
SI and EF	0.01(-0.04, 0.06)	0.673	0.01(-0.05, 0.05)	0.914
SI and CS	-0.01(-0.05, 0.04)	0.846	-0.01(-0.05, 0.03)	0.706

5.4.4 Objective 4: To examine the mechanism by which online social interaction affect entrepreneurs' opportunity evaluation using resource availability as a mediator (Mediation analysis)

A mediation analysis was done to assess if the effect of online social interaction is mediated by resource availability. In assessing the mediational effect of resource, the model showed a significant effect of resource availability on the relationship between social interaction and entrepreneurs opportunity evaluation with an Average Causal Mediation Effects of 0.35 ($p < .001$). The total effects of Social interaction on opportunity evaluation was 0.54. These effects were statistically significant at ($p < .05$). After controlling for Competition, Technology distinctiveness and Offline Social Interaction, although the effects were reduced, they were still statistically significant. From the models without controls, the mediation effect explains 55.4% of the total variation in the opportunity evaluation while that of the one with controls explains 24.5% of the total variation in the opportunity evaluation. This is shown in table 5.26 below and shown also in diagram 5.1.

Table 5-29 Effect of online social interaction on entrepreneurs' opportunity evaluation using resource availability as a mediator

	Without controls			With controls*		
	β	95% CI	P-value	β	95% CI	P-value
Direct effect						
RA	0.35	0.24 - 0.46	<0.001	0.34	0.23 - 0.45	<0.001
SI	0.32	0.22 - 0.41	<0.001	0.25	0.15 - 0.35	<0.001
Indirect effect						
SI	0.22	0.15 - 0.29	<0.001	0.21	0.14 - 0.29	<0.001
Total effect						
RA	0.35	0.24 - 0.46	<0.001	0.34	0.23 - 0.45	<0.001
SI	0.54	0.46 - 0.61	<0.001	0.46	0.38 - 0.54	<0.001
R-squared	55.38%			24.45%		
AIC	2372.73			4998.09		
BIC	2399.99			5056.51		
Log likelihood	-1179.36			-2484.05		
LR test of model vs. saturated	$X^2=0.00$, p-value < 0.001			$X^2=5.89$, p-value = 0.117		

B: Coefficient of structural Equation Model, CI: Confidence interval, *Adjusting for control variables (competition, technological capabilities, and offline social interaction)

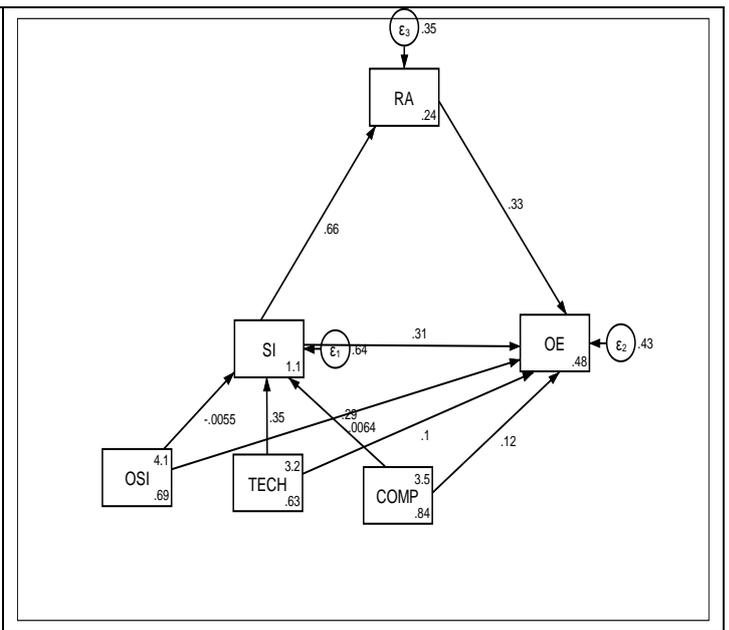
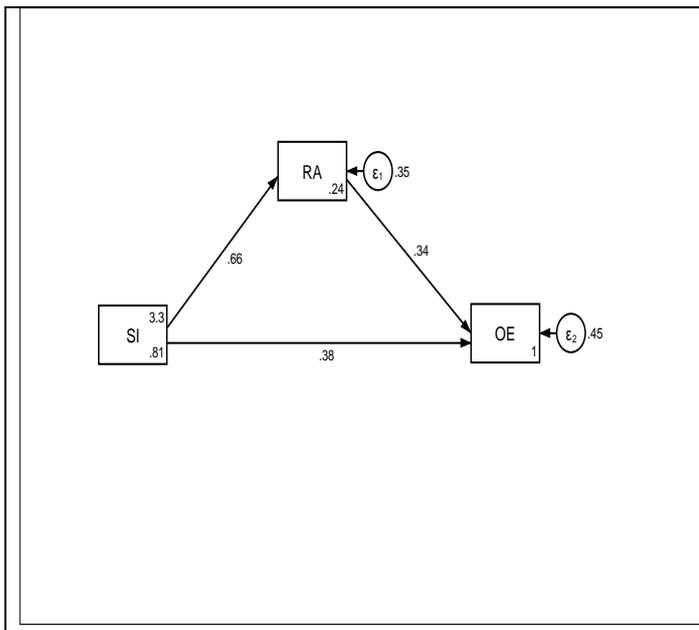


Figure 5-1 Mediation analysis of effect online social interaction on opportunity evaluation using resource availability as a mediator

Figure 5-2 Mediation analysis of effect online social interaction on opportunity evaluation using resource availability as a mediator with control factors

5.5 Qualitative Results

Objective 5: To understand the nature of feedback and the pattern of resultant changes to a potential opportunity as a result of online social interaction.

5.5.1 Demographics

Key Informant Interviews were conducted among 13 entrepreneurs. Qualitative data collection stopped at this point because saturation had been reached. Saturation is a point where the interviewer notices that there is no new information being gathered in relation to the research question (Lowe et al. 2018). In this study, there were 6 males and 7 females from various sectors of the economy such as Agri-tech and Agri- processing, entertainment, real estate, fashion, event management, and planning. All these entrepreneurs used at least 3 social media applications with the most used being Facebook, Instagram, Twitter, and LinkedIn. They all had higher education. The summary of the demographics of respondents is shown in Table 5.30.

Table 5-30 Background Characteristics of Qualitative Respondents

	Gender	Sector	Social Media	Educational Qualification
Male	6			
Female	7			
Energy		1		
Information Technology		1		
Agri-Technology/Processing		3		
Education		1		
Entertainment/Event Management		2		
Fashion/Creative Arts		3		
Real Estate		1		
Food		1		
Facebook			11	
Twitter			9	
Instagram			10	
Linked-In			5	
WhatsApp			5	
You Tube			1	
1st Degree				12
Masters				1

Table 5-31 Code Book used in Qualitative Analysis

#	Code	Definition	Example of proper use
A.0 SOCIAL MEDIA USE/ROLE			
A.01	Social Media (Social media)	Online applications that allow for Individuals to interact online	Provides the opportunity for individuals to communicate effectively using the internet without having to meet in-person
A.02	Kind of social media that exist (SM_types)	The types of social interaction means/ social media applications that can be used for online social interaction	This includes, Facebook, Twitter, Instagram
A.03	The role of social media currently (SM_role_now)	How social media has an impact on the entrepreneur's business currently	How online social interaction has provided the entrepreneur with resources / information that have helped them make a current decision on their business model
A.04	The role of social media currently (SM_role_before)	How social media has an impact on the entrepreneur's business during the initial decision of establishing a venture	How online social interaction has provided the entrepreneur with resources / information that have helped them make a decision on them initial business model
A.05	Resources from social media (SM_resources)	Resources that an entrepreneur obtained because of interaction online / using social media	This includes, funding Information, Human capital.
A.06	Feedback received from Social media (SM_feedback)	Feedback on testing a new idea or something in their business that an entrepreneur has received from interacting online	Positive customer reviews, acceptance of new a new product, etc.
A.07	Business Innovation (Buss_Innovation)	When an entrepreneur introduces something new into his business model or unto the market	New product or service, new way of distribution or communicating with consumers, suppliers
A.08	Social Interaction _opportunity evaluation	How online social interaction affects opportunity evaluation	Mentioning if using social media gave the entrepreneur a change of mind of whether to pursue

	(Soc inter_Opp eval)		something or not or make changes to an initial decision
B.0 IN-PERSON INTERACTION			
B.01	Young Entrepreneur (Enterpren)	. Person who has established his own business/venture and it's between 1 to 5 years old	This includes <i>Social</i> entrepreneurs, Innovators
B.02	Entrepreneurial Trigger (Ent_trigger)	What triggered the start of the business	The idea of starting their own venture or innovation came from using social media, influence from friends, desk research
B.03	Entrepreneur Initial Steps (Ent_initial steps)	Mention of what were the initial steps taken to start the business	Looking for information, looking for resources that the entrepreneur did not have, interaction on social media
C.0 BUSINESS MODEL			
C.01	Influence on initial Business Model Initial (BM_Influence)	How the initial business model was affected by external factors	For instance, social media, family and friends, investors
C.02	Social Media (SM)	Online social interaction applications/tools	Examples include Facebook, Twitter, Instagram etc.
C.03	Investors (Investors)	Description or mention of individuals who are interested in investing in an entrepreneurial venture	This includes Banks, angel investors, financial institutions
C.04	Friends and Family (Friends and family)	Friends and family of the entrepreneur	For instance, Siblings, Parents, close friends, acquaintances
C.05	Desk Research (Desk research)	Secondary Data; Information that was not obtained through interviews	Journal articles
C.06	Customers (Customers)	Customers of the entrepreneur	For instance, Existing and potential
C.07	Current Business Model (Current)	The Business Model that the entrepreneur is currently using	Stating how entrepreneur is currently

5.5.2 Factors Motivating Commencement of the Entrepreneurial Journey

Participants were asked about events or experiences that led to their making a choice to pursue an entrepreneurial journey. For most, their journey was not triggered or influenced by social media i.e. opportunity identification. Some of them were inspired by friends while others were inspired by their environment, making them eager to solve a problem as illustrated by the quotes below:

“No, not at all. The idea to my business came from somewhere else and not linked to social media” – Respondent E

“So, in terms of my journey it goes back to years ago when I come back to Ghana and we didn’t have coffee shops a lot in town and I had the idea to get a coffee shop where people could have coffee and relax and work from there.” – Respondent JT

“I enjoy seeing people happy and anytime I make people happy it makes me happy as well. When I was in SHS I liked to celebrate people on their birthday and I remember when I was at work a friend’s boyfriend called that he wanted to surprise the girlfriend and I also like surprises so I agreed to do that. And it was something I was passionate about and I didn’t know how to start and I was scared and didn’t know about the market and whether people will buy it or not. But a friend gave me a book on personal MBA and after reading it triggered me that I can do it and I started as soon as possible” – Respondent L

“So, my journey started from the university and that is where the ideas came in from. I studied electrical engineering and discovered that there wasn’t any place to get books to buy. So, I started a company to make it easy for people to get lecture materials to buy so I created a website” – Respondent S.

5.5.3 *The role of social media during the start of the Entrepreneurial Journey*

During the initial stages of setting up their various businesses, social media was used to create awareness of their existence and to reach out to their customers. In other words, it was utilised as an advertising tool.

“I think social media has given us good opportunities that we wouldn’t have gotten either. Social media has been very instrumental in the business and for instance when we started, if not for social media then we were to go out to all the people that we targeted to sell the ideas to but from the onset one of the places that we put stuff on was social media..... So, we indicated that these are the foodstuffs we have and the prices and so hit us up by WhatsApp” – Respondent JA

“What we did most with social media was adverting and informing the public about a new venture in town and friends were of help and they posted it on their WhatsApp and social media pages as well. Which made people interested in the amazing pictures they saw and they wanted to have a feel of something different actually.” – Respondent K

Although most entrepreneurs used social media to create awareness from the beginning, social media was built into their initial business model and therefore dictated the pace of their business. Other participants used online interaction via social media as a data collection tool in order to obtain information needed to build their initial business model. These points are buttressed by the following narratives:

“Social media has been very instrumental in the business and for instance when we started, if not for social media then we were to go out to all the people that we targeted to sell the ideas to but from the onset one of the places that we put stuff on was social media. At that time, we didn’t have a website and we were just starting the business so we didn’t want to put in too much into building website and an App and we felt this

*wasn't something we want to put our monies in..... we realised that through social media we were able to get the target rather than going to offices and the people we targeted and that will be more expensive with transportation. the good thing was that it wasn't an issue of spending time with people on social media but we were creating awareness and if you are interested come and we will delve deeper. We didn't have to go explaining to people one-on-one but we have the information out there and those interested were to get to us" **Respondent JA***

*"What social media did for mebecause I didn't want to be known, I created an account and I befriended a lot of people that I wasn't interested in but I wanted to just advertise my products. When you come to social media you need numbers and if you don't really have the numbers, you are posting every day and not many people are getting it and only a few following and I didn't want my details to be out there so I created a fake account and used that to market my products" – **Respondent J***

*".....in the beginning we used social media to collect their data and build our business model. We took a lot of feedback at the time to build but now it doesn't feature that much. We are a gaming company. We build game apps and get people to bring us stories to use for games" **Respondent L***

Some of the entrepreneurs who were interviewed indicated that they did get ideas from interaction via social media to help in putting together their initial business model. This they did by looking at what other people had already posted on social media and this helped shape the idea that had already been identified.

"... I went online to Google and search on African made fans but didn't get much information on that. So, I went to Facebook to search on hand fans and it was difficult getting the results because you didn't know how someone categorized it. But I did

African made fans, foldable fans, African print fans and I got some pictures and I took a screenshot of it” **Respondent M**

“I think the ideas come to you when you see other businesses and for social media, we are talking about Facebook, Twitter, Instagram” – **Respondent R**

“....and then back to social media helped and looking at social media you are consistently influenced by the images that you see.” – **Respondent JT**

For some of the participants, before launching their product, their thought process and decision making was influenced by social media while others-built networks through online social interaction.

