

**An Investigation of Entrepreneurial Opportunity:
Evidence from China**

By Zhi Li

UNIVERSITY OF
BIRMINGHAM

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Abstract:

Entrepreneurial opportunity has been the key concept within the study of entrepreneurship because without an opportunity to target, entrepreneurial activities cannot take place. Recent entrepreneurship researchers have shifted attention away from identifying the individuals who are more likely to become entrepreneurs and their characteristics towards understanding the nexus of opportunities and individual entrepreneurs. Although there are several theories that attempt to delineate entrepreneurial opportunity and explain its formation (e.g. discovery theory, creation theory), the nature of entrepreneurial opportunities is still largely elusive owing to the fragmentation and conflicting nature of these theories and the lack of convincingly empirical evidence.

This research aims to develop a better understanding of entrepreneurial opportunity by synthesising the existing theories and reducing the fragmentation and conflict between them. By examining the actions entrepreneurs take in their pursuit of opportunities, the study of opportunity, which has stagnated at the theoretical level, becomes empirically accessible. A questionnaire is designed to capture entrepreneurs' understandings of opportunities from various theoretical perspectives and to evaluate the actions entrepreneurs actually take. A hundred and sixty validated responses have

been obtained from Chinese entrepreneurs who have been actively involved in entrepreneurial activities within the last two years. The analysis reveals that the entrepreneurs' perception of the nature of opportunities is significantly related to the certain type of entrepreneurial actions they have taken. The empirical evidence makes a contribution to advancing and improving the existing theories by proving and disproving the hypotheses generated from them.

The thesis is structured as follows: after the brief introduction, Chapter Two will systematically review the current research on entrepreneurial opportunities. From the comparison and synthesis of previous work, a research gap will be identified and thus research questions will be proposed in Chapter Three. A complete conceptual framework to access the research question will be built as well in this chapter. Chapter Four will be concerned with the research design and research methodology issues. The analysis and discussion will be presented in the Chapter Five, while the final chapter will produce a conclusion to the whole research. Some implications and limits will be presented there as well.

Key Words: Entrepreneurship, Entrepreneurial Opportunity, Entrepreneurial Actions.

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CHAPTER 1

INTRODUCTION

Entrepreneurial activity is one of the major engines of economic growth and accounts for the majority of new business development and job creation in many countries. For this reason, the field of entrepreneurship has received a significant level of attention from policy makers, entrepreneurs and scholars. In academia, entrepreneurship is one of the fastest growing fields within economics, management and finance (Klein, 2008). Three reasons why it is worthwhile to study entrepreneurship have been suggested by Shane and Venkataraman (2000, pp.219). Firstly, since considerable technical information is embodied in products and service, entrepreneurship is a method through which societies transform technical breakthrough into products and services. Secondly, entrepreneurship is a mechanism through which inefficiency in an economy is identified and improved. Thirdly, entrepreneurially oriented innovation is a significant engine driving social change.

Entrepreneurial opportunity has been the key concept within the study of entrepreneurship because without an opportunity to target, entrepreneurial activities cannot take place. (Venkataraman, 1997; Shane and Venkataraman, 2000; Dimov, 2007b, 2011; McMullen et al., 2007; Companys and McMullen, 2007; Casson and

Wadeson, 2007; Plummer et al., 2007; Smiths etc., 2009) Recent entrepreneurship researchers have shifted attention away from identifying the individuals who are more likely to become entrepreneurs and their characteristics, towards understanding the nexus of opportunities and individual entrepreneurs. (Shane, 2003)

Despite the efforts taken to explore the nature of entrepreneurial opportunity, there is hardly any consensus on the nature of opportunity. Some researchers argue that the subjective or socially constructed nature of opportunity makes it impossible to separate opportunity from entrepreneurs. (Klein, 2008; Gartner et al., 2003) On the other hand, some research argues that entrepreneurial opportunity is an objective construct waiting to be discovered by alert entrepreneurs. (Gregoire et al. 2010; Arentz, et al., 2013; Ardichvili et al., 2003; Gaglio and Katz, 2001; Tang et al., 2012)

In addition to the debate about the ontological issue of opportunity, there are some other fundamental disagreements about the nature of opportunity. One of the most debated areas is about the origins of entrepreneurial opportunity. One stream of research, namely the Schumpeterian view, argues that entrepreneurial opportunities come from those changes that disequilibrate an economy. Whereas the alternative research stream, namely the Kirznerian view, suggests that opportunities exist as the result of equilibrating force that brings the market closer to the equilibrium.

While the research on the nature of entrepreneurial opportunity is hindered by the fragmentation of theoretical framework and empirically accessible approach, some pioneering researchers (Dimov, 2011; McMullen et al., 2007) suggest that: an opportunity is meaningful only if it has been recognized, discovered or created and evaluated”; in short, an opportunity has to be acted upon by entrepreneurial actions. In other words, opportunity is essentially presented through entrepreneurial actions. Thereafter the abstract concept of opportunity becomes accessible and concrete through the examination of the actual actions entrepreneurs have taken in the pursuit of opportunity.

Despite the importance of entrepreneurial opportunity, existing research into the subject is inadequate and there are two reasons for this deficiency. Firstly, the current research into entrepreneurial opportunities is severely fragmented by different research streams. (Hansen, et al., 2011; McMullen et al., 2007) This leads to a lack of generally recognized and agreed framework or conceptualization working as the foundation for further advances. Secondly, most works on entrepreneurial opportunity, with the exception of a few (Tang et al., 2012; Arenius and Minniti, 2005; Dimov, 2010; Mueller et al., 2012; Arentz, et al., 2013), stagnate at a theoretical level without convincing support from empirical evidence (Eckhardt and Shane, 2003, Venkataraman and Shane, 2000; Shane, 2003; Alvarez and Barney, 2007a, 2007b; Ardichvili et al., 2003; Dimov, 2011; Dutta and Crossan, 2005; Murphy, 2011). This research is underpinned by the motivation to generate some improvements in these two aspects and thus advance the research on entrepreneurship.

1.1 Research Questions

1.1.1 Main research Question

At the very beginning of this study, our research is concerned with the entrepreneurial opportunity. Thereafter, the general research question asked is:

“What is an entrepreneurial opportunity?”

To locate an answer, the literature concerning entrepreneurship must be explored, especially literature focusing on the research about entrepreneurial opportunity. In previous research scholars from various fields, such as psychology (Gaglio and Katz, 2001; Baron and Ensley, 2006; Fitzsimmons et al, 2011; Gregoire et al., 2010), economics (Klein, 2008; Holcombe, 2003; Loasby, 2007; Casson and Wadeson, 2007), strategic management (Plummer et al., 2007) and of course, entrepreneurship (Shane, 2000; Venkataraman and Shane, 2000; Alvarez and Barney, 2007b, Dimov, 2011) have all made some efforts to investigate the nature and exploitation process of entrepreneurial opportunity.

1.1.2 Research Questions

In the study of the nature of entrepreneurial opportunities, some pioneering researchers (Dimov, 2007, 2011; McMullen and Shepherd, 2006; Klein, 2008) have emphasized the important role of the actions entrepreneurs have taken to pursue

opportunities. The reason for the increasing attention on entrepreneurial action is because it has been widely realized that “entrepreneurship requires action” (McMullen and Shepherd, 2006) and opportunities are expressed in action (Dimov, 2011). An idea or thought cannot be labelled as an “opportunity” unless it is acted upon. To be an entrepreneur, one has to act on the possibility that one has identified an opportunity worth pursuing (McMullen and Shepherd, 2006). Through the examination of the forms and patterns of the action entrepreneurs have taken, the explanation of entrepreneurial opportunity becomes empirically accessible and does not have to stagnate at a theoretical level.

By realising the importance of entrepreneurial action, we develop a further research question to integrate actions into our research. This research question is:

“What is the relationship between the nature of entrepreneurial opportunity and the actions to pursue it?”

A closer look at this research question would reveal that we are interested in the relationship between two constructs: the nature of entrepreneurial opportunity and entrepreneurial action. To examine the relationship between two constructs, we firstly have to adumbrate these two constructs. Thus, two subresearch questions are proposed:

- 1. What is the nature of entrepreneurial opportunity?**
- 2. What is the role of entrepreneurial action in the pursuit of opportunity?**

Combined with the question regarding the relationship, there are three questions we plan to investigate in total.

1.2 Research Objectives

This research aims to gain a better understanding of entrepreneurial opportunity by identifying its attributes and characteristics. As suggested by pioneering researchers(Dimov, 2011; McMullen et al., 2007), the examination of entrepreneurial activities is the key to accessing the rather abstract concept of entrepreneurial opportunity. Therefore, this research also aims to discover the patterns of various types of entrepreneurial activities and their relationship with opportunity. Successfully answering the research questions will reduce the current fragmentation in the theories regarding entrepreneurial opportunity and will provide empirical evidence to the research stream.

1.3 Overview of Research Process

A worldview of pro-positivism in tandem with social constructivism has been held to view the social world and research field. By taking into account the nature of the research questions, a quantitative research strategy is preferred as the appropriate approach to access the research questions. Through the examination and comparison between different research designs, the cross-sectional design is regarded as most apposite and the most practical one to unambiguously and satisfactorily answer the

research questions. Self-completion questionnaires are used as the method for data collection. Registered members in one of the four most vibrant entrepreneurial associations, who are actively involved in entrepreneurial activities in the past two years, are targeted as the research samples.