“I could go online and Google what others were doing but what you will find will not only be in Ghana but you will see others things outside but to find things done in my locality, social media was the best. And I could go on Facebook and use the hashtags or keywords that were related to my products and see if people in Ghana were doing something similar and if so, how could I improve on mine or make mine of superior quality and yet have mine at a competitive price. So, I used social media a lot in my research.” **Respondent J**

“Yes, I went online to do research on these kinds of things and whether people have done that or not. And I realized that there is a group in India who was doing something similar that I was doing and I started following them and anytime I see it it’s something that triggers me to move on...” **Respondent L**

“I will say yes, but not specifically to business but seeing coffee consumption lifestyle and then back to social media helped and looking at social media you are consistently influenced by the images that you see. And the primary way you see how different people have a different lifestyle and today through social media” Respondent JT

“Not directly, but I read a lot and the way social media has helped is because I am on social media and I do Agric-Tech a lot of companies who are also into something similar to my field do contact me. Also, I look at LinkedIn and if there are things that I can adopt from other companies and there is a good connection all from social media”

– Respondent S

“We have our page and now when you work on a project and you have other people working on the project when you post they give you acknowledgment and we also give acknowledgment to other vendors. We have cycle of customers and I have other who also work in the cycle of other customers who might not know me so the person giving the acknowledgment give way to the other people and when they see me, they trace to my page and they become my customers and the thing also happen in the reverse.....yes we do and after you contact the customers we don’t take the phone to make calls rather images and videos are sent to the customers through WhatsApp. It is not used to advertise to clients but after the contact is established then we share the images to them through the WhatsApp.”. – Respondent P

While some entrepreneurs saw social media it as a basic-tool that was needed to kick start their businesses to enable them reach their target audience, there were others who did not use social media at all during the initial stages. Instead, they resorted to using face to face interaction as well as resources from Google and the websites of other people who were in their space.

“There are so many people on social media and it was important to roll our adverts on social media so as to get our potential customers and to know about our products. And the only way to get to these larger audiences is through social media.... our products are such that we have parents buying for their kids and for the parents we target

traditional media but for the kids, we target social media adverts to reach out to them”

Respondent E.

“No, I did research and more of it was primary research and what I did was I went into the community and talked to the girls and tried to understand so we had like about 2 to 3 years of pilot trying to learn on the ground. But I didn’t use social media that much to really understand my market. Because most of these my girls are not active on social media and even if they are on Facebook, they are not active. So, it was more of speaking to them and getting to know them as time went on” – Respondent G

A respondent was asked if she gained more ideas from talking to people than she through social media, and her response was affirmative.

“Yes, and though I talked to them they didn’t know that they were giving me ideas. And I listen to people a lot when they are talking and then I pick up few things from them. I think the ideas come to you when you see other business and for social media, we are talking about Facebook, Twitter, Instagram ...– Respondent

5.5.4 Change in Entrepreneurs’ Initial Business Models

When asked about how their initial business models had changed over time, most of the interviewed entrepreneurs indicated that changes to their business models have been gradual. For others who recorded seeing radical changes, they clarified that it was the model that improved significantly and not the product. There were a few entrepreneurs who had experienced change at a slow pace due to a lack of resources. The quotes below buttress these points.

“It was gradual because when I started the focus was to sell fans and people will need it so I had to package it so well. So, packaging came in and I thought of a plastic page that it won’t be dirty because the materials were very colourful. But then I had a friend who advised that we do the handle in a leather form” – Respondent M.

“It was very slow because of limited capacity that’s IT lecturers” – Respondent E

“Very radical because we started with selling the house in mind but the business wasn’t moving faster for us to grow at the pace, we wanted so we literally had to finance and focus on the short stay because we realised that it was a much quicker and much better market” – Respondent R

“I still stand on the point that we didn’t use social media to come out with our business and when we created this group we followed similar companies around the world, and we read articles to see what they are doing and we see those ideas on how we can further improve on our ideas in the future after we have created the business. But before we started no we didn’t use social media but after starting the business, yes we created an account” – Respondent EM

5.5.5 Innovating the Current Business Models

On the question of innovating their business model, the entrepreneurs did have plans to carry out this activity with social media playing a significant role although, for some, the initial stages did not include much of social media.

“Yes, I have plans of innovating and it is always great to innovate the business because things are evolving. And definitely yes, social media will play a huge role actually”

Respondent G

“So, like I said earlier, I created an account on Amazon and I have someone in the states so that when someone orders it will be delivered to the person. So, creating an account online and then creating a website for people to know what I do and share pictures as well. Also, I will do more Facebook boosting because that is where I get more feedback and customers contacting me. I have also learned to open a business account on WhatsApp and I will also look at that and we can’t do anything without online social media.”- Respondent M

“Right now, I will say high because I will prefer to talk to people who are in those fields and whom I contacted earlier through social media.” – Respondent S

5.5.6 Benefits of Social Media

Interviewed entrepreneurs revealed that social media is a real-time tool which helps immediate engagement with customers and provides feedback. The research also revealed that social media was seen as a resource itself instead of just being a means to obtain necessary resources for the business as it played an important role in shaping business models

“So, we indicated that these are the foodstuffs we have and the prices and so hit us up by WhatsApp, by phone and tell us what your needs are and we will deliver it. So, we realised that through social media we were able to get the target rather than going to offices and the people we targeted and that will be more expensive with transportation – Respondent J

The use of social media also provides the ability to gain access to required potential resources, as demonstrated by respondents who reported having obtained a variety of resources from online social interaction. These resources include information, financial resources, and human capital.

“.... it also creates an opportunity for people to also interact with us whereas in the other forms it is just a one-way conversation like if I place an advert in the newspaper, it takes a while to get feedback from a potential customer. However, with social media any potential customer is able to send you questions at that very moment you place the advert and you have the opportunity to respond and you don't have this opportunity with other services. The print media is not real-time but social media is in real-time and it forms part of the backbone of our communications.” Respondent E

“So the information that we get from social media is to inform our designs, we will see how people see us and how they are consuming coffee around the world from Australia to the USA, to Ghana to South Africa, we borrow a lot of ideas to see from people’s Instagram post about coffee shops they have visited and we see how it is designed and how they are serving the coffee. So, from the design point of view, utilization of social media is high, from a market point of view it is high, and sales are rated high...” –

Respondent JT

“You know I cannot do these alone and I have used people and social media to raise funds and resources and when most people see that what you are doing is authentic, then they are likely to follow up. So social media has played a great role.” – Respondent

G

“.... because people got to know what I was doing, anytime there is something similar to what I was doing, then they share with me and I apply for and we got some grants and other support. This is because I posted what we were doing on social media, someone saw it and saw an opportunity working with me. So aside that too there has been direct fields which has risen as a result of my use of social media.” Respondent

S

“Not financial resources but human capital and everyone that I have ever hired was from online” – Respondent R

“The people that I have I got them online. I did the advert online and they applied online” – Respondent J

“Yes. We got a software from someone online but it was useless and we couldn’t even use it – Respondent S

5.5.7 In-person Interaction versus Interaction on Social Media

With regards to in-person interaction versus interaction via social media, it was discovered that to solve problems or make decisions, the in-person method was the preference for most participants. For others, the medium of interaction was dependent on the nature of the problem that needed their attention. Entrepreneurs who did a lot of online interaction used it as the preferred means even if it was just to initiate the discussions and continue later in person.

“No, I like online and I do very little face-to-face especially with my workers. I am always on the computer and online and I have very little time for face-to-face. I prefer to do everything online... it's online and mostly the email and WhatsApp and I am easily on Facebook messenger and I can talk to people whose contact I have rather in Facebook messenger online instead of calls. And most people check their online messages immediately than with text.... No and I do everything mostly online and I don't like phone calls because I can do a lot whilst online. I hardly make phone calls and face-to-face but can do more whilst online.” **Respondent R**

“I do that in person and those who contact me in person saw an advert online and told another person about me and they contacted me. So, it all started online” **-Respondent J**

“So, for what I do, people ask for the prices online but solving problems then I will say that it has to do with negotiating for the price of the products” – **Respondent M**

5.5.8 Other resources obtained through Social Media

Apart from the specific questions that were asked regarding the availability of financial, human and information resources from online social interaction, some entrepreneurs also found other valuable resources for their business, including resources such as raw materials. Some others,

however, do not see or use it as a marketing tool for their business. These points are highlighted by the narratives below:

“It’s just someone who sold fabrics to me and that I got online. So, she decided to sell the fabrics to me in one yard as others will not do that. So, she proposed and I bought the idea and I bought fabrics from her.” - Respondent M

“The only thing that I picked from social media was the photography and how it should look” – Respondent E

“Yes, definitely and like I said the reason why we created it was to have a linkage with our public. So, we know what we are doing is climate change eco-friendly related stuff and at the end, we will need to get social media telling the public what we have and how things are happening” – Respondent EM

Regarding the use of social media currently in their business, most participants expressed the notion that it is an interactive tool which allows them to interact with others, unlike traditional media where the conversation is one way. For others, it had an impact on design and branding where information is obtained in order to help build a brand.

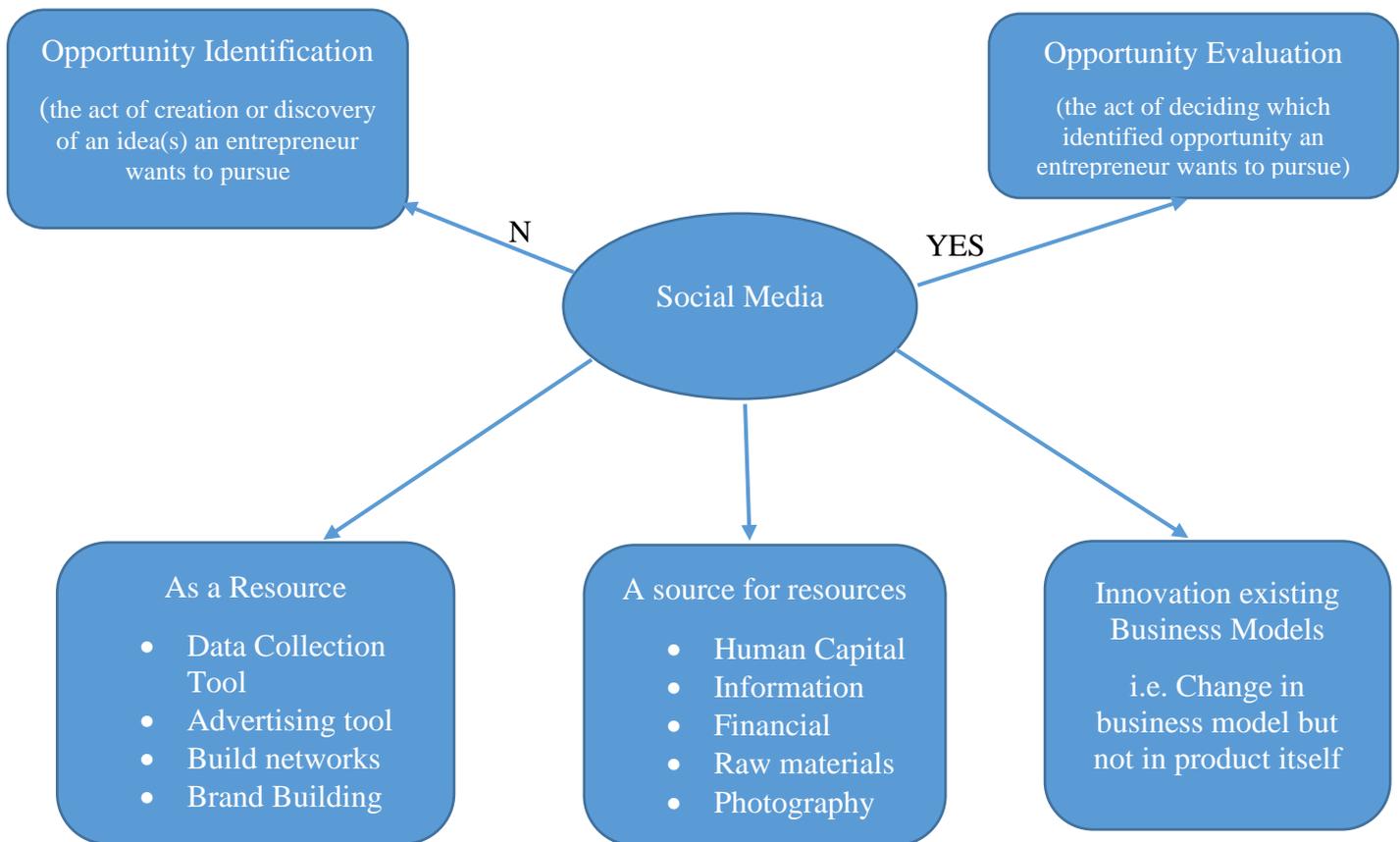
“Because it also creates an opportunity for people to also interact with us.” – Respondent E

“I think for us where social media has a great impact is on design and brand.” – Respondent JT

“I have been able to build a brand through social media by sharing the things that I am working on and it has given my business a lot of opportunities”. – Respondent S

“So, I think we use social media more for branding purposes than for marketing... social media works for branding purposes” – Respondent R

5.6 Qualitative Findings Summary Chart



5.7 DISCUSSION

To the best of the researcher's knowledge, there is no model that measures the effect of online social interaction on opportunity evaluation, so the goal of this study was to explore the connection between social media interaction and opportunity evaluation. The tool employed in the study was a validated tool using a deductive approach, involving the review of literature and assessment of existing scales to generate the items (Boateng et al., 2018). The 1st pilot tested and sought expert opinion from 5 experts, which was done simultaneously. It then went through a second stage of pre-testing with 5 young entrepreneurs before a survey was conducted with a 383 rate of response. The sample size was in line with the rule of thumb as proposed by Clark and Watson, (1995). These authors proposed that subsequent to the initial pre-testing, 300 respondents should be used while Guadagnoli and Velicer, (1988) recommend

a minimum of 300–450 in order to notice an acceptable comparability of patterns, but if the sample size is <300, then replication is required. For scale development, Comrey and Lee (1992) recommend a classified scale of sample sizes :100 = poor, 200 = fair, 300 = good, 500 = very good, 1,000 = excellent. The key variables significantly correlated with each other, signifying strong support for the hypothesis tested. Hence, a reliable measurement instrument was employed in measuring the online social interaction and opportunity evaluation scores.

The start of a business is the identification of available opportunities and after they have been identified, an entrepreneur needs to decide whether to pursue it or not. This means it has to be evaluated. Evaluating an opportunity can be challenging, especially for young entrepreneurs who do not have access to resources required to pursue that opportunity. Social networks and social capital and their role have featured prominently in entrepreneurial literature (Baron and Kenny, 1986; Lin, 1999, 2001; Hite and Hesterly, 2001; Davidsson and Honig, 2003; Crick and Spence, 2005; Hite, 2005; Burt, 2007; Vasilchenko and Morrish, 2011). Social media has also been seen as a useful tool in aiding entrepreneurs (Fischer and Reuber, 2011; Park *et al.*, 2017) but more often, it is seen as a marketing tool. Traditional social networks are people we know but social media facilitates the ability to reach people who have knowledge and resources required. Social media encourages more frequent interactions. Park *et al.* (2017) found how the use of social media aided in building relationships and helped identify opportunities while Fischer and Reuber (2011) found that social interaction is key in effectuation processes and postulate that interacting via a particular channel, specifically, Twitter can trigger effectual cognitions.

Generally, an entrepreneur with knowledge obtained from education and experience is more likely to identify opportunities better than those who do not have these (Park *et al.*, 2017) and by extension, more likely to evaluate opportunities better. Social media gives rise to a new type of interaction, and provides the opportunity to interact with potential stakeholders and triggers

other outcomes with significances for their businesses. Social media provides the opportunity to create new combinations of information, and individuals who actively interact online have access to more information. The proper transformation of said information as required helps in decision making (Park *et al.*, 2017). The results indicate that speaking with potential investors, speaking with friends and family and social media were all rated 60% by 50% of the respondents, indicating the influence on their initial business model. On the influence on the current business model, 50% rated the influence of social media at 70%. Interacting on social media helped entrepreneurs shape the existing knowledge that they had by the addition of new information such as making sure that the standards required in the industry that their business was in were met, such simple standards as the addition of photographs to websites.

According to Hitchen *et al.* (2017), there is a need for entrepreneurs to be able to discover key resources quickly and this process of opportunity identification can be hastened by the use of social media. Knowledge from various sectors and technologies generates exceptionally rich opportunities. One tool for inflow and outflow of knowledge is social media and it is important to engage users in the process. The results show that 50% of the respondents rated the influence of social media on their initial business model at 60%. These findings add to the literature on social capital and social networks by specifying that social capital can be obtained from social networks built through online social interaction. Skills and resources that are not possessed by the entrepreneur can be obtained from social capital and could influence their evaluation of identified opportunities. These resources include human capital (providing competencies or skills currently not possessed by the entrepreneur), physical assets, financial resources and exposure to a large amount of information (De Carolis, Litzky and Eddleston, 2009; Semrau and Werner, 2014; Sullivan and Ford, 2014; Bucktowar, Kocak and Padachi, 2015; Song, 2015). Due to interactions between entrepreneurs, their networks and the environment,

entrepreneurs and stakeholders co-create and access resources which may trigger a cognitive reassessment of means (Fischer and Reuber, 2011).

Social networks provide access to other resources aside information. They provide access to skills that an entrepreneur does not have, leading to an entrepreneur evaluating an opportunity differently (R. A. Baron and Markman 2003). Some entrepreneurs use online social interaction in their daily activities to obtain raw materials, communicate with staff and recruit needed human resources. They use it to build a brand for themselves in order to gain competitive advantage. Human capital is one of the resources (Barney 1991) and this result shows that entrepreneurs are able to obtain human capital through online social interaction. Bashir *et al.* (2017), in their study, indicated that social media might be effective for small firms because they do not have the luxury of access to existing customers who would be able to aid in the evaluation of new products. The results indicate that online social interaction does impact opportunity evaluation either directly or indirectly by mediating the evaluation process by making resource available to the entrepreneur. The present results indicate that aside from financial resources, entrepreneurs had access to human capital and vital information from online social interaction. Other resources that entrepreneurs found via online social interaction were raw materials needed for the production of the goods, although some entrepreneurs found resources that were not of the quality that they needed it to be. These findings expand the literature on resource availability.

This research also contributes to the resource-based view theory. The Resource-based view of the firm assumes that firms that possess resources that are heterogeneous and not perfectly mobile across firms in an industry are able to identify sources of sustained competitive advantage (Barney 1991). Barney (1991) classified the resources into three groups i.e. physical capital, human capital resources, and organizational capital resources. These resources of the firm are seen as heterogeneous and immobile across firms in an industry, having an effect on

the firm's strategic progress, although not all resources are strategically relevant at a particular point in time. According to Peteraf (1993), external opportunities need to be matched to a firm's internal resources in order to have sustained competitive advantage. These resources required by the firm for sustained competitive advantage can be obtained from the online network.

Social networks created via social media can be seen as a larger and complex network. The addition of the graph theory to the tools of our understanding of networks further allowed our understanding about how entrepreneurs can manipulate much larger and complex networks. This study contributes to the social capital theory which is embedded in social networks, concluding that access to resources is available on social media. Resources are embedded in online networks. This work delves deeper than Fischer's as they used only a qualitative method and looked only at Twitter. This study looked at all social media and employed a mixed-method approach hence giving much richer results. Although some of the entrepreneurs did not resort to online social interaction in building their initial business model, they would do so when they are innovating the current model.

In interactionist theory, the motivational is the extent to which an individual is willing to interact with others and interactional is what someone consciously does to have an impact on another's behaviour. The results indicate a high use of social media via WhatsApp and Facebook. These are highly interactive platforms and scored the highest. Online social interaction, as already indicated, had a positive effect both directly and indirectly on opportunity evaluation. The empirical results show that entrepreneurs were motivated to use social media as shown by the number of social media platforms that each of them used and were subsequently affected by it in their decision making, as shown by the results of the influence on the entrepreneurs' both initial and current business models. From the results, it can be seen that after feedback has been received from online social interactions, there were changes made to the opportunity to a substantial extent. Online social interaction affected the

business model decisions both before and after. This is confirmed by both the direct and indirect impact of online social interaction on opportunity evaluation. It must, however, be noted that some entrepreneurs did not use social media to obtain required resources for their business or in building their business models because they did not trust the source, just like as established in Park *et al.* (2017) or did not think that they could obtain what they needed from there.

From their study on how effectuation processes are affected when entrepreneurs use Twitter, Fischer and Reuber (2011) reported that social interaction is significant in effectuation processes. They suggest that Twitter-based interactions can trigger effectual cognitions but high levels led to the churning out of irrelevant information. Effectuation and causation show us the path entrepreneurs chart when they are planning to launch new ventures. Effectuation is more likely to occur in uncertain environments while causation processes would most probably be used in predictable environments (Fischer and Reuber, 2011). Causation processes are effect-dependent, meaning that the entrepreneur's choice of effect is subject to the knowledge he has of the possible means available (S. Sarasvathy 2001). The knowledge of possible means can be obtained via online social interaction. On the other hand, effectuation processes are actor dependent, meaning that the choice of means depends on the entrepreneur's knowledge of possible means (S. Sarasvathy 2001). This knowledge can also be obtained via social media. Uncertainty would require more information to enable decision-making and hence it was expected that online social interaction would be higher for effectuation. This was confirmed by the empirical results, though it was not statistically significant. This is in line with the study of Fischer and Reuber (2011). The study revealed that it does not matter whether an entrepreneur uses causation or effectuation, the amount of online social interaction is not affected by it.

It must, however, be noted that most entrepreneurs use both processes with effectuation usually dominating early business development. In other words, there is early effectual dominance (I. Reymen et al. 2017). To other researchers, effectuation is used more (Brends *et al.*, 2014). The

study also adds to the findings of Fischer and Reuber (2011) and Park *et al.*, (2017) by offering more detailed insight into the use of social media/online social interaction.

The importance of opportunity evaluation and effectuation was also emphasized by Guo (2019) indicating that opportunity shaping is a significant mediator through which effectuation influences innovation in high-tech new business.

Conger *et al.* (2017) indicate that interaction with the environment outside the entrepreneur's domain could influence opportunity evaluation. Our results show that for most entrepreneurs, feedback obtained via online social interaction affected opportunity evaluation. Social actors are engaged in shaping opportunities (Dimov 2007) and now through the medium of technology, these social actors can be found online. Braun *et al.* (2017) also emphasise the fact that creative outcomes go beyond the individual and that networking is a vital activity in nascent entrepreneurship to achieve this. Davidsson (2015) points out that entrepreneurial actions are not the deed of a single individual. Our results indicate that indeed, there are many actors involved in the entrepreneurial process and most actors made a significant contribution, with actors from social media being the highest. These findings agree with the observation of Fischer and Reuber (2011) that online social interaction stimulates outcomes with consequences for their business.

5.7.1 Conclusion

This chapter provided the results of the survey and the in-depth interviews, the analysis and answers to each of the research questions of the study. There were 383 participants for the survey and 16 interviewed for the qualitative. All participants for the survey were young entrepreneurs who were from various sectors including Agri-business, Digital Technology, Health, Education and Services. The results revealed that the use of social media did not depend on causation or effectuation and that social media has both a significant direct and indirect impact on entrepreneurial opportunity evaluation.

CHAPTER SIX

6 CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The aim of the research was to contribute to the literature on opportunity evaluation, specifically to evaluate the effect of online social interaction on the process. In other words, the aim of the study was to determine if social media has an impact on the decision-making process of an entrepreneur in relation to evaluating a potential opportunity. Religious beliefs (Dave, 2008), Emotions (Foo, 2011), Gender (Gupta, Banu Goktan and Gunay, 2013) and Role identity (Mathias and Williams, 2017) have all been studied and been known to have an impact or influence opportunity evaluation. To the best of the researcher's knowledge, however, there is no model to measure the quantum of the effects on opportunity evaluation.

6.2 Summary of Findings on Research Objectives

6.2.1 Summary of Findings on Research Objective 1: To develop and validate scales for social interaction and opportunity evaluation

In order to measure the effect of online social interaction via social media on the process of opportunity evaluation, there was a need for a scale to measure this effect. Using a deductive approach, the scale was developed. This involved literature reviews, assessment of similar existing scales, seeking expert opinion and sample testing. This process was the same approach recommended by (Slavec and Drnovsek, 2012; Boateng *et al.*, 2018). The statistical methods used were Correlation estimation and item response theory model (Discrimination index) and extraction of factors and dimensionality test (Exploratory Factor analysis). For the test of reliability, the estimation of Cronbach's Alpha statistic was used. The variables identified and used correlated well with one another, making the scale a reliable measurement instrument.

6.2.2 Summary of Findings on Research Objective 2: To estimate the effect of online social interaction on entrepreneurs' opportunity evaluation

The results show that 50% of the respondents rated the influence of social media on their initial business model as 60%. The results also indicate that speaking with potential investors, speaking with friends and family and social media were all rated 60% by 50% of the respondents, indicating the influence on their initial business model. On the influence on the current business model, 50% of the respondents rated the influence of social media at 70%. Interacting on social media helped entrepreneurs shape the existing knowledge that they had by the addition of new information, such as making sure that the standards required in the industry that their business was in were met. However, Corral de Zubielqui, Fryges, and Jones, (2019) indicate that although social media is a source of knowledge (a resource) it does not replace traditional methods of knowledge sourcing.

The study also found that online social interaction affected the business model decisions, both before and after. This agrees with Fischer and Reuber (2011) who said that online social interaction stimulates outcomes with consequences for their business.

6.2.3 Summary of Findings on Research Objective 3: To examine if the effect of online social interaction depends on effectuation and causation

Effectuation and causation show us the path entrepreneurs chart when planning to launch new ventures. Effectuation processes are more possibly seen in uncertain environments while causation processes are more likely to be used in environments with predictable outcomes (Fischer and Reuber, 2011). Uncertainty would require more information to enable decision-making and hence it was expected that online social interaction would be higher for effectuation. This was confirmed by the empirical results though was not statistically significant.

6.2.4 Summary of Findings on Research Objective 4: To examine the mechanism by which online social interaction affect an entrepreneur's opportunity evaluation using resource availability as a mediator

Mediation Analysis, using structural equation models (SEM), was used to assess the effect of Social interaction on Opportunity Evaluation using resource availability as a mediator. The results indicated that there was a significant mediation effect. Evaluating an opportunity can be challenging, especially for young entrepreneurs who do not have access to resources required to pursue that opportunity. Social networks and social capital and their role have featured prominently in entrepreneurial literature (Baron and Kenny, 1986; Lin, 1999, 2001; Hite and Hesterly, 2001; Davidsson and Honig, 2003; Crick and Spence, 2005; Hite, 2005; Burt, 2007; Vasilchenko and Morrish, 2011). There is growing evidence globally of an increase in online social interactions (Poushter 2016; Song 2015) and Social media has been seen as a useful tool in aiding entrepreneurs (Fischer and Reuber, 2011; Park *et al.*, 2017) but it is often seen as a marketing tool. According to Hitchen *et al.* (2017), there is a need for entrepreneurs to be able to discover key resources quickly, and in so doing their opportunity identification can be hastened by the use of social media. A crossing of ideas and knowledge from various sectors and technologies generates exceptionally rich opportunities, like for an instance the crossing between food and pharmaceuticals (Hitchen *et al.*, 2017). One tool for inflow and outflow of knowledge is social media and our results have proved that social media does provide access to required resources. Entrepreneurs who were interviewed indicated that they have built a network as a result of social media and obtained a variety of resources through that medium. This result is corroborated by the findings of Dobusch and Kapeller, (2018) who indicate that in this era of new digital technologies, organizations are relying all the time more and more on contributions from people outside the organization, who are either isolated and dispersed or are in communities, to innovate.

6.2.5 Summary of Findings on Research Objective 5: To understand the nature of feedback and the pattern of resultant changes to a potential opportunity as a result of online social interaction

Entrepreneurs who were interviewed indicated that they had built networks as a result of social media and accrued a variety of resources. What was even more interesting to find out was the fact that social media was seen as a tool itself in aiding the entrepreneurial journey, not only in terms of advertising but also, for instance, as a data collection tool. The existence of social media was a necessary resource for aiding business model developments. In summary, social media is a resource (an example of that is how it aids in brand building), a source for resources (e.g. human capital) and a tool that helps in innovating existing business models.

The results and findings of objectives 2, 4 and 5 add to the social capital and social networks literature by specifying that social capital can be obtained from social networks built through online social interaction. Braun *et al.*, (2018) also emphasise the fact that creative outcomes go beyond the individual and that networking is a vital activity through which nascent entrepreneurship achieves this.