The whole research process is illustrated in Fig1-1 and the research logic is illustrated in Fig1-2.

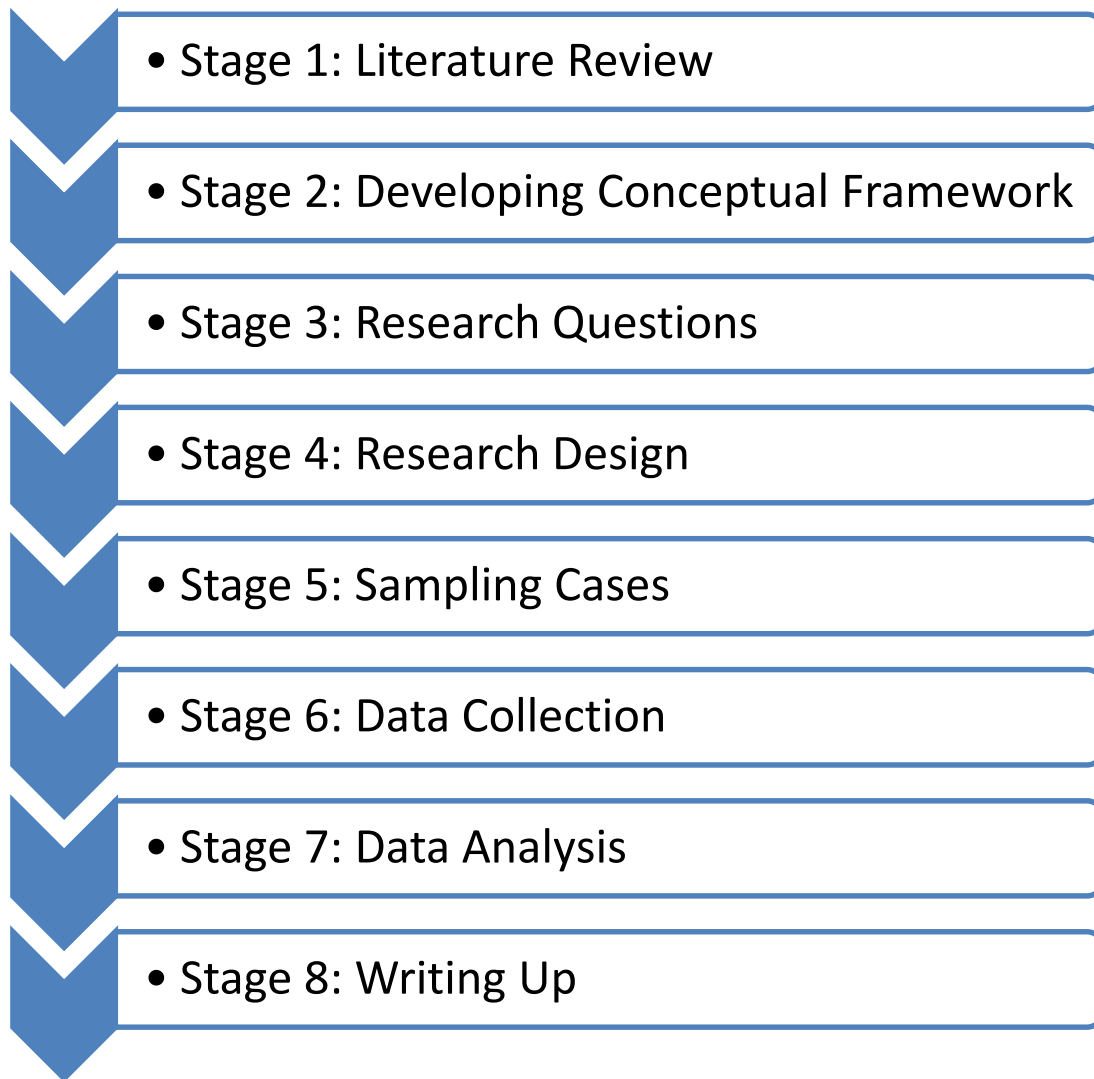


Figure 1-1: Research Process (Source: Bryman, 2012)

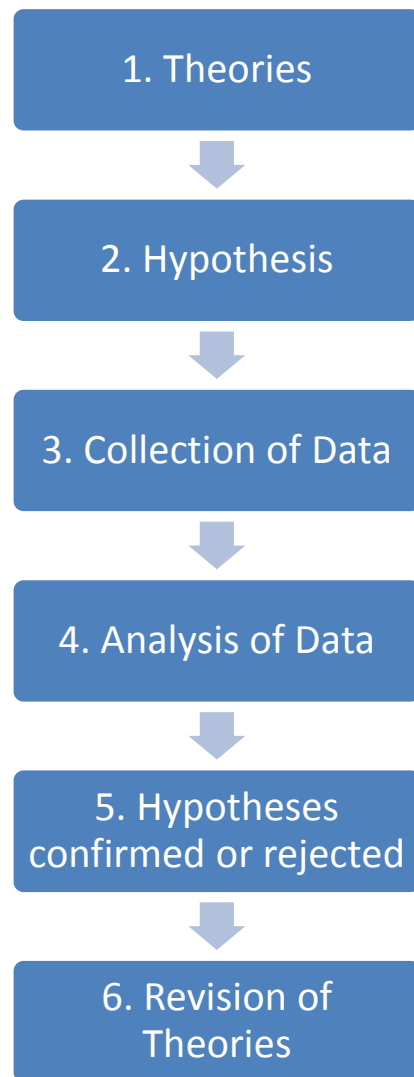


Figure 1-2: Research Logic (Source: Bryman, 2012)

1.4 Structure of the Thesis

This thesis contains six chapters overall, including an introduction, a comprehensive literature review chapter, an introduction of the conceptual framework, a research methodology chapter, a chapter of data analysis and discussion and a conclusion.

Chapter 2, the literature review follows this chapter (the introduction) and consists of three main parts. The first part (section 2.1) concerns the general concept of entrepreneurship. Section 2.2 will systematically review the theoretical and empirical studies of entrepreneurial opportunity. Entrepreneurial actions will be critically reviewed in section 2.3.

Chapter 3 discusses the research questions and presents the conceptual framework we built to access the research questions.

Chapter 4 is about the research methodological issues. In this chapter the whole research process and how the research is conducted will be presented. The rationale for our selection for this research process will be discussed into detail, including the research philosophy, research strategy research design and research methods. All of the research components (section 4.5) will be covered in this chapter as well.

Chapter 5 provides the empirical results based on quantitative analyses. The analysis includes factor analysis exploring the nature of entrepreneurial opportunity and patterns of entrepreneurial actions. In addition, the relationship between them are systematically examined and discussed in this chapter as well.

Finally, Chapter 6 concludes the main findings. The chief contributions and practical implications follow the summarized findings. In addition, the limitations of our study, as well as the inspiration for future research will be discussed in this chapter.

CHAPTER 2

LITERATURE REVIEW:

ENTREPRENEURSHIP, ENTREPRENEURIAL OPPORTUNITY AND ENTREPRENEURIAL ACTIONS

2.1 Entrepreneurship

For both new start-up ventures and existing firms, entrepreneurship spurs business expansion, technology advancement and wealth creation. Entrepreneurial activity is one of the major engines of economic growth and accounts for the majority of new business developments and job creation in many countries. For this reason, the field of entrepreneurship has received huge amount of attention from policymakers, entrepreneurs and scholars. In academia, entrepreneurship is one of the fastest growing fields within economics, management and finance (Klein, 2008) In Shane and Venkataraman's seminal paper (2000, pp.219), they provide three key reasons why it is worthwhile to study entrepreneurship. First, since large quantities of technical information are embodied in products and services, entrepreneurship is an approach by which technical breakthrough could be transformed into products and services. Secondly, inefficiency in an economy is identified and improved by

entrepreneurship. Thirdly, entrepreneurially driven innovation is a significant engine driving social changes.

2.1.1 Approaches of Entrepreneurship

The research into entrepreneurship has decades of history, being studied by economists, management scholars, sociologists and psychologists. To organize the various streams of entrepreneurship literature, as argued by Klein, (2008, pp176) it is helpful to differentiate three perspectives of entrepreneurship, namely: “occupational, structural and functional entrepreneurship”.

The occupational approach defines entrepreneurship simply as starting own business or self-employment and treats the individuals as the core unit of analysis. (Parker, 2004; Klein, 2008) Scholars in this approach argue that particular individuals have certain characteristics such as an entrepreneurial mind-set that enables them to identify opportunities overlooked by others. Indeed, the effort to understand how entrepreneurs differ from the general population in terms of various personal characteristics has a long tradition in entrepreneurship research. Although imbued with criticism, it is now generally accepted that some personalities could be used as the predictors of the presence of entrepreneurs. Some factors have received the most research attention, such as need for achievement, locus of control, risk propensity, tolerance for ambiguity, self-efficacy and etc. (Dimov, 2007b; Hmieleski and Baron, 2008; Tumasjan, A. and R. Braun, 2012)

The firm or industry is regarded as the unit of analysis in the structural approach on entrepreneurship. This approach conceptualise entrepreneurship as a special structure in the market. (Alvarez and Busenitz, 2001)

In the functional approach, scholars conceptualise entrepreneurship as a function, rather than the employment status or a type of market structure, as in the occupational and structural approaches. The entrepreneurial functions have been characterized in various ways such as judgement, innovation, adaption, alertness and coordination etc. In each of the cases above, the functional concepts of entrepreneurship exist independently from the employment status or the certain type of market structure.