In spite of the essential role social media plays in the acquisition of resources, it must be stated that not all entrepreneurs use social media to obtain required resources for their business or for building their business models. These entrepreneurs do not use social media for their ventures because they do not trust the source just like as established in Park, Sung and Im, (2017). At other times, they simply do not think that they can obtain what they need from there.

6.3 Contribution to Knowledge

From the review of literature, it has been established that factors such as uncertainty (McKelvie, Haynie and Gustavsson, 2011), idiosyncratic dispositions (Valliere 2013), emotions (Foo, 2011) prior knowledge (Haynie *et al.*, 2009) values (Shepherd, Patzelt and Baron, 2013) and role identity (Mathias and Williams, 2017) influence the opportunity evaluation process. However, what has not been studied is how online social interaction can

affect opportunity evaluation or all these factors or if one factor impacts the process more than the other. For instance, online social interaction via social media can reduce uncertainty through the access of a large amount of information, impact how emotions are formed or affected, indicate how gender responds differently in the use of social media or offer insights on how the use of social media affects values and the creation of prior knowledge. Will an individual adjust mental images to fit others that they interact with on social media? For a better understanding into these possibilities, a model would need to be available to measure the impact of these factors which, to the best of the researcher's knowledge, was not available. Previous literature has not yet provided a model to measure the impact of online social interaction on opportunity evaluation. In other words, no previous measure has been proposed for opportunity evaluation and online social interaction although evidence from the literature indicates its importance. The major contribution that this study has made is the development of a model that measures the effect of online social interaction on opportunity evaluation. This model can be used as a guide for researchers to test the effect of other factors on the construct of opportunity evaluation. The validated scale that was used to develop the model is in Appendix 1.

6.4 Recommendations

6.4.1 Implications for Practice

This study has made an important contribution to knowledge by showing the positive effect that an everyday-life tool like social media has on the entrepreneurial process of opportunity evaluation. It points to the fact that resources can be obtained via online social interaction and helps entrepreneurs to build networks. It also shows that social media is more than just an advertising tool, indicating that social media can be a place where networks can be formed and entrepreneurs provided with access to human resources they would otherwise not have had. Consequently, this could lead to opportunities being evaluated differently.

According to Hitchen *et al.* (2017), there is a need for entrepreneurs to be able to locate key resources swiftly and opportunity identification can be accelerated by the use of social media. Spanning ideas and knowledge of diverse sectors and technologies produces tremendously fertile spaces for innovations, such as combining food and pharmaceuticals. Social media makes such interactions and networking possible.

Based on the above conclusions, trainers of entrepreneurs should consider training young entrepreneurs to use online social interaction as a strategic tool to obtain resources as start-ups have strong resource constraints. Entrepreneurs should be encouraged to build social networks through online social interaction which can help enrich innovations especially for countries in sub-Saharan Africa.

6.4.2 Implications for Theory

This study adds a newfound addition to the resource-based view theory. In the resource-based view theory, in considering whether a potential opportunity should be pursued or not, firms would evaluate the resources that they have available to be able to profitably exploit the potential opportunity. This study has shown that the relationship between online social interaction and opportunity evaluation is mediated by resource availability, meaning that resources needed by a firm or a venture can be obtained via social media. In other words, the resources required by a firm for sustained competitive advantage can be obtained from online network.

This research also contributes to the social network theory by showing how networks can be built without necessarily having physical contact or through the experience of serendipity, which has been shown from the earlier literature review to aid international entrepreneurship. Scheaf *et al.*, (2019) developed a scale that measures the construct of opportunity evaluation. They found that gain estimation, loss estimation, and perceived feasibility measure opportunity attractiveness. This was to serve as a foundation to kindle research to improve the

understanding of the entrepreneurs' opportunity evaluation judgments which are complex. To help in understanding this complexity, the scale developed in this study can be combined with that of Scheaf *et al.*, (2019) to have a holistic outcome that measures not only the opportunity attractiveness but also the quantum of the impact of factors that affect the evaluation process.

6.4.3 Recommendations for Future Research

It is recommended that to confirm the findings, future studies are conducted in other countries to confirm the positive effect of online social interaction on the opportunity evaluation process. It is also recommended that future research understands other factors that may facilitate the opportunity evaluation process and to what extent they do, may lead to a better understanding of targeting entrepreneurial training. These can be done using the scale that has been developed in this study. When interventions are targeted at the intermediate process it is more effective and this accounts for the use of the mediation analysis approach in this study. Using this approach for future studies would help target interventions, taking into consideration that mediation mechanism for more impact.

It is recommended that longitudinal studies are conducted to track the nature of the change to an identified opportunity.

6.5 Limitations of the Study

The study was a cross-sectional study where data collection was in one geographical location. With Ghana being a developing economy, findings of the study could only be generalised to cover other developing countries since these economies have similar economic and political settings. Another limitation is that participants in this study would have interactions that are offline which cannot be controlled as to how much these offline relationships would influence the opportunity evaluation process. The researcher, therefore, controlled for this in the model. Since this is a cross-sectional study, tracking or mapping the changes to the opportunity overtime was not possible. A longitudinal study would have been more appropriate to

determine how dramatically a particular opportunity changes due to feedback received as a result of online social interaction or whether the changes follow a particular pattern. Although the study found that Facebook was the most popular social media tool used for interaction, it was not able to measure the individual impacts that each of the social media applications had on opportunity evaluation.

The study provided a way to measure the process and the outcome but not a measure for the construct of opportunity evaluation.

6.6 Conclusion

This research aimed to measure the quantum of the effect of online social interaction via social media on entrepreneurial opportunity evaluation. In doing this, the research followed recommended best practices to develop and validate a new scale that measures the effect of online social interaction on entrepreneurial opportunity evaluation and found that online social interaction via social media has both a significant direct and indirect effect on entrepreneurial opportunity evaluation. The scale that has been developed in this study can be used as a foundation to measure the quantum of the impact of other factors that may affect the opportunity evaluation process of entrepreneurs.

7 REFERENCES

- Acharya, Bidhan. 2010. "Questionnaire Design." 2010. <https://doi.org/https://pt.scribd.com/document/.../6-4-Questionnaire-Design-Acharya-Bidhan>.
- Agostino, Deborah, and Yulia Sidorova. 2017. "How Social Media Reshapes Action on Distant Customers: Some Empirical Evidence." *Accounting, Auditing and Accountability Journal* 30 (4): 777–94. <https://doi.org/10.1108/AAAJ-07-2015-2136>.
- Aldrich, H. 2014. "The Democratization of Entrepreneurship? Hackers, Makerspaces, and Crowdfunding." *Annual Meeting of the Academy of Management*. Philadelphia: Acaemy of Management. <https://doi.org/10.13140/2.1.1371.6162>.
- Alvarez, Sharon A., Jay B. Barney, and Philip Anderson. 2013. "Forming and Exploiting Opportunities: The Implications of Discovery and Creation Processes for Entrepreneurial and Organizational Research." *Organization Science* 24 (1): 301–17. <https://doi.org/10.1287/orsc.1110.0727>.
- Alvarez, Sharon A., Jay B. Barney, and Susan L. Young. 2010. "Debates in Entrepreneurship: Opportunity Formation and Implications for the Field of Entrepreneurship." In *Handbook of Entrepreneurship Research*, edited by Z Acs and David B. Audretsch, 5:23–45. New York: Springer. <https://doi.org/10.1007/978-1-4419-1191-9>.
- Ardichvili, Alexander, Richard Cardozo, and Souray Ray. 2003. "A Theory of Entrepreneurial Opportunity Identification and Development." *Journal of Business Venturing* 18 (1): 105–23. [https://doi.org/10.1016/S0883-9026\(01\)00068-4](https://doi.org/10.1016/S0883-9026(01)00068-4).
- Arnaboldi, Michela, Giovanni Azzone, and Yulia Sidorova. 2017. "Governing Social Media: The Emergence of Hybridised Boundary Objects." *Accounting, Auditing and Accountability Journal* 30 (4): 821–49. <https://doi.org/10.1108/AAAJ-07-2015-2132>.
- Austin, Robert D., Lee Devin, and Erin E. Sullivan. 2012. "Accidental Innovation: Supporting Valuable Unpredictability in the Creative Process." *Organization Science* 23 (5): 1505–22. <https://doi.org/10.1287/orsc.1110.0681>.
- Autio, Erkkö, Linus Dahlander, and Lars Frederiksen. 2013. "Information Exposure , Opportunity Evaluation , and Entrepreneurial Action : An Investigation of an Online User Community." *Academy of Management Journal* 56 (5): 1348–71.

- Baker, Ted, and Reed E Nelson. 2005. "Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage." *Administrative Science Quarterly* 50: 329–66. <https://doi.org/10.2189/asqu.2005.50.3.329>.
- Bammens, Yannick, and Veroniek Collewaert. 2014. "Trust Between Entrepreneurs and Angel Investors." *Journal of Management* 40 (7): 1980–2008. <https://doi.org/10.1177/0149206312463937>.
- Banerji, Devika, and Torsten Reimer. 2019. "Startup Founders and Their LinkedIn Connections: Are Well-Connected Entrepreneurs More Successful?" *Computers in Human Behavior* 90: 46–52. <https://doi.org/10.1016/j.chb.2018.08.033>.
- Baron, Reuben M., and David a. Kenny. 1986. "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations." *Journal of Personality and Social Psychology* 51 (6): 1173–82. <https://doi.org/10.1037/0022-3514.51.6.1173>.
- Baron, Robert A., and Michael D. Ensley. 2006. "Opportunity Recognition as the Detection of Meaningful Patterns: Evidence from Comparisons of Novice and Experienced Entrepreneurs." *Management Science* 52 (9): 1331–44. <https://doi.org/10.1287/mnsc.1060.0538>.
- Baron, Robert A., and Gideon D. Markman. 2003. "Beyond Social Capital: The Role of Entrepreneurs' Social Competence in Their Financial Success." *Journal of Business Venturing* 18 (1): 41–60. [https://doi.org/10.1016/S0883-9026\(00\)00069-0](https://doi.org/10.1016/S0883-9026(00)00069-0).
- Bashir, Naheed, K Nadia Papamichail, and Khaleel Malik. 2017. "Use of Social Media Applications for Supporting New Product Development Processes in Multinational Corporations." *Technological Forecasting* 120: 176–83. <https://doi.org/10.1016/j.techfore.2017.02.028>.
- Bellavitis, Cristiano, Igor Filatotchev, and Vangelis Souitaris. 2017. "The Impact of Investment Networks on Venture Capital Firm Performance: A Contingency Framework." *British Journal of Management* 28 (1): 102–19. <https://doi.org/10.1111/1467-8551.12162>.
- Belz, Frank Martin, and Julia Katharina Binder. 2017. "Sustainable Entrepreneurship: A Convergent Process Model." *Business Strategy and the Environment* 26 (1): 1–17.

<https://doi.org/10.1002/bse.1887>.

Beninger, S, H Ajjan, R B Mostafa, and V L Crittenden. 2016. "A Road to Empowerment: Social Media Use by Women Entrepreneurs in Egypt." *International Journal of Entrepreneurship and Small Business* 27 (2–3): 308–32.

<https://doi.org/10.1504/IJESB.2016.073987>.

Berends, Hans, Mariann Jelinek, Isabelle Reymen, and Rutger Stultiëns. 2014. "Product Innovation Processes in Small Firms: Combining Entrepreneurial Effectuation and Managerial Causation." *Journal of Product Innovation Management* 31 (3): 616–35.

<https://doi.org/10.1111/jpim.12117>.

Bhandari, Humnath, and Kumi Yasunobu. 2009. "What Is Social Capital? A Comprehensive Review of the Concept." *Asian Journal of Social Science* 37 (3).

<https://doi.org/10.1163/156853109X436847>.

Bishop, Karen, and Robert D Nixon. 2006. "Venture Opportunity Evaluations: Comparisons Between Venture Capitalists and Inexperienced Pre-Nascent Entrepreneurs." *Journal of Developmental Entrepreneurship* 11 (1): 19–33.

<https://doi.org/10.1142/S1084946706000246>.

Boateng, Godfred O., Torsten B. Neilands, Edward A. Frongillo, Hugo R. Melgar-Quiñonez, and Sera L. Young. 2018. "Best Practices for Developing and Validating Scales for Health, Social, and Behavioral Research: A Primer." *Frontiers in Public Health* 6 (June): 1–18. <https://doi.org/10.3389/fpubh.2018.00149>.

Bögenhold, Dieter, Jean Bonnet, Marcus Dejardin, and Domingo Garcia Pérez de Lema. 2016. "Contemporary Entrepreneurship: Multidisciplinary Perspectives on Innovation and Growth." *Contemporary Entrepreneurship: Multidisciplinary Perspectives on Innovation and Growth*, 1–303. <https://doi.org/10.1007/978-3-319-28134-6>.

Bosma, Niels, Jeroen Content, Mark Sanders, and Erik Stam. 2018. "Institutions, Entrepreneurship, and Economic Growth in Europe." *Small Business Economics* 51: 483–99. <https://doi.org/10.1007/s11187-018-0012-x>.

Braun, Timo, Aristides I. Ferreira, Thomas Schmidt, and Jörg Sydow. 2018. "Another Post-Heroic View on Entrepreneurship: The Role of Employees in Networking the Start-up Process." *British Journal of Management* 29 (4): 652–69. <https://doi.org/10.1111/1467-8551.12256>.