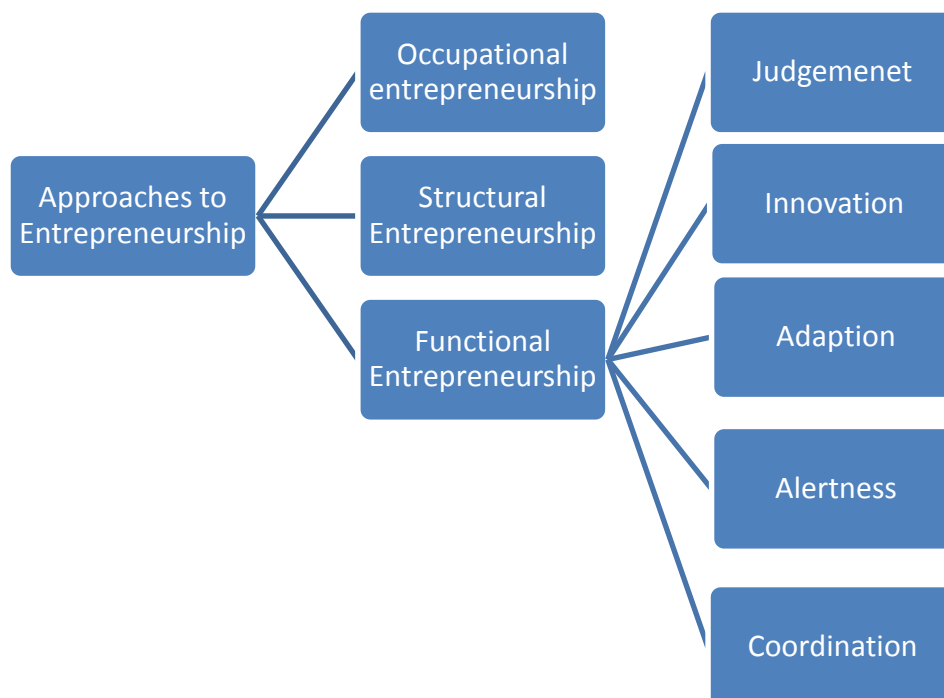


Figure 2-1: Approaches to Entrepreneurship

2.1.2 Definition of Entrepreneurship

Murphy (2011) posits the importance of conceptual foundation in entrepreneurship research. He gives conceptual foundation the definition as “an underlying set of general assumptions and basic premises about research phenomena in a given domain”. (Murphy , 2011, pp.360) A conceptual foundation should guide a set of theories. It is general and supports multiple streams of inquiry but without it, too many extraneous concepts may be brought in.

Similarly, Shane and Venkataraman (2000, p218) also argue that it is necessary to build a clear conceptual framework in the field of entrepreneurship. They argue rather than focusing on the relative performance of individuals or firms in the context of small of new business, like what the strategic management scholars are doing, entrepreneurship scholars should focus attention on the central questions of entrepreneurship: “(1) why, when, and how opportunities for the creation of goods and services come into existence; (2) why, when, and how some people and not others discover and exploit these opportunities; and (3) why, when, and how different modes of action are used to exploit entrepreneurial opportunities.” (Shane, 2000, p218) In Shane and Venkataraman’s (2001, p13) dialogue with Zahra and Dess (2001), Shane and Venkataraman re-emphasize these points once more.

To provide a conceptual framework, Venkataraman and Shane explicitly defines entrepreneurship as:

“Entrepreneurship is an activity that involves the discovery, evaluation and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, processes, and raw materials through organizing efforts that previously had not existed.” (Shane and Venkataraman, 2000, pp.218; Shane, 2003, pp.5)

Among the extensive literature on entrepreneurship, this definition of entrepreneurship was the one most frequently cited and applied by later researchers (e.g. McMullen et al., 2007, p.273; Companys et al., 2007).

Briefly, the field of entrepreneurship involves three aspects which are: “(1) the sources and existence of opportunities; (2) the process of discovery, evaluation, and exploitation of opportunities; and (3) the set of individuals who discover, evaluate, and exploit the opportunities.” (Shane, 2000, pp.218)

Under Shane and Venkataraman’s (2000) framework, entrepreneurship involves the nexus of two subjects of interest: the existence of potential opportunities and the presence of individuals who are practicing entrepreneurship. In Shane’s (2003) book, he points out that entrepreneurial activities depend upon the mutual effect between the nature of opportunities and the characteristics of the enterprising individuals. The

interaction is named the “Individual-Opportunity Nexus” (ION). Without the consideration of the characteristics of the opportunity, the entrepreneurship research is one-legged. The empirical studies on the attributes and personalities that differentiate entrepreneurs from non-entrepreneurs are questionable, because these attributes/personalities do not take the nature of opportunity into account (Shane and Venkataraman, 2000). By adopting the ION perspective, the processes of the discovery and exploitation of opportunities, the acquisition of resources, entrepreneurial strategies and the organizing process could be better understood. (Shane, 2003, p9)

From the review on the definition of entrepreneurship above, it is obvious that opportunity is the core element in the study of entrepreneurship. The conception of entrepreneurship is broad, incorporating not only opportunity discovery but also evaluation and exploitation. It is the concept of opportunity that unifies these varied aspects of entrepreneurial functions. (Klein, 2008) As such, we will review the research regarding opportunity in the following section.

2.2 Entrepreneurial Opportunity

Opportunity is the key concept within the study of entrepreneurship. Without an opportunity, there would be no entrepreneurship; without an opportunity to target, entrepreneurial activities cannot take place. Focusing on only the characteristics of individual entrepreneurs and neglecting the nature of opportunities they pursue

leaves the research into entrepreneurship incomplete. Recognizing this reality, recent researchers have shifted attention away from approaches that focus on identifying those individuals who are more likely to become entrepreneurs towards understanding the nexus of opportunities and enterprising individuals. (Eckhardt and Shane, 2003; Short et al, 2010)

2.2.1 Definition of entrepreneurial opportunity

Despite the increasing attention of opportunity as the centre concept of entrepreneurship research, there is little agreement about the definition and the nature of entrepreneurial opportunities.

Based on the seminal work of Casson's (1982), Shane and Venkataraman (2000, p220) define an entrepreneurial opportunity as:

“a situation in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their cost of production.”

Singh (2001) holds the view that an entrepreneurial opportunity should be defined as: “a feasible, profit-seeking, potential venture that provides an innovative new product or service to the market, improves on an existing product/service, or imitates a profitable productive/service in a less-than-saturated market.” (Singh , 2001, pp13)

Being feasible means that the potential venture is possible and the term profit-seeking allow an entrepreneurial opportunity to be defined prior to venture founding and profitability. Singh believes his definition of entrepreneurial opportunity purposely broadens the definition from Shane and Venkataraman by including the opportunity to improve or imitate product/service. (Singh, 2001)

In response to Singh, Shane and Venkataraman argue that there are three flaws in his definition. Firstly, they point out that an entrepreneurial opportunity does not have to be a “new venture”. Although the creation of a new firm is one type of entrepreneurship, entrepreneurial opportunity could also happen within an existing firm. Secondly, entrepreneurial opportunities do not have to take the form of new products or services. New organizing methods or the discovery of new material could also provide the basis for entrepreneurial opportunity. Thirdly, “innovation”, “improvement” or “imitation” are not the only types of entrepreneurial opportunities. Exploitation of market inefficiency or reaction to shifts in the relative costs and benefits of alternative uses for resources could also provide the basis for entrepreneurial opportunities.

To improve the initial definition, Shane (2003) refined this statement by defining an entrepreneurial opportunity in his seminal book “A General Theory of Entrepreneurship” as:

“a situation in which a person can create a new means-ends framework for recombining resources that the entrepreneur believes will yield a profit.”(Shane ,2003, pp18)

Under this definition, Shane and Venkataraman (2000) argue that the entrepreneurial opportunities differ from other market opportunities has potential profit because entrepreneurial opportunities require the discovery of ‘NEW means-ends relationships’ while other market opportunities only has to do with optimization of currently existing means-ends frameworks. (Shane and Venkataraman, 2000; Kirzner, 1997; Companys and McMullen, 2007, pp303; Smith et al, 2009) In this definition, entrepreneurial opportunities are regarded as objective phenomena whose existence is not known by all agents, while the recognition of entrepreneurial opportunities is a subjective process. (Shane and Venkataraman, 2000, pp220)

Although this definition is a rather influential one in current research, the discussion about entrepreneurial opportunity is far from reaching a consensus. There are many different definitions of entrepreneurial opportunity since entrepreneurship scholars hold different perspectives to approaching this issue and from various perspectives scholars explore the nature of entrepreneurial opportunities with different approaches.