- Brems, Cara, Martina Temmerman, Todd Graham, and Marcel Broersma. 2017. "Personal Branding on Twitter: How Employed and Freelance Journalists Stage Themselves on Social Media." *Digital Journalism* 5 (4): 443–59.
<https://doi.org/10.1080/21670811.2016.1176534>.
- Brennan, Robert L. 1972. "A Generalized Upper-Lower Item Discrimination Index." *Educational and Psychological Measurement* 32: 289–303.
<https://doi.org/10.1177/001316447203200206>.
- Brinckmann, Jan, and Martin Hoegl. 2011. "Effects of Initial Teamwork Capability and Initial Relational Capability on the Development of New Technology-Based Firms." *Strategic Entrepreneurship Journal* 5: 37–57. <https://doi.org/10.1002/sej.106>.
- Bryman, A. 2012. *Social Research Methods*. New York: Oxford University Press.
- Bucktowar, R, A Kocak, and K Padachi. 2015. "ENTREPRENEURIAL ORIENTATION, MARKET ORIENTATION and NETWORKING: IMPACT on INNOVATION and FIRM PERFORMANCE." *Journal of Developmental Entrepreneurship* 20 (4): 22.
<https://doi.org/10.1142/S1084946715500247>.
- Burt, Ronald S. 1992. *Structural Holes: The Social Structure of Competition*.
Booksgooglecom. Vol. 58.
- . 2007. *Brokerage and Closure: An Introduction to Social Capital*. Oxford: Oxford University Press. <https://doi.org/10.1007/s13398-014-0173-7.2>.
- Cantù, Chiara. 2015. "A Service Incubator Business Model: External Networking Orientation." *IMP Journal* 9 (3): 267–85.
<https://doi.org/http://dx.doi.org/10.1108/02683940010305270>.
- Carolis, D M De, B E Litzky, and K A Eddleston. 2009. "Why Networks Enhance the Progress of New Venture Creation: The Influence of Social Capital and Cognition." *Entrepreneurship Theory and Practice* 33 (215): 527–45. <https://doi.org/10.1111/j.1540-6520.2009.00302.x>.
- Chandler, Gaylen N., Dawn R. DeTienne, Alexander McKelvie, and Troy V. Mumford. 2011. "Causation and Effectuation Processes: A Validation Study." *Journal of Business Venturing* 26 (3): 375–90. <https://doi.org/10.1016/j.jbusvent.2009.10.006>.
- Chiara, Peroni, Riillo Cesare, and Rodrigues Bruno. 2017. "Global Entrepreneurship Monitor : Luxembourg 2015 / 2016." London.

- Christopoulos, Dimitrios C. 2007. "Peer Esteem Snowballing : A Methodology for Expert Surveys." 2007.
https://www.researchgate.net/publication/255595189_Peer_Esteem_Snowballing_A_methodology_for_expert_surveys.
- Clark, Lee Anna, and David Watson. 1995. "Constructing Validity : Basic Issues in Objective Scale Development The Centrality of Psychological Measurement." *Psychological Assessment* 7 (3): 309–19.
- Clough, David R., Tommy Pan Fang, Balagopal Vissa, and Andy Wu. 2019. "Turning Lead into Gold: How Do Entrepreneurs Mobilize Resources to Exploit Opportunities?" *Academy of Management Annals* 13 (1): 240–71.
<https://doi.org/10.5465/annals.2016.0132>.
- Comrey, Andrew L. 1988. "Factor-Analytic Methods of Scale Development in Personality and Clinical Psychology." *Journal of Consulting and Clinical Psychology* 56 (5): 754–61. <https://doi.org/10.1037/0022-006X.56.5.754>.
- Comrey, Andrew Laurence, and Howard Bing Lee. 1992. *A First Course in Factor Analysis, 2nd Ed. A First Course in Factor Analysis, 2nd Ed.* 2nd ed. Hillsdale, New York: Lawrence Erlbaum Associates.
- Conger, Michael, Jeffery S. McMullen, Brian J. Bergman, and Jeffrey G. York. 2018. "Category Membership, Identity Control, and the Reevaluation of Prosocial Opportunities." *Journal of Business Venturing* 33 (2): 179–206.
<https://doi.org/10.1016/j.jbusvent.2017.11.004>.
- Cornelissen, Joep P, and Jean S Clarke. 2010. "Imagining And Rationalizing Opportunities: Inductive Reasoning And The Creation And Justification Of New Ventures." *Academy of Management Review* 35 (4): 539–57. <https://doi.org/10.5465/AMR.2010.53502700>.
- Corral de Zubielqui, Graciela, Helmut Fryges, and Janice Jones. 2019. "Social Media, Open Innovation and HRM: Implications for Performance." *Technological Forecasting and Social Change* 144: 334–47. <https://doi.org/10.1016/j.techfore.2017.07.014>.
- Crawford, Christopher G., Bill McKelvey, and Benyamin B. Lichtenstein. 2014. "The Empirical Reality of Entrepreneurship: How Powerlaw Distributed Outcomes Call for New Theory and Method." *Journal of Business Venturing Insights* 1 (1–2): 3–7.
<https://doi.org/10.1016/j.jbvi.2014.09.001>.

- Creswell, John W. 2012. *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. 4th ed. Boston, Mass: Pearson.
<https://doi.org/10.1017/CBO9781107415324.004>.
- Crick, Dave, and Martine Spence. 2005. "The Internationalisation of 'high Performing' UK High-Tech SMEs: A Study of Planned and Unplanned Strategies." *International Business Review* 14 (2): 167–85. <https://doi.org/10.1016/j.ibusrev.2004.04.007>.
- Cronback LJ. 1951. "Coefficient Alpha and the Internal Structure of Tests." *Psychometrika* 16 (3): 297–334. <https://doi.org/10.1007/BF02310555>.
- Dave, Valerie. 2008. "Exploring Buddhist Influence on the Entrepreneurial Decision." *International Journal of Entrepreneurial Behavior and Research* 14 (3): 172–91.
- Davidsson, Per. 2015. "Entrepreneurial Opportunities and the Entrepreneurship Nexus: A Re-Conceptualization." *Journal of Business Venturing* 30: 674–95.
<https://doi.org/10.1016/j.jbusvent.2015.01.002>.
- Davidsson, Per, and Benson Honig. 2003. "The Role of Social and Human Capital among Nascent Entrepreneurs." *Journal of Business Venturing* 18 (3): 301–31.
[https://doi.org/10.1016/S0883-9026\(02\)00097-6](https://doi.org/10.1016/S0883-9026(02)00097-6).
- DeVellis, RF. 2012. *Scale Development: Theory and Application*. 3rd ed. Los Angeles: Sage Publications.
- Dey, Bidit, Meera Sarma, Ameet Pandit, David Sarpong, Sushma Kumari, and Khanyapuss Punjaisri. 2017. "Social Media Led Co-Creation of Knowledge in Developing Societies: SME's Roles in the Adoption, Use and Appropriation of Smartphones in South Asia." *Production, Planning and Control* 30 (10–12): 1019–31.
<https://doi.org/10.1080/09537287.2019.1582106>.
- Dimov, Dimo. 2007. "Beyond the Single-Person, Single-Insight Attribution in Understanding Entrepreneurial Opportunities." *Entrepreneurship: Theory and Practice* 31: 713–31.
- . 2010. "Nascent Entrepreneurs and Venture Emergence: Opportunity Confidence, Human Capital, and Early Planning." *Journal of Management Studies* 47 (6): 1123–53.
<https://doi.org/10.1111/j.1467-6486.2009.00874.x>.
- Dobusch, Leonhard, and Jakob Kapeller. 2018. "Open Strategy-Making with Crowds and Communities: Comparing Wikimedia and Creative Commons." *Long Range Planning* 51 (4): 561–79. <https://doi.org/10.1016/j.lrp.2017.08.005>.

- Duffy, Brooke Erin, and Urszula Pruchniewska. 2017. "Gender and Self-Enterprise in the Social Media Age: A Digital Double Bind." *Information, Communication and Society* 20 (6): 843–59. <https://doi.org/10.1080/1369118X.2017.1291703>.
- Dwivedi, Yogesh K, Gerald Kelly, Marijn Janssen, Nripendra P Rana, Emma L Slade, and Marc Clement. 2018. "Social Media: The Good, the Bad, and the Ugly." *Information Systems Frontiers* 20 (3): 419–23. <https://doi.org/10.1007/s10796-018-9848-5>.
- Dy, Angela Martinez, Susan Marlow, and Lee Martin. 2017. "A Web of Opportunity or the Same Old Story? Women Digital Entrepreneurs and Intersectionality Theory." *Human Relations* 70 (3): 286–311. <https://doi.org/10.1177/0018726716650730>.
- Eckhardt, Jonathan T., and Scott Shane. 2010. "An Update to the Individual-Opportunity Nexus." In *Handbook of Entrepreneurship Research*, 5:47–76. <https://doi.org/10.1007/978-1-4419-1191-9>.
- Emami, Amir, and Dimo Dimov. 2017. "Degree of Innovation and the Entrepreneurs' Intention to Create Value: A Comparative Study of Experienced and Novice Entrepreneurs." *Eurasian Business Review* 7 (2): 161–82. <https://doi.org/10.1007/s40821-016-0068-y>.
- Engel, Yuval, Mariëtte Kaandorp, and Tom Elfring. 2017. "Toward a Dynamic Process Model of Entrepreneurial Networking under Uncertainty." *Journal of Business Venturing* 32 (1): 35–51. <https://doi.org/10.1016/j.jbusvent.2016.10.001>.
- "Entrepreneurship and Regional Development." 2017. <https://doi.org/10.1080/08985626.2014.939536>.
- Erikson, Truls, and Steffen Korsgaard. 2016. "Knowledge as the Source of Opportunity." *Journal of Business Venturing Insights* 6 (October): 47–50. <https://doi.org/10.1016/j.jbvi.2016.10.002>.
- Esfandiari, Kouros, Mohamad Sharifi-Tehrani, Stephen Pratt, and Levent Altinay. 2019. "Understanding Entrepreneurial Intentions: A Developed Integrated Structural Model Approach." *Journal of Business Research* 74: 172–82. <https://doi.org/10.1016/j.jbusres.2017.10.045>.
- Fiorillo, Damiano, and Fabio Sabatini. 2011. "Quality and Quantity: The Role of Social Interactions in Individual Health." *Health, Econometrics and Data Group, The University of York* 73 (May): 24. <https://doi.org/10.1016/j.socscimed.2011.09.007>.

- Fischer, Eileen, and A. Rebecca Reuber. 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. <https://doi.org/10.1016/j.jbusvent.2010.09.002>.
- Fisher, Greg. 2012. "Effectuation, Causation, and Bricolage: A Behavioral Comparison of Emerging Theories in Entrepreneurship Research." *Entrepreneurship: Theory and Practice* 36 (5): 1019–51. <https://doi.org/10.1111/j.1540-6520.2012.00537.x>.
- Foo, Maw-Der. 2011a. "Emotions and Entrepreneurial Opportunity Evaluation." *Entrepreneurship: Theory and Practice* 35 (2): 375–93. <https://doi.org/10.1111/j.1540-6520.2009.00357.x>.
- . 2011b. "Emotions and Entrepreneurial Opportunity Evaluation." *Entrepreneurship: Theory and Practice* 35 (2): 375–93. <https://doi.org/10.1111/j.1540-6520.2009.00357.x>.
- Fridah, W Mugo. 2002. "Sampling in Educational Research." https://profiles.uonbi.ac.ke/fridah_mugo/files/mugo02sampling.pdf.
- Garud, Raghu, and Antonio Paco Giuliani. 2013. "A Narrative Perspective on Entrepreneurial Opportunities." *Academy of Management Review* 38 (1): 157–60. <https://doi.org/10.5465/amr.2012.0055>.
- Gassmann, Oliver, Ellen Enkel, and Henry Chesbrough. 2010. "The Future of Open Innovation." *R and D Management* 40 (3): 213–21. <https://doi.org/10.1111/j.1467-9310.2010.00605.x>.
- Granovetter, Mark. 1973. "The Strength of Weak Ties." *The American Journal of Sociology* 78 (6): 1360–80. <https://doi.org/10.1086/225469>.
- Grégoire, Denis A., Andrew C. Corbett, and Jeffery S. McMullen. 2011. "The Cognitive Perspective in Entrepreneurship: An Agenda for Future Research." *Journal of Management Studies* 48 (6): 1443–77. <https://doi.org/10.1111/j.1467-6486.2010.00922.x>.
- Grégoire, Denis A., Dean A. Shepherd, and Lisa Schurer Lambert. 2010. "Measuring Opportunity-Recognition Beliefs." *Organizational Research Methods* 13 (1): 114–45. <https://doi.org/10.1177/1094428109334369>.
- Grégoire, Denis A, Pamela S Barr, and Dean A Shepherd. 2010. "Cognitive Processes of Opportunity Recognition : The Role of Structural Alignment." *Organization Science* 21 (2): 413–31. <https://doi.org/10.1287/orsc.1090.0462>.

- Greve, Arent, and Janet W Salaff. 2003. "Social Networks and Entrepreneurship." *Entrepreneurship: Theory and Practice* 28 (1): 1–22. <https://doi.org/10.1111/1540-8520.00029>.
- Gruber, Marc, Min Kim, and Jan Brinckmann. 2015. "WHAT IS AN ATTRACTIVE BUSINESS OPPORTUNITY? AN EMPIRICAL STUDY OF OPPORTUNITY EVALUATION DECISIONS BY TECHNOLOGISTS, MANAGERS, AND ENTREPRENEURS." *Strategic Entrepreneurship Journal*, no. 9: 205–25. <https://doi.org/10.1002/sej.1196>.
- Gruber, Marc, Ian C. MacMillan, and James D. Thompson. 2013. "Escaping the Prior Knowledge Corridor: What Shapes the Number and Variety of Market Opportunities Identified before Market Entry of Technology Start-Ups?" *Organization Science* 24 (1): 280–300. <https://doi.org/10.1287/orsc.1110.0721>.
- Guadagnoli, Edward, and Wayne E Velicer. 2014. "Relation of Sample Size to the Stability of Component Patterns Relation of Sample Size to the Stability of Component Patterns," no. April 1988. <https://doi.org/10.1037//0033-2909.103.2.265>.
- Guadagnoli, Edward, and Wayne F. Velicer. 1988. "Relation of Sample Size to the Stability of Component Patterns." *Psychological Bulletin* 103 (2): 265–75. <https://doi.org/10.1037/0033-2909.103.2.265>.
- Gudgeon, Andrew C., A. L. Comrey, and H. B. Lee. 1994. *A First Course in Factor Analysis. The Statistician*. 2nd ed. Vol. 43. Hillsdale: Lawrence Erlbaum. <https://doi.org/10.2307/2348352>.
- Guo, Runping. 2019. "Effectuation, Opportunity Shaping and Innovation Strategy in High-Tech New Ventures." *Management Decision* 57 (1): 115–30. <https://doi.org/10.1108/MD-08-2017-0799>.
- Gupta, Vishal K, A Banu Goktan, and Gonca Gunay. 2014. "Gender Differences in Evaluation of New Business Opportunity: A Stereotype Threat Perspective." *Journal of Business Venturing* 29: 273–88. <https://doi.org/10.1016/j.jbusvent.2013.02.002>.
- Gustafsson, Veronika, and Mohammad Saud Khan. 2017. "Monetising Blogs: Enterprising Behaviour, Co-Creation of Opportunities and Social Media Entrepreneurship." *Journal of Business Venturing Insights* 7: 26–31. <https://doi.org/10.1016/j.jbvi.2017.01.002>.
- Hair, Joseph F. Jr, William C. Black, Barry J. Babin, and Rolph E. Anderson. 2014.

Univariate Data Analysis. 7th ed. Essex: Pearson. https://doi.org/10.1007/978-3-319-01517-0_3.

Harms, Rainer, and Holger Schiele. 2012. “Antecedents and Consequences of Effectuation and Causation in the International New Venture Creation Process.” *Journal of International Entrepreneurship* 10 (2): 95–116. <https://doi.org/10.1007/s10843-012-0089-2>.

Haynie, JM, Shepherd, DA and Patzelt, H. 2012. “Cognitive Adaptability and an Entrepreneurial Task: The Role of Metacognitive Ability and Feedback.” *Entrepreneurship Theory and Practice* 36 (2): 237–65. <https://doi.org/10.1111/j.1540-6520.2010.00410.x>.

Hitchen, Emma L., Petra A. Nylund, Xavier Ferràs, and Sergi Mussons. 2017. “Social Media: Open Innovation in SMEs Finds New Support.” *Journal of Business Strategy* 38 (3): 21–29. <https://doi.org/10.1108/JBS-02-2016-0015>.

Hite, J. 2005. “Evolutionary Processes and Path of Embedded Network Ties in Emerging Entrepreneurial Firms.” *Entrepreneurship: Theory and Practice* 29 (1): 113–44. 878.

Hite, Julie M. 2005. “Evolutionary Processes and Paths of Relationally Embedded Network Ties in Emerging Entrepreneurial Firms.” *Entrepreneurship Theory and Practice* 29 (1): 113–44.

Hite, Julie M, and William S Hesterly. 2001. “The Evolution of Firm Networks: From Emergence to Early Growth of the Firm.” *Source: Strategic Management Journal* 22 (3): 275–86.

Huang, Victor Zengyu, Anup Nandialath, Abdulkareem Kassim, Alsayaghi Emine, Esra Karadeniz, Abdulkareem Kassim Alsayaghi, and Emine Esra Karadeniz. 2013. “Socio-Demographic Factors and Network Configuration among MENA Entrepreneurs Socio-Demographic Factors and Network Configuration among MENA Entrepreneurs.” *International Journal of Emerging Markets* 8 (3): 258–81.

Hurmerinta-Peltom, Leila, and Niina Nummela. 2006. “Mixed Methods in International Business Research : A Value-Added Perspective.” *Management International Review* 46 (4): 439–59.

Jack, Sarah L. 2010. “Approaches to Studying Networks: Implications and Outcomes.” *Journal of Business Venturing* 25 (1): 120–37.

<https://doi.org/10.1016/j.jbusvent.2008.10.010>.

Jack, Sarah L. 2005. "The Role, Use and Activation of Strong and Weak Network Ties: A Qualitative Analysis*." *Journal of Management Studies* 42 (6): 1233–59.

Kaplan, Andreas M., and Michael Haenlein. 2010. "Users of the World, Unite! The Challenges and Opportunities of Social Media." *Business Horizons* 53 (1): 59–68.
<https://doi.org/10.1016/j.bushor.2009.09.003>.

Keh, Hean Tat, Maw Der Foo, and Boon Chong Lim. 2002a. "Opportunity Evaluation under Risky Conditions: The Cognitive Processes of Entrepreneurs." *Entrepreneurship Theory and Practice* 27 (2): 125–48. <https://doi.org/10.1111/1540-8520.00003>.

———. 2002b. "Opportunity Evaluation under Risky Conditions: The Cognitive Processes of Entrepreneurs." *Entrepreneurship Theory and Practice* 27 (2): 125–48.
<https://doi.org/10.1111/1540-8520.00003>.

Kelley, Donna J, Benjamin S Baumer, Candida Brush, Patrica G Greene, Mahnaz Mahdavi, Mahdi Majbouri Marcia Cole, Monica Dean, and René Heavlow. 2017. "Women's Entrepreneurship 2016/2017 Report Global Entrepreneurship Monitor." Boston.

Kemp, Simon. 2019. "Digital 2019." *We Are Social and Hootsuite*.
https://es.slideshare.net/DataReportal/digital-2019-argentina-january-2019-v01?from_action=save.

Kietzmann, Jan H., Kristopher Hermkens, Ian P. McCarthy, and Bruno S. Silvestre. 2011. "Social Media? Get Serious! Understanding the Functional Building Blocks of Social Media." *Business Horizons* 54 (3): 241–51.
<https://doi.org/10.1016/j.bushor.2011.01.005>.

Kirzner, Israel M. 1973. *Competition and Entrepreneurship*. Vol. 53. University of Chicago Press. <https://doi.org/10.1017/CBO9781107415324.004>.

Klotz, Anthony C., Keith M. Hmieleski, Bret H. Bradley, and Lowell W. Busenitz. 2014. "New Venture Teams." *Journal of Management* 40 (1): 226–55.
<https://doi.org/10.1177/0149206313493325>.

Kornish, Laura J., and Karl T. Ulrich. 2011. "Opportunity Spaces in Innovation: Empirical Analysis of Large Samples of Ideas." *Management Science* 57 (1): 107–28.
<https://doi.org/10.1287/mnsc.1100.1247>.

- Kuratko, Donald F., Jeffery S. McMullen, Jeffrey S. Hornsby, and Chad Jackson. 2017. "Is Your Organization Conducive to the Continuous Creation of Social Value? Toward a Social Corporate Entrepreneurship Scale." *Business Horizons* 60 (3): 271–83. <https://doi.org/10.1016/j.bushor.2016.12.003>.
- Kusumasondjaja, Sony. 2017. "Commitment to Online Community and Continuance Intention : Issue Involvement , Interactivity , and Social Interaction Komitmen Terhadap Komunitas Online Dan Continuance Intention : Issue Involment , Interactivity , Dan Social Interaction." *Jurnal Bisnis and Manajemen XVIII* (2): 90–103.
- Ladd, Ted, and Ted Ladd. 2018. "Does the Business Model Canvas Drive Venture Success ?" *Journal of Research in Marketing and Entrepreneurship* Vol. 20 (Issue: 1): pp.57-69. <https://doi.org/10.1108/JRME-11-2016-0046>.
- Laine, Igor, and Tamara Galkina. 2017. "The Interplay of Effectuation and Causation in Decision Making: Russian SMEs under Institutional Uncertainty." *International Entrepreneurship Management Journal* 13: 905–41. <https://doi.org/10.1007/s11365-016-0423-6>.
- Lechler, Thomas. 2001. "Social Interaction: A Determinant of Entrepreneurial Team Venture Success." *Small Business Economics* 16 (4): 263–78. <https://doi.org/10.1023/A:1011167519304>.
- Leyden, Dennis P., and Albert N. Link. 2015. "Toward a Theory of the Entrepreneurial Process." *Small Business Economics* 44 (3): 475–84. <https://doi.org/10.1007/s11187-014-9606-0>.
- Leyden, Dennis P., Albert N. Link, and Donald S. Siegel. 2014. "A Theoretical Analysis of the Role of Social Networks in Entrepreneurship." *Research Policy* 43 (7): 1157–63. <https://doi.org/10.1016/j.respol.2014.04.010>.
- Lim, Jeon Su, John H. Heinrichs, and Kee Sook Lim. 2017. "Gender and Hedonic Usage Motive Differences in Social Media Site Usage Behavior." *Journal of Global Marketing* 30 (3): 161–73. <https://doi.org/10.1080/08911762.2017.1308615>.
- Lin, Nan. 1999. "Building a Network Theory of Social Capital." *Connections* 22 (1): 28–51. <https://doi.org/10.1108/14691930410550381>.
- . 2001. "Social Capital: A Theory of Social Structure and Action." *Structural Analysis in the Social Sciences*. <https://doi.org/10.1086/380538>.

- Linde, Claudia. 2017. "Social Computing and Social Media. Human Behavior." In *9th International Conference, SCSM 2017*, 10282:350–61. Vancouver.
<https://doi.org/10.1007/978-3-319-58559-8>.
- Liu, Dong, and Roy F. Baumeister. 2016. "A Meta-Analysis of Social Networking Online and Social Capital." *Journal of Research in Personality* 64 (4): 79–89.
<https://doi.org/10.1016/j.jrp.2016.06.024>.
- Liu, Wenlin, Anupreet Sidhu, Amanda M. Beacom, and Thomas W. Valente. 2017. "Social Network Theory." *The International Encyclopedia of Media Effects*, no. September: 1–12. <https://doi.org/10.1002/9781118783764.wbieme0092>.
- Lowe, Andrew, Anthony C. Norris, A. Jane Farris, and Duncan R. Babbage. 2018. "Quantifying Thematic Saturation in Qualitative Data Analysis." *Field Methods* 30 (3): 191–207. <https://doi.org/10.1177/1525822x17749386>.
- Maccallum, Robert C, and Keith F Widaman. 1999. "Sample Size in Factor Analysis." *Psychological Methods* 4 (1): 84–99.
- Mahwish Zafar, Wajahat Shafiq, Shazia Kousar. 2017. "Impact of Social Media on Entrepreneurship Growth: A Case of Lahore, Pakistan." *International Journal of Engineering Sciences and Research Technology* 6 (1): 387–94.
<https://doi.org/10.5281/zenodo.259592>.
- Marvel, Matthew R., Justin L. Davis, and Curtis R. Sproul. 2016. "Human Capital and Entrepreneurship Research: A Critical Review and Future Directions." *Entrepreneurship: Theory and Practice* 40 (3): 599–626.
<https://doi.org/10.1111/etap.12136>.
- Mathias, Blake D., and David W. Williams. 2017. "The Impact of Role Identities on Entrepreneurs' Evaluation and Selection of Opportunities." *Journal of Management* 43 (3): 892–918. <https://doi.org/10.1177/0149206314544747>.
- McKeever, Edward, Alistair Anderson, and Sarah Jack. 2014. "Entrepreneurship and Mutuality: Social Capital in Processes and Practices." *Entrepreneurship and Regional Development* 26 (5–6): 453–77. <https://doi.org/10.1080/08985626.2014.939536>.
- McKelvie, Alexander, J. Michael Haynie, and Veronica Gustavsson. 2011. "Unpacking the Uncertainty Construct: Implications for Entrepreneurial Action." *Journal of Business Venturing* 26 (3): 273–92. <https://doi.org/10.1016/j.jbusvent.2009.10.004>.

- McMullen, J, and D A Shepherd. 2006. "Entrepreneurial Action and the Role of Uncertainty in the Theory of the Entrepreneur." *Academy of Management Review* 31 (1): 132–52.
- Mention, Anne Laure, Pierre Jean Barlatier, and Emmanuel Josserand. 2019. "Using Social Media to Leverage and Develop Dynamic Capabilities for Innovation." *Technological Forecasting and Social Change* 144: 242–50.
<https://doi.org/10.1016/j.techfore.2019.03.003>.
- Mitchell, Ronald K., J. Brock Smith, Eric A. Morse, Kristie W. Seawright, Ana Maria Peredo, and Brian Mckenzie. 2002. "Are Entrepreneurial Cognitions Universal? Assessing Entrepreneurial Cognitions Across Cultures." *Entrepreneurship: Theory and Practice* 26 (4): 9–32. <https://doi.org/Article>.
- Mollick, Ethan. 2014. "The Dynamics of Crowdfunding: An Exploratory Study." *Journal of Business Venturing* 29 (1): 1–16. <https://doi.org/10.1016/j.jbusvent.2013.06.005>.
- Mount, Matthew, and Marian Garcia Martinez. 2014. "Social Media: A Tool for Open Innovation." *California Management Review* 56 (4): 124–43.
<https://doi.org/10.1525/cm.2014.56.4.124>.
- Muñoz, Pablo. 2017. "A Cognitive Map of Sustainable Decision-Making in Entrepreneurship." *International Journal of Entrepreneurial Behavior Research*, IJEER-03-2017-0110. <https://doi.org/10.1108/IJEER-03-2017-0110>.
- Murnieks, Charles Y., J. Michael Haynie, Robert E. Wiltbank, and Troy Harting. 2011. "'I like How You Think': Similarity as an Interaction Bias in the Investor-Entrepreneur Dyad." *Journal of Management Studies* 48 (7): 1533–61. <https://doi.org/10.1111/j.1467-6486.2010.00992.x>.
- Nambisan, Satish. 2016. "Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship." *Entrepreneurship: Theory and Practice*, no. 414: 1029–55.
<https://doi.org/10.1111/etap.12254>.
- Nambisan, Satish, Mike Wright, and Maryann Feldman. 2019. "The Digital Transformation of Innovation and Entrepreneurship : Progress , Challenges and Key Themes." *Research Policy* 48 (8): 9. <https://doi.org/10.1016/j.respol.2019.03.018>.
- Netemeyer, Richard, William Bearden, and Subhash Sharma. 2003. *Scaling Procedures*. Sage Publication. Thousand Oaks, California: Sage. <https://doi.org/10.4135/9781412985772>.