For instance, Casson and Wadeson’s (2007) outline of a model that attempts to clarify the role of opportunity in the modern economic theory of the entrepreneur. In this

model, it is argued that “an opportunity is best conceived as a potentially profitable but hitherto unexploited project.”(p. 285-6) In this paper, the authors argue that the concept of opportunity has a close relationship with the concept of a project. A project could be regarded as “a stock of resources committed to a particular use for certain of time”. Whereas, an opportunity is a project that has not been operated but would be profitable if it were exploited successfully. By conceptualizing the opportunity as a project, the cognitive issue in the opportunity recognition process is brought “down to earth”. Thus, an opportunity is defined as “an unexploited project which is perceived by an individual to afford potential benefit.” (Casson and Wadeson, 2007, p298)

Instead of viewing the opportunity as project, Hsieh et al (2007) focus on how entrepreneurs organize to effectively exploit opportunity by relating opportunity discovery to problem solving. The entrepreneur's core duty is to efficiently organize the process of discovering opportunities. An entrepreneur must decide when to use the market to exploit a discovery, in other words, contract out the discovery of opportunities, and when to set up a new company to exploit the discovery. As argued by Hsieh et al (2007), to decide which organizational approach is optimal depends on how complicated the problems are. When the problems have a lower level of complexity, the entrepreneur could organize the process of problem solution via market. As problem complexity increases to intermediate level, the entrepreneur better governs problem solving using authority to direct various aspect of the search.

As the problem complexity continuously increases to a high level, the entrepreneur ideally governs solution search through a consensus organization.

Because of the inconsistency of the conceptualization of entrepreneurial opportunity, it is difficult to generalize conceptual development and empirical findings about entrepreneurial opportunities and opportunity recognition, identification and other opportunity related processes. Theory building is frustrated by the fact that entrepreneurship scholars were not all examining the same theoretical construct. To fix this problem, Hansen et al. (2011) made a summarization of the most adopted definitions of entrepreneurial opportunities from five top entrepreneurship journals¹ and tried to connect previous findings. Among the various kinds of definitions, Hansen et al. point out that it is worth distinguishing entrepreneurial opportunity and opportunity related processes. Furthermore, these definitions ought to be classified into conceptual ones and operational ones. As such, a 2x2 matrix could be made to lead the examination of entrepreneurial opportunity literature. In the table the number in brackets indicates the number of elements found for each definition.)

¹ 1. Entrepreneurship and Regional Development; 2. Entrepreneurship, Theory and Practice; 3. Journal of Business Venturing; 4. Journal of Small Business Management; 5. Small Business Economics

	Conceptual Definition	Operational Definition
Entrepreneurial Opportunity	I (25 elements)	II (12 elements)
Opportunity-Related Processes	III (49 elements)	IV (37 elements)

Table 2-1: Definition of Entrepreneurial Opportunity and Opportunity-Related Process

For the conceptual definition of entrepreneurial opportunity (I), Hansen et al identified 25 key elements used in the previous research. These elements include the entrepreneur, situation, possibilities, product, cognitive processes, and ideas etc. It is obvious that the definition of entrepreneurial opportunity is far from well-established and unanimously agreed. Based on the commonalities of these 25 key elements of definition, Hansen et al (2011, p292) develop six composite definitions of opportunities. Respectively, an opportunity is defined as:

“An opportunity is the possibility of introducing a new product to the market at a profit.

An opportunity is a situation in which entrepreneurs envision or create new means-ends frameworks.

An opportunity is an idea that has developed into a business form.

An opportunity is an entrepreneur's perception of a feasible means to obtain/achieve benefits.

An opportunity is an entrepreneur's ability to create a solution to a problem.

An opportunity is the possibility to serve customers differently and better.” (Hansen et al., 2011, p292)

For the operational definition of entrepreneurial opportunity (II), there are only 12 elements that were used to define it in the empirical research. When comparing the conceptual and operational definition together, it is interesting to find that, (1) 17 elements of the 25 elements (68%) used in conceptual definition of opportunity are not found in the operational definition; and (2) “entrepreneur, possibilities and new business form”, three of the most adopted concepts in the conceptual definition, were not found in operational definition. Hansen et al. (2011) attributes this disconnection between the conceptual and operational definition of entrepreneurial opportunities to the fragmentation of theoretical work and the fact that empirical research on opportunities is not well conceptually grounded.

Facing so many types of definition, Smith et al (2009, p41) and McMullen et al (2007, p279) argue that rather than establishing a consensus of how an entrepreneurial opportunity should be defined (if it is possible), it is important for researchers to find a place on these issues and then develop or choose a clear definition for their own

research. We will look at how the opportunity is defined by scholars holding various perspectives.

2.2.2 The Perspectives to research entrepreneurial opportunity

From the literature on strategic management and entrepreneurship, Companys and McMullen (2007) make a summary and identify three schools concerning the sources and the natures of opportunity: “the economic school, the cultural cognitive school, and the socio-political school”. (Companys and McMullen ,2007, pp. 302-306)

Although each of three schools acknowledges the opportunity as a situation that may generate potential for profit, each school holds different views on the nature and source of the situation.

2.2.2.1 *Economic school*

The core argument the economic school holds is that the entrepreneurial opportunities should be viewed as an objective phenomenon. This school believes that “entrepreneurial opportunities exist as a result of the distribution of information about material resources in society” (Companys and McMullen ,2007, pp.305). This school points out that differences in information regarding economy are the essential element of the existence of entrepreneurial opportunities. In other words, new information related to material resources is the foundation of entrepreneurial opportunities. Thereafter, economic opportunities are defined as “objective

situations that entail material resources and information in the discovery of new value creating, means-ends relationships.”(Comanys and McMullen, 2007, p305)

2.2.2.2 Cultural cognitive school

Opposite to the economic school, entrepreneurial opportunities are viewed as subjective rather than objective in nature by the cultural cognitive school. Supporters of this school argue that the existence of entrepreneurial opportunities depends on the individual entrepreneurs and teams. Entrepreneurial opportunities are not something waiting to be found by entrepreneurs, instead, they are constructed or enacted by the social actors who have different interpretation of the environment and continuously develop the new meanings and interpretations. Those social actors carry out this process by using their cultural and social schema and framework. As such, entrepreneurial opportunities are viewed as subjective in nature and changes in interpretations are viewed as the foundation of entrepreneurial opportunity. To construct and exploit the opportunity, an interpretive process is regarded as essential. Cultural cognitive school define the entrepreneurial opportunities as “subjective situations that require interpretive processes for the enactment of valuable, new means-ends relationships.” (Comanys and McMullen, 2007, p304-6)

2.2.2.3 Socio-political School

According to Comanys and McMullen (2007), the socio-political school’s point of view is combined with the argument from both of the economic and cultural cognitive

school. The socio-political school treats entrepreneurial opportunities as objective phenomena based on network structures, requiring subjective meaning when entrepreneurs need to persuade people for resources. Similar to the economic school, opportunities are considered to be objective in nature. However, being quite different from the economic school, the socio-political school emphasizes on the social network where the opportunities are based instead of material resources. According to this school, opportunities have objective nature because they exist in current network, independently from individual entrepreneurs. At the same time, opportunity also has subjective nature because to exploit the opportunity, it requires the entrepreneurs to adopt social skills to construct a shared interpretation with other people for the sake of resources. Thereafter, socio-political opportunities are defined as “objective situations embedded in existing social structures that actors exploit to create new means-ends relationships.” (Comanys and McMullen, 2007, p304-8)

The view of the social-political school is somewhat consistent with Shane and Venkataraman's (2000, p220) argument that entrepreneurship requires people to have different opinions on the value of resources. Shane and Venkataraman (2000) also argue that entrepreneurial opportunities are objective phenomena that are not known by everyone, however, the recognition of them is a subjective process. Thus, the opportunities are real, independently of the entrepreneurs who perceive them. On the other side, just because opportunities are objective does not mean that everyone could recognize them. Only individuals with appropriate qualities will perceive the opportunity.

Table 2-2 summarizes the key points from these three schools.

Schools	<i>Economics School</i>	<i>Cultural cognitive school</i>	<i>Sociopolitical School</i>
Nature of opportunities	Opportunities are objective in nature awaiting discovery.	Opportunities are subjective in nature, requiring the use of interpretive processes to discover them and to create new social definitions to exploit them.	Opportunities are objective in the sense that their exploitation requires that entrepreneurs behave with considerable political skill to persuade
Sources of entrepreneurial opportunities	Differences in information about material resources.	Changes in interpretations of information.	Entrepreneurs' position in the social network and the interaction with it.

Definition of opportunities	Objective situations that entail material resources and information in the discovery of new value creating, means-ends relationship.	Subjective situations that require interpretive processes for the enactment of valuable, new means-ends relationships	Objective situations embedded in existing social structures that actors exploit to create new means-ends relationships
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Table 2-2: Schools of Entrepreneurial Opportunity

2.2.3 The Nature of Entrepreneurial Opportunities

According to Webster's dictionary, opportunity is defined as "a favourable juncture of circumstances or a good chance for advancement or progress." The Oxford dictionary defines opportunity as "a time or set of circumstances that makes it possible to do something." Since the word 'circumstance' is mentioned in both of the two definitions, to some extent, discussions about the nature of opportunity are discussions about how circumstances external to the entrepreneur are construed. (Gartner et al., 2003, pp104) Circumstance is defined as "a fact or condition connected with or relevant to an event or action" and "a condition, fact, or event accompanying, conditioning, or determining another or the sum of essential and environmental factors" by the Oxford dictionary and Webster's dictionary respectively. The fundamental controversy among scholars who study entrepreneurial circumstances has centred on whether the environment is best understood through an objective or subjective view.