- Nisar, Tahir M., Guru Prabhakar, and Lubica Strakova. 2019. "Social Media Information Benefits, Knowledge Management and Smart Organizations." *Journal of Business Research* 94: 264–72. <https://doi.org/10.1016/j.jbusres.2018.05.005>.
- Nowiński, Witold, and Alex Rialp. 2016. "The Impact of Social Networks on Perceptions of International Opportunities." *Journal of Small Business Management* 54 (2): 445–61. <https://doi.org/10.1111/jsbm.12149>.
- Nunnally, JC, and IH Bernstein. 1994. *Psychometric Theory, 1994*. McGraw-Hill, New York. New York: McGraw-Hill.
- Ogink, Timko, and John Qi Dong. 2019. "Stimulating Innovation by User Feedback on Social Media: The Case of an Online User Innovation Community." *Technological Forecasting and Social Change* 144: 295–302. <https://doi.org/10.1016/j.techfore.2017.07.029>.
- Olanrewaju, Abdus Samad Temitope, Mohammad Alamgir Hossain, Naomi Whiteside, and Paul Mercieca. 2020. "Social Media and Entrepreneurship Research: A Literature Review." *International Journal of Information Management* 50 (November 2018): 90–110. <https://doi.org/10.1016/j.ijinfomgt.2019.05.011>.
- Omaid, Aamir. 2014. "Sample Size Estimation and Sampling Techniques for Selecting a Representative Sample." *Journal of Health Specialties* 2 (4): 142–47. <https://doi.org/10.4103/1658-600x.142783>.
- Ortega, Ana M, M Teresa García, and M Valle Santos. 2017. "Effectuation-Causation: What Happens in New Product Development?" *Management Decision Management Decision Iss Management Decision* 55 (8): 1717–35.
- Osterwalder, Alexander, Yves Pigneur, Alan Smith, and The Movement. 2010. *Business Model Generation*. 1st Editio. New Jersey: John Wiley and Sons. <https://doi.org/10.1523/JNEUROSCI.0307-10.2010>.
- Packard, Mark D., and Per L. Bylund. 2017. "On the Relationship between Inequality and Entrepreneurship." *Strategic Entrepreneurship Journal* 12 (1): 1–20. <https://doi.org/10.1002/sej.1270>.
- Pallant, Julie. 2013. *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS. Step by Step Guide to Data Analysis Using the SPSS Program*. [http://solo.bodleian.ox.ac.uk/primo_library/libweb/action/search.do?dsent=1andvl\(drSta](http://solo.bodleian.ox.ac.uk/primo_library/libweb/action/search.do?dsent=1andvl(drSta)

rtDay6)=00andv1(60606418UI3)=all_itemsandscp.scps=scope:(OULS),scope:(NET)and
tab=localandsrt=rankandmode=Advancedandv1(1UIStartWith1)=containsandtb=tandind
x=1andv1(drEndYear6)=Yearandv1(freeT.

Park, Joo, Chang Sung, and Il Im. 2017. "Does Social Media Use Influence Entrepreneurial Opportunity? A Review of Its Moderating Role." *Sustainability* 2017, Vol. 9, Page 1593 9 (9): 1593. <https://doi.org/10.3390/su9091593>.

Parker, Simon C. 2018. *The Economics of Entrepreneurship*. 2nd ed. New York: Cambridge University Press. <https://doi.org/10.1017/CBO9780511817441>.

Pena-López, José Atilano, and José Manuel Sánchez-Santos. 2017. "Individual Social Capital: Accessibility and Mobilization of Resources Embedded in Social Networks." *Social Networks* 49: 1–11. <https://doi.org/10.1016/j.socnet.2016.11.003>.

Popham, W. James, and T. R. Husek. 1969. "Implications of Criterion-Referenced Measurement." *Journal of Educational Measurement* 6 (1): 1–9. <https://doi.org/10.1111/j.1745-3984.1969.tb00654.x>.

Poushter, Jacob. 2016. "Smartphone Ownership and Internet Usage Continues to Climb in Emerging Economies." *Pew Research Center*. <https://doi.org/10.1017/CBO9781107415324.004>.

Prayag, Girish, C. Michael Hall, and Hannah Wood. 2017. "I Feel Good! Perceptions and Emotional Responses of Bed and Breakfast Providers in New Zealand Toward Trip Advisor." *Journal of Hospitality Marketing and Management* 27 (1): 1–20. <https://doi.org/10.1080/19368623.2017.1318731>.

Priem, Richard L., Sali Li, and Jon C. Carr. 2012. "Insights and New Directions from Demand-Side Approaches to Technology Innovation, Entrepreneurship, and Strategic Management Research." *Journal of Management* 38 (1): 346–74. <https://doi.org/10.1177/0149206311429614>.

Rasmussen, Einar, Simon Mosey, and Mike Wright. 2015. "The Transformation of Network Ties to Develop Entrepreneurial Competencies for University Spin-Offs." *Entrepreneurship and Regional Development* 27 (7–8): 430–57. <https://doi.org/10.1080/08985626.2015.1070536>.

Raykov T, and Marcoulides GA. 2011. *Introduction to Psychometric Theory*. 1st ed. New York: Routledge, Taylor and Francis Group.

- Rayna, Thierry, Ludmila Striukova, and John Darlington. 2015. "Co-Creation and User Innovation: The Role of Online 3D Printing Platforms." *Journal of Engineering and Technology Management* 37: 90–102. <https://doi.org/10.1016/j.jengtecman.2015.07.002>.
- Reymen, Isabelle, Hans Berends, Rob Oudehand, and Rutger Stultiëns. 2017. "Decision Making for Business Model Development: A Process Study of Effectuation and Causation in New Technology-Based Ventures." *R and D Management* 47 (4): 595–606. <https://doi.org/10.1111/radm.12249>.
- Reymen, Isabelle M.M.J., Petra Andries, Hans Berends, Rene Mauer, Ute Stephan, and Elco van Burg. 2015. "Understanding Dynamics of Strategic Decision Making in Venture Creation: A Process Study of Effectuation and Causation." *Strategic Entrepreneurship Journal* 9 (4): 351–79. <https://doi.org/10.1002/sej.1201>.
- Sadovykh, Valeria, David Sundaram, and Selwyn Piramuthu. 2015. "Do Decision-Making Structure and Sequence Exist in Health Online Social Networks?" *Decision Support Systems* 74: 102–20. <https://doi.org/10.1016/j.dss.2015.03.007>.
- Sarasvathy, Saras. 2001. "Toward Causation and Effectuation : A Theoretical Shift From Inevitability to Economic Entrepreneurial Contingency." *The Academy of Management Review* 26 (2): 243–63. <https://doi.org/10.2307/259121>.
- Sarasvathy, Saras D. 2003. "Entrepreneurship as a Science of the Artificial." *Journal of Economic Psychology* 24 (2): 203–20. [https://doi.org/10.1016/S0167-4870\(02\)00203-9](https://doi.org/10.1016/S0167-4870(02)00203-9).
- . 2008. "Effectuation: Elements of Entrepreneurial Expertise." *SciencesNew York* 2010: 1–23. <https://doi.org/10.4337/9781848440197.00001>.
- Saunders, Mark, Philip Lewis, and Adrian Thornhill. 2008. *Research Methods for Business Students*. 5th Editio. Essex: Pearson Education. <https://doi.org/10.1007/s13398-014-0173-7.2>.
- Scheaf, David J., Andrew C. Loignon, Justin W. Webb, Eric D. Heggstad, and Matthew S. Wood. 2019. "Measuring Opportunity Evaluation: Conceptual Synthesis and Scale Development." *Journal of Business Venturing*, no. March 2018: 1–26. <https://doi.org/10.1016/j.jbusvent.2019.04.003>.
- Semrau, Thorsten, and Arndt Werner. 2014. "How Exactly Do Network Relationships Pay off? The Effects of Network Size and Relationship Quality on Access to Start-up Resources." *Entrepreneurship: Theory and Practice* 38 (3): 501–25.

<https://doi.org/10.1111/etap.12011>.

- Setia, Pankaj, Viswanath Venkatesh, and Supreet Joglekar. 2013. "Leveraging Digital Technologies: How Information Quality Leads to Localized Capabilities and Customer Service Performance." *MIS Quarterly* 37 (2): 565–90.
- Shah, Sonali K., and Mary Tripsas. 2007. "The Accidental Entrepreneur: The Emergent and Collective Process of User Entrepreneurship." *Strategic Entrepreneurship Journal* 1 (1–2): 123–40. <https://doi.org/10.1002/sej.15>.
- Shane, S, and J Eckhardt. 2003. "The Individual-Opportunity Nexus." In *Handbook of Entrepreneurship Research*, edited by Z Acs and David B. Audretsch, 161–194. Great Britain: KluwerGreat Britain. <https://doi.org/10.1007/s11187-004-5613-x>.
- Shane, S, and S Venkataraman. 2012. "As a the Promise of Entrepreneurship." *The Academy of Management Review* 25 (1): 217–26. <https://doi.org/10.2307/259271>.
- Shane, Scott. 2000. "Prior Knowldegde and Opportunity Shane.Pdf." *Organization Science* 11 (4): 448–69.
- . 2012. "Reflections on the 2010 AMR Decade Award: Delivering on the Promise of Entrepreneurship as A Field of Research." *Academy of Management Review* 37 (1): 10–20. <https://doi.org/10.5465/armr.2011.0079>.
- Shane, Scott A., and Jonathan Eckhart. 2003. "Opportunities and Entrepreneurship." *Journal of Management* 29 (3): 333–49.
- Shane, Scott, and S. Venkataraman. 2000. "The Promise of Enterpreneurship as a Field of Research." *The Academy of Management Review* 25 (1): 217. <https://doi.org/10.2307/259271>.
- Shepherd, Dean A. 2015. "Party On! A Call for Entrepreneurship Research That Is More Interactive, Activity Based, Cognitively Hot, Compassionate, and Prosocial." *Journal of Business Venturing* 30 (4): 489–507. <https://doi.org/10.1016/j.jbusvent.2015.02.001>.
- Shepherd, Dean A., Jeffery S Jeffrey S. McMullen, J. Michael Haynie, Dean A. Shepherd, and Jeffery S Jeffrey S. McMullen. 2009. "An Opportunity for Me ? The Role of Resources in Opportunity Evaluation Decisions Opportunity Evaluation Decisions." *Journal of Management Studies* 46 (August 2016): 337–61. <https://doi.org/10.1111/j.1467-6486.2009.00824.x>.

- Shepherd, Dean A., and Holger Patzelt. 2017. "Researching Entrepreneurial Decision Making." In *Trailblazing in Entrepreneurship: Creating New Paths for Understanding the Field*, 1st Edition, 257–85. Palgrave Macmillan. <https://doi.org/10.1007/978-3-319-48701-4>.
- Shepherd, Dean A., Holger Patzelt, and Robert A. Baron. 2013. "'I Care about Nature, but... Disengaging Values in Assessing Opportunities That Cause Harm.'" *Academy of Management Journal* 56 (5): 1251–73. <https://doi.org/10.5465/amj.2011.0776>.
- Simpeh, Kwabena Nkansah. 2011. "Entrepreneurship Theories and Empirical Research : A Summary Review of the Literature." *European Journal Of Business and Management* 3 (6): 1–9.
- Sipe, Lori J. 2017. "Leadership, Innovation Outputs, and Business Performance: A Mixed Methods Study of Senior Managers in the Attractions Industry." *International Journal of Hospitality and Tourism Administration* 19 (4): 440–63. <https://doi.org/10.1080/15256480.2017.1348922>.
- Skålén, Per, Johanna Gummerus, Catharina von Koskull, and Peter R. Magnusson. 2015. "Exploring Value Propositions and Service Innovation: A Service-Dominant Logic Study." *Journal of the Academy of Marketing Science* 43 (2): 137–58. <https://doi.org/10.1007/s11747-013-0365-2>.
- Slavec, Alenka, and Mateja Drnovsek. 2012. "A Perspective on Scale Development in Entrepreneurship Research." *Economic and Business Review* 14 (2): 39–62. <http://www.ebrjournal.net/ojs/index.php/eb/article/view/85>.
- Smith, Brett R., Jill R. Kickul, and Wilson Fiona. 2010. "Entrepreneurial Opportunity Evaluation: A Discrete Choice Analysis of Financial and Social Entrepreneurial Opportunity Attributes." In *Values and Opportunities in Social Entrepreneurship*, edited by Robinson J. Hockerts K., Mair J., 121–40. London: Palgrave Macmillan. https://doi.org/https://doi.org/10.1057/9780230298026_7.
- Smith, Claudia, J. Brock Smith, and Eleanor Shaw. 2017. "Embracing Digital Networks: Entrepreneurs Social Capital Online." *Journal of Business Venturing* 32 (1): 18–34. <https://doi.org/10.1016/j.jbusvent.2016.10.003>.
- Sölvell, Ingela. 2017. "Managers' Silent Whisper Innovation Involvement and Role-Modeling in Service Firms." *European Journal of Innovation Management* 21 (1): 2–19.

<https://doi.org/10.1108/EJIM-02-2017-0020>.

Sonenshein, Scott. 2014. "How Organizations Foster the Creative Use of Resources."

Academy of Management Journal 57 (3): 814–48.

<https://doi.org/10.5465/amj.2012.0048>.

Song, Yang. 2015. "From Offline Social Networks to Online Social Networks: Changes in Entrepreneurship." *Informatica Economica* 20 (2/2015): 120–33.

<https://doi.org/10.12948/issn14531305/19.2.2015.12>.

Srinivasan, R, and C P Lohith. 2017. *Strategic Marketing and Innovation for Indian MSMEs*.

1st Editio. India Studies in Business and Economics. Springer Singapore.

<https://books.google.com.gh/books?id=r-1yDgAAQBAJ>.

Sullivan, Diane M., and Cameron M. Ford. 2014. "How Entrepreneurs Use Networks to Address Changing Resource Requirements during Early Venture Development."

Entrepreneurship: Theory and Practice 38 (3): 551–74.

<https://doi.org/10.1111/etap.12009>.

Sussan, Fiona, and Zoltan J. Acs. 2017. "The Digital Entrepreneurial Ecosystem." *Small*

Business Economics 49 (1): 55–73. <https://doi.org/10.1007/s11187-017-9867-5>.

Taherdoost, Hamed. 2018. "Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research." *SSRN Electronic Journal* 5 (January 2016): 18–27.

<https://doi.org/10.2139/ssrn.3205035>.

Tang, Jintong, K. Michele Micki Kacmar, and Lowell Busenitz. 2012. "Entrepreneurial Alertness in the Pursuit of New Opportunities." *Journal of Business Venturing* 27 (1):

77–94. <https://doi.org/10.1016/j.jbusvent.2010.07.001>.

Tata, Amulya, Daniella Laureiro Martinez, David Garcia, Adrian Oesch, and Stefano Brusoni. 2017. "The Psycholinguistics of Entrepreneurship." *Journal of Business*

Venturing Insights 7: 38–44. <https://doi.org/10.1016/j.jbvi.2017.02.001>.