2.2.3.1 Objective View versus Subjective View

From the review of current literature, two contrasting views which are based on different ontological assumption have been identified. It is found that one of the most fundamental disputes about the nature of entrepreneurial opportunities has its roots in ontological issues. Furthermore, the “objectivity” or “subjectivity” of opportunity is one of most important reasons for the confused understanding of the nature and origins of opportunities. (McMullen et al., 2007, pp276) Presenting opportunities as either “concrete realities” or as an “enactment of an entrepreneur’s unique vision” have shaped the two dominant views of the opportunity construct. (Alvarez and Barney, 2007b; Short et al, 2010)

Objective View

The first one regards the entrepreneurial opportunity as an objective reality whose existence or description is not dependent on a situation, environment, or any certain individual. Instead, the opportunity is something existing independently and waiting to be discovered by the observers. This view is rooted in the positivist or realist position.

Shane and Venkataraman (2000), Ardichvili etc. (2003), Gaglio and Katz (2001) and Casson and Wadeson (2007) are some of the foremost proponents of the objective view on entrepreneurial opportunities. Shane and Venkataraman (2000, pp.220)’s definition of entrepreneurial opportunity as “a situation in which a person can create a

new means-ends framework for recombining resources that the entrepreneur believes will yield a profit” is the foundation of the objective view. Casson and Wadeson (2007) also take a strong objective point of view by describing entrepreneurial opportunity as an unexploited yet potentially profitable “project”.

Researches based on objective view of opportunity are usually focusing on exploring factors that enable entrepreneurs to find entrepreneurial opportunities by acknowledging the independence of opportunities. The aim of this kind of research is to instruct entrepreneurship practitioners on how to obtain essential capabilities to identify the potential opportunities. (Dutta and Crossan, 2005). For instance, Ardichvili, etc. (2003), accepting the objective nature of opportunity, propose a theory of opportunity identification process. Entrepreneur’s personal characteristics, social networks, and prior knowledge are identified as preliminary factors of entrepreneurial alertness to the opportunities.

Subjective View

In contrast to the objective view, subjectivism is an alternative stream of research on entrepreneurial opportunities adopting an interpretive or social constructionist perspective on reality. This view suggests that the entrepreneurial opportunity is a subjective reality which is socially constructed or enacted by the entrepreneurs. (Dutta and Crossan, 2005; Companys and McMullen, 2007, Kor et al., 2007) Scholars who hold subjective view question the objective physical environment as the determinant of

social phenomena. (Kirzner, 1995, pp.11) Without denying the objective existence of the reality, the subjective view argues that social phenomena would be better researched if the scholars take into account of subjective mental states of the social actors. (Dutta and Crossan, 2005, pp. 432)

Klein (2008) takes a strong subjective view on entrepreneurial opportunity arguing that opportunity is best viewed as imagined. He believes the best way to discuss the entrepreneurial opportunity is to describe it as “a latent construct that is manifested in entrepreneurial action, creating new organizations, bringing products to market, and so on.” (Klein, 2008, pp.182) He suggests that the opportunities exist only in the mind of decision makers. As such, the opportunity is treated as a concept hiding under the real subject of interest which is entrepreneurial action.

In this socially constructed or enactment view, some scholars do not deny that certain objective truths exist outside the observer. However, they believe that those truths constantly interact with and are formed by actions from individual observer. As summarized by Gartner et al., (2003, pp.109) opportunity enactment perspective offers the possibility that an environment could be viewed as having characteristics that are determined by individual's actions. However, it is not to deny the existence of the concrete characteristics of the circumstances.

In terms of the objective or subjective nature of opportunities, there are many studies conducted from different perspectives making an effort to resolving the conflicts.

Dutta and Crossan (2005) managed to appreciate the nature of entrepreneurial opportunity and the emergence of an opportunity from the organizational learning perspective. They argue that despite there being two contrasting views on the nature of entrepreneurial opportunities (objective versus subjective view), by using a 4I organizational learning framework to entrepreneurial opportunity, it is possible to resolve the apparently conflicting explanations of opportunity. The 4I framework (Intuiting, Interpreting, Integrating and Institutionalizing) was developed by Crossan et al (1999) to build a model of learning process, from the very beginning of intuition to the end of institutionalization of ideas. In the entire cycle of learning, intuiting happens firstly within the individual's mind at a preconscious level, entailing the recognition of patterns or possibilities then engage in interpreting. The first two processes concern with the enactment aspects. The last two processes: integrating and institutionalizing, concern with the formation of a collective view of the learning. Finally what becomes "institutionalized" forms the objective reality. Because the 4I framework recognizes both the positivist side and the interpretive side of a phenomenon, Dutta and Crossan (2005) suggest that it is able to integrate and reconcile the objective and subjective nature of entrepreneurial opportunities when conceptualizing the construction of entrepreneurial opportunity through the 4I framework.

Vaghely and Julien (2010) apply a model of human information processing to understand how the entrepreneurial opportunities are identified by the entrepreneurs. In this model, the authors also acknowledge the dichotomous nature of opportunities, the objective versus subjective ones. Respectively, entrepreneurs process the information to identify the opportunity through two different models, namely pattern-like or algorithmic model and trial-and-error or heuristic model. In the first model, the entrepreneurs' representation of reality is formed by information in a normative way. The entrepreneurs then compare their representations of the environment in order to shape the logic of their network. Linking patterns of information from various sources forms the basis of new business opportunities. Giving form to such information is the key to the new business opportunities.

No matter which view is held on the nature of opportunity, the opinion that opportunity identification or creation is a process of social construction is generally accepted by scholars because it is evident that entrepreneurs offer their opinions about the meaning in the process through the introduction of new means-ends framework. (Venkataraman and Shane, 2000; Gaglio and Katz, 2001, p95)

By reviewing this literature, it is found that although these two views have theoretical conflicts on an ontological basis, scholars more or less include both the objective and subjective aspects in their research. Thus, the ontological issue of entrepreneurial opportunity could be regarded as a continuum with two ends. Scholars' ontological

position could be located in any place in this continuum rather than the two extreme ends (Vaghely and Julien, 2010). It is suggested by Dutta and Crossan (2005, pp. 433) that, to provide a rather thorough explanation of the entrepreneurial opportunity, the two conflicting ontological positions need to be reconciled and synthesized.

2.2.3.2 Schumpeterian View vs Kirznerian View

Since Shane and Venkataraman defined the entrepreneurial opportunity as a certain “situation” (Shane and Venkataraman, 2000; Shane 2003, p18), their study of the origins of entrepreneurial opportunities has been to find how those “situations” emerge. Shane summarizes that there are two different perspectives that explain the origin of those situations: the Schumpeterian (1934) perspective and the Kirznerian (1973) perspective. The core conflict between these two perspectives is the disagreement about whether the existence of entrepreneurial opportunities requires new information or just requires different access to existing information. (Shane, 2003, p20)

Schumpeterian View

Schumpeter (1934) asserted that new information is essential to the existence of entrepreneurial opportunities. He argues that changes in “technology, political forces, regulation, macro-economic factors and social trends” will generate new information that could be used by entrepreneur to recombine resources into more profitable forms. Specifically, Shane (2003, pp.22) identified three categories of

sources of Schumpeterian opportunities: (1) technological changes; (2) political and regulatory changes; and (3) social and demographical changes. The entrepreneurial opportunities come from those changes that disequilibrate economy. Thus, Schumpeterian opportunities are the results of disequilibrating force which deconstruct the economy in a creative way (creative deconstruction), making Schumpeterian entrepreneurship a disequilibrating activity.

For Schumpeter, entrepreneurship is the carrying out of new combinations (Langlois, 2007, p. 1108.) Opportunities emerge from the entrepreneur's tendency to launch change. Entrepreneur disturbs the economic equilibrium while changes are taking place. Entrepreneur's actions include: introduction of new product/service; introduction of new production method; establishing new market; utilization of new raw material; formulating new forms of organization. (Schumpeter, 1934; Dutta and Crossan, 2005, Shane, 2003, pp.34) As such, entrepreneurs create entrepreneurial opportunity through creative destruction. For Schumpeter, the term "entrepreneur" needs to be reserved for those engaged in creating value through new products or approaches with a willingness to destroy the existing status quo through the creation and capturing of value that exist but not yet been recognized. (Kirchhoff, et al., 2013, pp160)

Kirznerian View

In contrast to the Schumpeterian view, Kirzner (1973) argues that, rather than the new information, the different access of current information is the key of opportunity's

existence. He argues that entrepreneurs discover opportunities by taking advantage of difference in knowledge and information among people. Entrepreneurs use the information that they possess to form beliefs about the efficient use of resources. Kirzner (1973) depicts entrepreneurial insight as the recognition of a profit opportunity that was previously unnoticed, and as such, does not require, or even involve, any outlay of resources on the part of entrepreneurs (Holcombe, 2003, p28). Because the surpluses and shortages always exist, entrepreneurs could make a profit by responding to those surpluses and shortage (e.g. obtain, recombine the resources and sell the output). Entrepreneurial alertness and discovery is the main concern in this process.