Tilson, David, Kalle Lyytinen, and Carsten Sørensen. 2010. "Digital Infrastructures: The Missing IS Research Agenda." *Information Systems Research* 21 (4): 748–59.

<https://doi.org/10.1287/isre.1100.0318>.

Tippmann, Esther, Pamela Sharkey Scott, and Andrew Parker. 2017. "Boundary Capabilities in MNCs: Knowledge Transformation for Creative Solution Development." *Journal of*

Management Studies 54 (4): 455–82. <https://doi.org/10.1111/joms.12253>.

- Upton, John W., Naga Lakshmi Damaraju, Jonathan R. Anderson, and Jay B. Barney. 2017. "Strategic Networks of Discovery and Creation Entrepreneurs." *European Management Journal* 35 (3): 198–210. <https://doi.org/10.1016/j.emj.2017.01.001>.
- Valliere, Dave. 2013. "Towards a Schematic Theory of Entrepreneurial Alertness." *Journal of Business Venturing* 28 (3): 430–42. <https://doi.org/10.1016/j.jbusvent.2011.08.004>.
- Vasilchenko, Elena, and Sussie Morrish. 2011. "The Role of Entrepreneurial Networks in the Exploration and Exploitation of Internationalization Opportunities." *Journal of International Marketing* 19 (4): 88–105. <https://doi.org/10.1509/jim.10.0134>.
- Ven, Andrew H. Van de, Harry J. Sapienza, and Jaume Villanueva. 2007. "Entrepreneurial Pursuits of Self- and Collective Interests." *Strategic Entrepreneurship Journal* 1 (3–4): 353–70. <https://doi.org/10.1002/sej>.
- Venkataraman, S. 1997. "The Distinctive Domain of Entrepreneurship Research." *Advances in Entrepreneurship, Firm Emergence and Growth* 3: 119–38. <https://doi.org/10.2139/ssrn.1444184>.
- Venkataraman, Sankaran, Saras D. Sarasvathy, Nicholas Dew, and William R Forster. 2012. "Whither the Promise? Moving Forward with Entrepreneurship as a Science of the Artificial." *Academy of Management Review* 37 (1): 21–33. <https://doi.org/10.5465/amr.2011.0079>.
- Vissa, Balagopal, and Suresh Bhagavatula. 2012. "The Causes and Consequences of Churn in Entrepreneurs' Personal Networks." *Strategic Entrepreneurship Journal* 6 (3): 273–89. <https://doi.org/10.1002/sej.1138>.
- Wang, Chao-shih, David D. Van Fleet, and Ashok K. Mishra. 2017. "Food Integrity: A Market-Based Solution." *British Food Journal* 119 (1): 7–19. <https://doi.org/10.1108/BFJ-04-2016-0144>.
- Welter, Friederike, Ted Baker, David B. Audretsch, and William B. Gartner. 2017. "Everyday Entrepreneurship—A Call for Entrepreneurship Research to Embrace Entrepreneurial Diversity." *Entrepreneurship: Theory and Practice* 41 (3): 311–21. <https://doi.org/10.1111/etap.12258>.
- Wood, Matthew S., and Alexander Mckelvie. 2015. "Opportunity Evaluation as Future Focused Cognition: Identifying Conceptual Themes and Empirical Trends." *International Journal of Management Reviews* 17 (2): 256–77.

<https://doi.org/10.1111/ijmr.12053>.

Wood, Matthew S., Alexander McKelvie, and J. Michael Haynie. 2014. "Making It Personal: Opportunity Individuation and the Shaping of Opportunity Beliefs." *Journal of Business Venturing* 29 (2): 252–72. <https://doi.org/10.1016/j.jbusvent.2013.02.001>.

Wood, Matthew S., and William McKinley. 2010. "The Production of Entrepreneurial Opportunity: A Constructivist Perspective." *Strategic Entrepreneurship Journal* 4 (1): 66–84. <https://doi.org/10.1002/sej.83>.

Wood, Matthew S., and David W. Williams. 2014. "Opportunity Evaluation as Rule-Based Decision Making." *Journal of Management Studies* 51 (4): 573–602. <https://doi.org/10.1111/joms.12018>.

World Economic Forum. 2015. "Leveraging Entrepreneurial Ambition and Innovation : A Global Perspective on Entrepreneurship , Competitiveness and Development." 2015. http://www3.weforum.org/docs/WEFUSA_EntrepreneurialInnovation_Report.pdf%5Cncontact@weforum.org.

Xie, Qing. 2016. "Research Design and Methods." In *Technical and Vocational Education and Training*, 22:99–116. https://doi.org/10.1007/978-3-319-30157-0_5.

Xu, Weiai (Wayne), and Gregory D. Saxton. 2019. "Does Stakeholder Engagement Pay Off on Social Media? A Social Capital Perspective." *Nonprofit and Voluntary Sector Quarterly* 48 (1): 28–49. <https://doi.org/10.1177/0899764018791267>.

Yu, Bo, Shengbin Hao, David Ahlstrom, Steven Si, and Dapeng Liang. 2014. "Entrepreneurial Firms' Network Competence, Technological Capability, and New Product Development Performance." *Asia Pacific Journal of Management* 31 (3): 687–704. <https://doi.org/10.1007/s10490-013-9365-5>.

Zheng, Binbin, and Mark Warschauer. 2015. "Participation, Interaction, and Academic Achievement in an Online Discussion Environment." *Computers and Education* 84: 78–89. <https://doi.org/10.1016/j.compedu.2015.01.008>.

Zikmund, W., Babin, B. 2007. *Exploring Marketing Research. Cengage Learning*. 9th ed. Mason, Ohio: Neil Marquardt.

Zikopoulos, Paul, Dirk DeRoos, Krishnan Parasuraman, Thomas Deutsch, David Corrigan, and James Giles. 2013. *Harness_the_Power_of_Big_Data.Pdf.Crdownload*. 1st Editio. The McGraw-Hill Companies.

8 APPENDIX

Instructions, scale anchors, and items for opportunity evaluation and online social interaction

Instructions: Ask participants to think about any current business opportunity they are considering or have pursued in the recent past or could consider venturing into. With that in mind, participants should answer the following questions

Opportunity Evaluation Scale

Factor 1- Factors Affecting the process of Opportunity Evaluation

B7- Please complete the table below indicating in each session what influenced the decision of

A. Your initial business model

B. Current business model

A. Influence on initial Business Model	Percent Time	
Speaking with potential customers		Enter a number 1-100
Speaking with friends and family		Enter a number 1-100
Social media		Enter a number 1-100
Desk Research		Enter a number 1-100
B. Influence on the current business model	Percent Time	
Customer feedback		Enter a number 1-100
Investor feedback		Enter a number 1-100
Friends and Family feedback		Enter a number 1-100
Social Media		Enter a number 1-100
Desk Research		Enter a number 1-100

Factor 2 – The effect of Opportunity Evaluation

B3 - The product/service that we now provide is substantially different than we first imagined.

Scale Anchor : 1 = Not different 2=Slightly different 3=Different 4=Very Different
5= Extremely Different

B4 - How many times did you make a major change to your business model?

Scale Anchor: 3 times [] Less than 3 times [] More than 3 times []

B5 – How many times did you make a minor adjustment (pricing change, product design change, etc)?

Scale Anchor : 3 times [] Less than 3 times [] More than 3 times []

B6 - How would you describe your idea refinement?

Gradual [] Incremental [] Decrease over time [] Dramatic []

C11- How many times did you make a major change to your business model after receiving feedback from customers or potential investors?

3 times [] Less than 3 times [] More than 3 times []

C12 - How many times did you make a minor adjustment (pricing change, product design change, etc) as a result of feedback from potential customers or investors?"

3 times [] Less than 3 times [] More than 3 times []

Online Social Interaction Scale

Scale Anchor: 1= Not at all 2=Rarely 3=Sometimes 4=Always 5= Almost Always

1. Scanning the environment using social media for new opportunities really excites me.
2. I exchange information with and learn from others online
3. I exchange ideas with others online to analyze and solve problems
4. I have successfully acquired professional information needed for the new business (e.g. research and development information for new products of services) from online social interaction.
5. I have been capable of acquiring marketing information for the new business (e.g. market trends, competition, and sources of supplies) from online social interaction.
6. I get most of our valuable information on customer needs and trends from online social interaction.
7. Because I interact online we are able to obtain a tremendous amount of technical know-how online
8. I rely heavily on online market information to make decisions
9. I use online market information to solve specific problems.
10. My online contacts are very important for my work

The existing entrepreneurial measuring instruments from which the questions are taken or adapted can be found in Coviello, N. & Yli-Renko (2016), are as follows:

- The Effectiveness in Acquiring New Information i.e. the entrepreneur's ability to gain access to pertinent information (Baron & Tang 2009). This is a three-item measure with a seven-point scale. It has a Cronbach alpha value of 0.81 and SD is equal to 1.24 (Coviello, N. & Yli-Renko, 2016).
- The Passion For Inventing i.e. the entrepreneur's passion for undertaking activities involving looking new market opportunities and creating new products and/or services. (Cardon et al. 2012). It has a 5 point Likert scale and a Cronbach's alpha was 0.85 which indicates internal consistency. Its item to total correlations were above 0.65. The mean score for 'intense positive feeling – inventing' was 4.08 (SD= 0.69) (Coviello, N. & Yli-Renko, 2016)
- Causation i.e. an entrepreneurial approach to uncertainty where an entrepreneur already has a desired outcome that he wishes to achieve and focuses on choosing between various options to achieve that outcome (Chandler et al. 2011). Measurements here are done on a five point Likert scale. The standard deviation for 'Causation' was 3.32 (SD = 0.85) (Coviello, N. & Yli-Renko, 2016).
- Effectuation i.e. an entrepreneurial approach to uncertainty where an entrepreneur has to choose a desired outcome that can results from a using a variety of means (Chandler et al. 2011). It is a multi-dimensional construct and all items are measured on a five point Likert scale. The mean scores for each dimension was 'experimentation' = 2.55 (0.94), 'flexibility' = 3.98 (0.64), 'affordable loss' = 3.48 (1.11), 'pre-commitments' = 3.04 (0.88) (Coviello, N. & Yli-Renko, 2016).
- Acknowledge The Unexpected Vs. Overcome The Unexpected is one element that differentiates effectuation from causation (Brettel et al. 2012) with a six item scale that and a six-point, forced-choice Likert scale contrasting effectual and causal perspectives. The mean score was 3.13 (Coviello, N. & Yli-Renko, 2016).
- Effectuation vs. Causation: Means-Driven vs. Goal-Driven is also an element that differentiates effectuation and causation (Brettel et al. 2012). It employs a six-point, forced-choice Likert scale differentiating between effectual and causal views and has a mean score of 3.13 (Coviello, N. & Yli-Renko, 2016)
- Interaction with Foreign Market Players i.e. measures the level of interaction of a firm with its stakeholders such as customers and suppliers (Schwens & Kabst 2011). This is a three-item measure with a five-point Likert scales. Its scale had a Cronbach alpha of 0.662 (Coviello, N. & Yli-Renko, 2016).
- Managerial Network: Strength of Instrumental Ties. i.e. the ties that are formed during work and assist in the transfer of necessary resources including financial resources (Manev and Stevenson, 2001). The Strength of Instrumental Ties is the total mutual amount of time, the strength of emotions and intimacy that characterize a relationship. It consists of two items with a five point liker scale and has a Cronbach scale of 0.73 (Coviello, N. & Yli-Renko, 2016).
- Social Interaction refers to the rate and structure of social interactions between firms Social capital is a multidimensional construct - firms' structural dimension of social capital which is the social interactions between buyers and suppliers, cognitive

dimension of social capital which is the shared values between buyers and suppliers, and relational dimension of social capital which is the degree of identification based trust (Wang et al. 2013). The measure uses two items with a seven point Likert scale. The mean score was 3.99 and standard deviation of 1.88 (Coviello, N. & Yli-Renko 2016)

- Social Interaction refers to the degree of social relationships between the firm and the customer (Yli-Renko et al. 2001)
- Knowledge Acquisition i.e. knowledge acquired through learning (Yli-Renko et al. 2001). This is a four item measure with a seven point Likert scale. The mean score in this was 3.39 and a standard deviation of 1.46 (Coviello, N. & Yli-Renko, 2016).
- Market Information Use i.e. the extent to which a firm uses market information during decision making and evaluating outcomes as well as the extent to which information is shared for implementation of decisions (Parry & Song 2010). This is a five item measure with a seven point Likert scale. Cronbach alpha was 0.85 and a mean score of 4.50 (Coviello, N. & Yli-Renko, 2016)
- New Process Creativity i.e. the extent which a firm uses information to develop new products (Rindfleisch & Moorman 2001). This has a seven point item measure and a seven point semantic differential scale. The mean was 4.81 with a standard deviation of 1.38 (Coviello, N. & Yli-Renko, 2016).
- Process Information Acquisition. i.e. the amount of information obtained from others involved in a new product development relating to processes and procedures. (Rindfleisch & Moorman 2001). A seven point Likert scale is employed to answer the questions on this five item measure. The mean score of this measure was 2.98 and standard deviation was 1.41 (Coviello, N. & Yli-Renko, 2016).
- Product Information Acquisition i.e. .e. the amount of information obtained from others involved in a new product development relating to the features of the product (Rindfleisch & Moorman 2001). It's a five item measure using seven point Likert scales. The mean was 3.45 and the standard deviation was 1.44 (Coviello, N. & Yli-Renko, 2016).
- Team Information Exchange i.e. the exchange of information among team members (Gong et al. 2013). This consists of two items and questions are answered using a seven point Likert scale. Its Cronbach's alpha was 0.90, the mean score was 5.05 with a standard deviation of 0.67 (Coviello, N. & Yli-Renko, 2016).
- Network Capabilities i.e. the capability of being able to develop relationships and gain access to resources from these relationships (Walter et al. 2006). This is a 19-item formative measure with four components, namely coordination activities, relational skills, partner specific knowledge and internal communication all measured on a seven point scale. Cronbach's alpha for each of the four components were as follows: 0.87 for coordination activities, 0.90 for relational skills, 0.86 for partner specific knowledge and 0.85 for internal communication (Coviello, N. & Yli-Renko, 2016)
- The measure for resource availability was adapted from Hughes et al. (2015), specifically slack resource availability, and slightly modified to suit our purpose.