An alert individual is especially sensitive to signals of market disequilibrium, which can take place at the macro- and micro-economics levels. (Gaglio and Gatz, 2001, pp.99) Kirznerian opportunities exist as the result of equilibrating force. By pursuing these kind of opportunities, the entrepreneurs' actions bring the economy closer to the status of equilibrium and lead to a more efficient allocation of resources. Thus, Kirznerian entrepreneurship is regarded as equilibrating activity. For Kirzner, entrepreneurship is the perception of new frameworks of means and ends. (Langlois, 2007, p. 1108)

The table below has been developed to portray the comparisons between the Schumpeterian and Kirznerian types of opportunity.

	Schumpeterian Opportunity	Kirznerian Opportunity
Requirement	Introduction of new information	Just differential access to existing information
Entrepreneurs' effort	Disequilibrating force	Equilibrating force
Effect	Disequilibrates the economy; creative deconstruction.	Brings the economy closer to equilibrium and leads to a more efficient allocation of resources.
Entrepreneurship is...	Carrying out of new combinations	Perception of new frameworks of means and ends
Identification Process	Created	Discovered
Opportunity:	Requires large amounts of capital to exploit, and that the commitment to exploit them can be found only in minds of the highest order. (Casson and Wadeson, 2007, p285)	Is like dollar bills blowing around on the side-walk, waiting for an alert individual to pick them up. (Casson and Wadeson, 2007, p285)

Table 2-3: Comparison between Schumpeterian and Kirznerian Opportunity

2.2.3.3 Other Attributes of Entrepreneurial Opportunities

In addition to the most debated view on the nature entrepreneurial opportunities, whether objective or subjective, Schumpeterian or Kirznerian, other research has managed to investigate other attributes of opportunities.

New opportunities vs Underexploited opportunities

Holcombe (2003) suggests from among the origins of entrepreneurial opportunities, (1) factors that disequilibrate the markets, (2) factors that enhance production possibilities, and (3) entrepreneurs' prior action, the latter is the most important. In most cases, the actions from entrepreneurs in the process of discovery, evaluation and exploitation result in the emergence of new opportunities for future entrepreneurs. However, as suggested by Plummer etc (2007), the exploitation of a given opportunity is unlikely to be perfect because the process is usually flawed by the uncertainty in the environment. This imperfection of exploitation leads to the given opportunity being underexploited where the full value of the opportunity is not obtained by the entrepreneur. Ultimately, the entrepreneurs' effort is very likely to leave the original opportunity available for other entrepreneurs to exploit. Thereafter, it is very meaningful to distinguish new opportunities and underexploited opportunities. (Plummer etc., 2007, pp373-4); Smith etc., 2009)

This idea challenges Shane and Venkataraman's definition (2001) of entrepreneurial opportunity where the "new means-ends" is essential. To include the underexploited

situations, Singh (2001) defines an entrepreneurial opportunity as “a feasible, profit-seeking potential venture that provides an innovative new product or service to the market, improves on an existing product or service, or imitates a profitable product/service in a less-than-saturated market.” (Singh, 2001, pp11)

Tacitness and Codification

By borrowing the concepts of tacitness and codification from the domain of knowledge management, Smith and his colleagues (2009) suggest that entrepreneurial opportunity has an attribute with a continuum ranging from codified to tacit, i.e., a degree of tacitness.

In the field of knowledge management, the degree of tacitness features most in the nature of knowledge. Knowledge with high levels of tacitness tends to have four characteristics. Firstly, tacit knowledge is difficult to formalize or write down. Secondly, it is personal knowledge and hard to share and communicate with others. Thirdly, tacit knowledge is practical and embedded in a process. Finally, tacit knowledge is context specific and is often obtained in fieldwork. (Ambrosini and Bowman, 2001) On the contrary, knowledge with low levels of tacitness, or more codified knowledge, tends to be codifiable, i.e., easy to be articulated or transmitted in formal and standard language.

Borrowing this distinction between tacit and codified knowledge and applying it as one attribute of entrepreneurial opportunity, Smith et al. (2009, pp42-44) proposes that there are two kinds of opportunity. A codified opportunity is a “well-documented, articulated or communicated profit-seeking situation in which a person seeks to exploit market inefficiency in a less-than-saturated market.” In the contrast, a tacit opportunity is “a profit-seeking situation that is difficult to codify, articulate or communicate, in which a person seeks to exploit market inefficiency in a less-than-saturated market.” (Smith et al., 2009, pp44)

First person and Third person opportunities

By taking into consideration the amount of uncertainty perceived by entrepreneurs and their willingness to bear the uncertainty, McMullen and Shepherd (2006) provide a conceptual model to explain why entrepreneurial action takes place. Simply speaking, entrepreneurs decide to take action to pursue an opportunity because, firstly, they have the right knowledge to escape the ignorance and paralysis produced by uncertainty, and secondly they have sufficient motivation to bear the unavoidable uncertainty faced by everyone. Accordingly, McMullen and Shepherd (2006, p. 137-9) conceptualize the entrepreneurial opportunities into two groups: third-person opportunity and first-person opportunity. Opportunity is not for everyone but just for someone in the market. A third-person opportunity represents an opportunity for those individuals with the right quality, i.e. those who possess the right pertinent knowledge to perceive less uncertainty. The third-person opportunity could only become the first-person opportunity at the point when the prospective entrepreneur has the willingness

to bear the uncertainty and decides that a third-person opportunity is an opportunity for himself or herself.

2.2.4 Identification of Entrepreneurial Opportunities

According to the different understanding of the nature of entrepreneurial opportunities, there are different theories about how those opportunities are identified. Discovery theory and creation theory are the two contrasting theories that have received the most attention in research. The key difference between them is that in discovery theory, entrepreneurial opportunity is assumed to arise exogenously from technological, political, regulatory, social and demographic changes, all of which are known as exogenous shocks, and is waiting to be discovered by entrepreneurs. Conversely, creation theory assumes that opportunities are created endogenously by the action, reactions and enactment of entrepreneurs (Shane, 2003, p22-33; Alvarez and Barney, 2007b, p127-8). McMullen et al. (2007) suggest that whether the discussion about entrepreneurial opportunities is productive will largely depend on the agreement among participants on whether opportunities are discovered or created by entrepreneurs.

2.2.4.1 *Discovery Theory*

Of the two theories, the discovery theory has received much more attention in the literature. Applying realist ontology, discovery theorists generally believe that the opportunities exist independent of entrepreneurs, and are waiting to be discovered and

explored. This is consistent with the objective view of opportunity, which regards the opportunity existing as real and objective phenomena. The individual-opportunity nexus framework not only studies the opportunity per se, but also takes the individual into consideration. To explain why entrepreneurs are willing and able to discover and explore the opportunities while non-entrepreneurs are not, discovery theory makes the assumption that entrepreneurs who discover opportunities are significantly different from others in terms of the ability to see and to explore the opportunity (Alvarez and Barney, 2007b, p129).

As a result, the research in the discovery stream usually focuses on the differences between entrepreneurs and non-entrepreneurs. Those differences could be in various forms including resources, to according resource-based theory (Alvarez and Busenitz, 2001), social capital (De Carolis and Saporito, 2006) and other personal factors. Among these differences, personal characteristics have received the most research attention. Kirzner(1973, pp.67) summarizes the personal differences between entrepreneurs and non-entrepreneurs with the concept of alertness, which is defined as “the ability to notice without search opportunities have hitherto been overlooked.”(Gaglio and Katz, 2001) The potential components of alertness includes differences in cognition abilities (Shane, 2003; Gregoire et al. 2010; Baron, 2006, Baron and Ensley, 2006) prior knowledge (Shane, 2000; Arentz, et al., 2013; Ardichvili et al., 2003), information processing skills and different risk preferences.

Recent scholars have continued to advance the discovery position by arguing that alertness also involves a proactive side. As argued by McMullen and Shepherd (2006), entrepreneurship essentially needs action. Alertness is entrepreneurial only if judgement and actions have been taken place. “To act on the possibility that one has identified an opportunity worth pursuing” is essential to be an entrepreneur. (McMullen and Shepherd, 2006, pp. 132) Under the influence of this argument, Tang et al (2012) build a model to capture the dynamics of alertness involving three proactive elements: (1) scanning and searching for information, (2) the association and connection of previously disparate information, and (3) making evaluations and judgements about the existence of opportunities.

Table 2-4 summarizes the research examples under the opportunity discovery theory.

Author(s) and years	Research Focus and Type	Key Findings
<u>Gregoire et al. 2010</u>	Factors facilitate the recognition of opportunities.	Develops a model of opportunity recognition as a cognitive process of structural alignment. Data does not provide evidence that individuals use prototypes to recognize opportunities. Instead, it is found that different kinds of mental connections play different roles in the process of recognizing opportunities. The research also explains why and how prior knowledge may facilitate this process. It provides a useful basis for exploring the factors that explain why some individuals/organizations are able to recognize opportunities that others simply fail to see.
<u>Arentz et al., 2013</u>	Prior knowledge and opportunity discovery. Empirical research	Entrepreneur's prior knowledge and experience play a critical role in his ability to identify and exploit entrepreneurial opportunities. This argument is supported by the evidence within a laboratory setting.
<u>Ardichvili et al., 2003</u>	Personality traits, social networks and prior knowledge	Factors which play as the antecedent role of entrepreneurial alertness to opportunities.

Gaglio and Katz, 2001	Perceptual and psychological process in opportunity identification	Advances the theoretical development in opportunity identification by translating the entrepreneurial alertness into perceptual and psychological properties.
Tang et al., 2012	Proactive elements in the entrepreneurial alertness	Entrepreneurial alertness consists of three elements: (1) scanning and search, (2) association and connection, (3) evaluation and judgement.
De Carolis and Saporito, 2006	Entrepreneurs' social capital and cognitive bias. Theoretical Research	Explains why some people and not others recognize and exploit opportunities by suggesting that entrepreneurial behaviour is a result of the interplay of social networks and certain cognitive biases in entrepreneurs.
Shane, 2000	Prior knowledge	Recognition of entrepreneurial opportunity is a distinctive cognitive feat whose accomplishment is conditioned by entrepreneurs' prior experience and education.
Alvarez and Busenitz, 2001	Resources that facilitate the recognition of opportunities.	Extend the boundaries of resource-based theory to include the cognitive ability of individual entrepreneurs. Entrepreneurs have individual-specific

		resources that facilitate the recognition of opportunity.
Baron, 2006	Factors important for opportunity recognition	Three factors, engaging in an active search for opportunities; alertness to them; and prior knowledge of an industry or market, could be integrated into one basic cognitive framework.
Baron and Ensley, 2006	Cognitive Framework. Empirical research	The cognitive framework of experienced entrepreneurs is more clearly defined, richer in content, and more concerned with factors and conditions than the cognitive framework of novice entrepreneurs.

Table 2-4: Research under the Opportunity Discovery theory

Within the opportunity discovery research, studies fall into two explanations of how an opportunity was discovered: it either could be discovered by deliberate search or by serendipitous discovery. Arguing for serendipity, researchers posit that some entrepreneurs make discovery serendipitously. This stream of thought believes that entrepreneurs tend to recognize an opportunity based on prior knowledge. The research emphasis is put on the prior knowledge and experience (Shane, 2000; Dimov, 2010 and Fitzsimmons and Douglas 2011). Possession of unique knowledge enables an entrepreneur to recognize an opportunity which others cannot see.

On the other side, the focus is on the deliberate search. It is argued that entrepreneurs discover opportunities facilitated by search skill and information processing ability (Vaghely and Julien, 2010 and Gaglio and Katz, 2001) and effective choices among opportunities. This research stream suggests that the deliberation of entrepreneurs is very important to the existence of opportunity and entrepreneurial action also plays a role in the formation of opportunity (Murphy, 2011, p362-3).

In Murphy's article, it is argued that the stream emphasizing deliberate search posits that entrepreneurs discover opportunities based on search skills, information processing abilities and effective choices. This stream tends to regards the opportunities as more subjective rather than objective in nature considering people's action plays a crucial role in the discovery process.

In contrast, the other stream of analysis argues that entrepreneurs discover opportunity serendipitously without anticipation. In terms of opportunity, it tends to be regarded as objective in nature and the entrepreneur's knowledge and alertness is usually the research subject. Rather than adopting neither side of the dichotomy, Murphy moves away from one-dimensional logic by arguing that the presence of one mode does not necessarily mean the absence of the other mode. Under many entrepreneurial contexts, the discovery of opportunity entails both of the two modes. Opportunity could entail high levels of deliberate search and high level of serendipity at the same time. On the other hand, the opportunity entails both low levels of deliberation and serendipity. As such, a multidimensional model of entrepreneurial opportunity can be produced as follows:

High Deliberation	Deliberate Search (I)	Eureka (II)
Low Deliberation	Legacy (IV)	Serendipitous Discovery (III)
	Low Serendipity	High Serendipity

Table 2-5: A Multidimensional Model of Entrepreneurial Opportunity (Source: Murphy, 2011)

Deliberate Search (high deliberation, low serendipity)

Quadrant I represents the opportunities that are discovered based on entrepreneurs' deliberation while the serendipitous aspects are small or negligible. It also reflects the theoretical stream that regards entrepreneurial opportunities as a function of systematic search. The discovery of these kinds of opportunities involves intensive and proactive actions from entrepreneurs.

Eureka (high deliberation, high serendipity)

The high serendipity in Quadrant II indicates that the formation of those opportunities is not anticipated but as an accident. Although intense search activities have been carried out by entrepreneurs, uncertainty around the process may lead them to find some opportunities beyond their expectations. However, the unplanned nature does not exclude deliberate action from contributing the formation of opportunities.

Serendipitous Discovery (low deliberation, high serendipity)

Quadrant III represents those opportunities that are based on the random distribution of knowledge and entrepreneurs' possession of prior knowledge in the market with the absence of entrepreneurs' deliberate searching. This is consistent with the notion that some opportunities exist objectively but could only be discovered by some entrepreneurs who have certain knowledge.

Legacy (low deliberation, low serendipity)

Quadrant IV represents the opportunities that are anticipated by entrepreneurs without much deliberation. When the required resources for an opportunity are come from the purposeful will of another rather than the entrepreneurs, there could be an opportunity for which the entrepreneur does not need to deliberately search.

2.2.4.2 Creation Theory

Gartner et al (2003) argue that the discovery theory, which emphasizes the importance of alertness, observation and the information asymmetries, only tells one side of opportunities and that pursuing this line exclusively may ignore some important characteristics of opportunities. Thereafter, they propose an alternative theory arguing that in some circumstances opportunities are enacted or created by entrepreneurs.

In creation theory, entrepreneurial opportunities do not exist independent of entrepreneurs. The opportunities to provide new products or services do not exist previously in the markets or industry. Instead, opportunities are formed by entrepreneurs' actions, reactions and enactment. (Companys and McMullen, 2007, pp309) Ontologically speaking, the opportunities or the "situations" are socially constructed. The creation theory suggests that the opportunities do not exist at all before the entrepreneurial actions have been taken, since the entrepreneurial actions are the fundamental sources of opportunities. When entrepreneurs take action to exploit the socially constructed opportunities, they interact with the market to test their perception. The market itself is a social construction as well and is formed by the perceptions by other individuals. (Alvarez and Barney, 2007b, pp. 131-2)

In the stream of creation theory, because there is opportunity to be found, instead of searching, entrepreneurs act. They also observe how consumers and markets respond to their actions. In action and reaction, entrepreneurs form opportunities that could be known without the actions. Accordingly, the entrepreneurial action has received considerable research attention in the creation stream and we will discuss it in the next section.

Unlike the discovery stream which focuses on identifying characteristics of individual entrepreneurs to explain why the opportunities are discovered by some rather than others, the creation stream is more concerned with how entrepreneurs interact with the environment and how the opportunities are socially constructed in the process. (Short et al., 2010, pp57)

2.2.4.3 Imagination Theory

In addition to the creation and discovery theory, there is another theory about the nature of entrepreneurial opportunity. Believing the entrepreneurial opportunity is neither discovered nor created, Klein (2008) suggests that opportunity is best described as imagined and is most appropriately discussed as “a latent construct that is manifested in entrepreneurial action, creating new organizations, bringing products to market, and so on.” (Klein, 2008, pp182) Klein distinguishes two interpretations of entrepreneurial function: discovery and judgement. He believes that the opportunity-discovery

framework is not appropriate to be used as the framework of entrepreneurship research. The reason for that is because the central concept, the opportunity, is used “instrumentally or metaphorically as a means to explain the tendency of markets to equilibrate by the theorists, rather than an object of analysis.”(Klein, 2008, pp183)

Klein argues that entrepreneurship could be better understood as judgement. The judgement approach contents that profitable opportunities do not exist when decisions are made since the outcome of actions could not be certainly known. The opportunities exist only in the mind of decision makers. By regarding the opportunity as a latent construct, Klein tries to avoid answering the questions of whether the opportunities are objective or subjective.

It is has been found that there are some similarities between the streams of creation and imagination theory.

2.3 Entrepreneurial Action

2.3.1 Introduction

For a long time, human action has been a research subject many research fields (e.g. psychology, management, economics and sociology etc.). Each of these disciplines applies the conceptualization of rational choice to some extent, assuming human actors are always engaged in teleological, i.e. goal-oriented behaviour. Because opportunity is always viewed, regardless of academic discipline, as an opportunity to do something, human action and opportunity are closely connected while opportunity is the key role for human to pursue their goal. Therefore, opportunities are a means to an end (McMullen et al. 2007, pp276-7). In this sense, entrepreneurial action could be regarded as a sub-class of human action whereas entrepreneurial opportunity could be better regarded as an opportunity to engage in entrepreneurial action. Since human action is always motivated by profit, the term “entrepreneurial” is used here to define the method through which the profit is pursued. According to Shane and Venkataraman (2000, pp.220), the method is the introduction of a “new means-ends relationship through which new products, services, raw materials, and organizing methods could be introduced to produce economic value”.

To avoid the conceptual closure caused by assuming that entrepreneurship is something done by allegedly one special type of human species “the entrepreneur”, recent research has shifted the attention away from individual entrepreneurs to a much broader phenomenon: “entrepreneurial action”, in its social and institutional contexts. Entrepreneurial action, as a distinctive type of human action, is rooted in the basic

human processes of exchanging and trading. Such a shift would expand a great range of research questions and enable a better balance between individual entrepreneurial actors and their organizational, societal and institutional contexts. (Watson, 2013, pp. 28)

For an opportunity to be meaningful it must be identified or created and evaluated etc.; in short, an opportunity has to be acted upon by entrepreneurial actions.

Entrepreneurial action is generally defined as “any activity entrepreneurs might take to form and exploit opportunities.”(Shane and Venkataraman, 2000, p211; Alvarez and Barney, 2007b, p126).By reviewing the previous entrepreneurship related articles, Hansen etc. (2011) identified 48 conceptual elements in the definition of opportunity-related actions and extracted eight elements which they think best cover different definitions in the literature. Opportunity-related process is conceptualized as:

1. “A cognitive process of recognizing an idea and transforming it into a business concept.
2. A process of scanning or being alert.
3. A cognitive process of matching supply and demand.
4. Perception of a felt need.
5. A creative process of generating new alternatives.
6. A special case of problem solving.
7. Perceiving a possibility to profitably create a new business or improve an existing one.

-
8. A process of social construction within a window of time.” (Hansen etc., 2011, pp.291)

From the discussion of the entrepreneurial opportunities in the previous chapter, it was found that entrepreneurial action has been mentioned in many cases and in many forms, for instance, the “create destruction ” or the “disequilibrating force” from Schumpeterian view; the equilibrating force from the Kirznerian view. In the two seemingly conflicting theories concerning the origins of opportunities, creation theory and discovery theory, various forms of entrepreneurial actions such as creation, enactment, search, recognition, also receive the most of attention. No matter whichever view is held on opportunities, “entrepreneurship requires action... to be an entrepreneur ... is to act on the possibility that one has identified an opportunity worth pursuing.” (McMullen and Shepherd (2006, pp.132) As such, we put entrepreneurial action, especially the relationship between opportunities and actions, as the main concern in this chapter.

2.3.2 Entrepreneurial Action: Discovery Approach versus Creation

Approach

The discovery theory and creation theory mentioned earlier are two parallel approaches that explain the formation of entrepreneurial opportunities through entrepreneurs' actions. As theories regarding human action, it is believed that both of them make three critical assumptions: “(1) assumptions about the nature of human objectives, (2) assumptions about the nature of individuals and (3) assumptions about the nature of the

decision making context within which individuals act.”(Parsons and Shils, 1962; Alvarez and Barney, 2007b, pp.126). While both the discovery theory and creation theory try to examine entrepreneurial opportunities and actions, the two theories often generate different explanations. Since different theories produce different explanations about human actions, in terms of entrepreneurial action, these differences are usually credited to the differences in one or more of the three assumptions mentioned above. As such, the comparison of the discovery and creation theories could be made on the basis of these three assumptions.

2.3.2.1 Nature of Objectives: Opportunities

Both the discovery theory and creation theory admit that the ultimate goal of the entrepreneurs is to make profit by forming and exploiting opportunities. These two theories also admit that opportunities exist when there are competitive imperfections in a market or industry (Shane, 2003). The difference between these two theories lies in the origins of the competitive imperfection. Discovery theory assumes the competitive imperfection arises exogenously from the changes in the context of a market or industry. Technological change, political and regulatory changes, and social and demographic changes are examples of these types of events. Thus, the opportunities exist as real and objective phenomena, independent of the entrepreneurs, waiting to be discovered and exploited. When entrepreneurial opportunities are talked about, words such as “discover”, “see”, “find”, “search”, “scan” and “notice” are mostly used to describe the actions. (Gartner et al., 2003, pp108)

Conversely, creation or enactment theory assumes opportunities are created by entrepreneurs through their enactment and action. Opportunities are the results of the perception of individuals. In the enactment perspective, the environments around entrepreneurs are socially constructed, subjective and the product of their interpretation and actions, rather than viewed as a set of fixed circumstances requiring response. When entrepreneurial opportunities are talked about, words such as “create”, “build”, “construct” are mostly used to describe the actions.

2.3.2.2 Nature of Individuals: Entrepreneurs

From the opportunity discovery perspective, individuals who discover entrepreneurial opportunities have differences with others in terms of ability to sense opportunities. In the discovery theory, individuals who discover opportunities are believed to possess valuable information that others do not have or have cognitive abilities to process information in ways that others cannot (Gartner et al., 2003, pp108). Kirzner manages to explain the differences between entrepreneurs and non-entrepreneurs through the concept of alertness. Prior knowledge, cognitive differences and different risk preferences etc. are identified as the components of alertness. Although research on the differences between individuals in terms of their entrepreneurial abilities is lasting for decades, the evidence about whether entrepreneurs and non-entrepreneurs are significantly different is not compelling with the exception of cognitive abilities. (Busenitz and Barney, 1997; Alvarez and Barney, 2007)

In creation theory, there is no such assumption that entrepreneurs are significantly different from non-entrepreneurs. Creation theory is not certain about the significances between individuals before the entrepreneurial activities. However, it acknowledges that the process of opportunity creation could magnify what were initially trivial differences between entrepreneurs and non-entrepreneurs. As such, differences between these two groups are the outcome of the entrepreneurship taken, rather than the cause of entrepreneurship. (Alvarez and Barney, 2007)

2.3.2.3 Nature of the Decision Making Context

Discovery theory assume the decision making context where the entrepreneurs pursue the opportunities is risky, which means when a decision is being made, the decision makers is able to obtain sufficient information pertinent to the decision to forecast potential outcomes and to calculate the probability of each of those possible outcomes. Discovery theory holds such an assumption about the decision making context because of its belief of the objectivity of entrepreneurial opportunity. Entrepreneurs are able to use information to analyse the possibilities of the outcomes. It may take effort and resource to conduct the analysis although this work is able to be done as the opportunity is objective in nature.

By contrast, the decision making context is assumed to be uncertain by creation theory. Uncertain mean when the decision is being made, decision makers are not able to obtain information required to forecast the possible outcomes related to the decision. The probability of these outcomes cannot be calculated as well. Because of

the assumption made creation theory that there is no opportunity until they are created, the information required to analyse the potential outcomes and the possibilities of these outcomes does not exist. In general, the information cannot be collected no matter how experienced and knowledgeable the entrepreneurs are and how hard they work. (Alvarez and Barney, 2007)

2.3.3 Entrepreneurial Actions and Uncertainty

In their study of entrepreneurial action, McMullen and Shepherd emphasise the importance of uncertainty by stating “uncertainty in the context of action is a sense of doubt that blocks or delay action.” (2006, p135) Believing the action involves knowledge and motivation, McMullen and Shepherd’s research focuses on the interaction of uncertainty with entrepreneurs’ knowledge and motivation. They classify the explanations of why the entrepreneur chooses to pursue an opportunity into two groups by introducing the role of uncertainty: the entrepreneurial actions are regarded as the outcomes of either less perceived uncertainty or more willingness to bear the uncertainty, both of which are related to entrepreneurs’ knowledge and motivation respectively. Firstly, entrepreneurs, owing to epistemological differences, are thought to have taken action because they manage to escape the ignorance caused by uncertainty whereas non-entrepreneurs are thought to not overcome the doubt or to be blinded by the uncertainty. In the other words, potential entrepreneurs are faced by more or less uncertainty, which prevents any entrepreneurial action to be taken by confusing the people’s belief that an opportunity exists. Only by acquiring certain knowledge to judge the perceived uncertainty, could people be aware that there is a

potential opportunity. The second explanation of the entrepreneurial action is that entrepreneurs are distinguishable from non-entrepreneurs in their willingness to bear the unknowable and inestimable uncertainty. (McMullen and Shepherd, 2006, p138)

The role of uncertainty in the entrepreneurial action process is illustrated below:

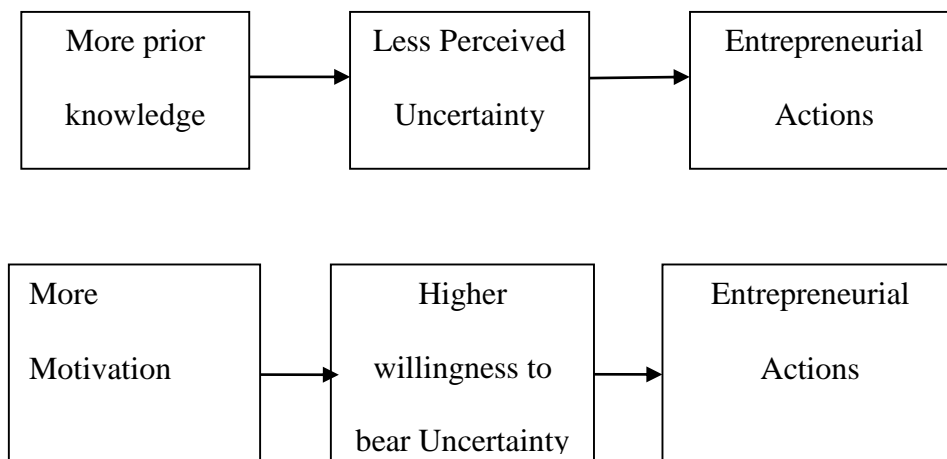


Figure 2-2: The Role of Uncertainty in the Entrepreneurial Action

Based on entrepreneurs' knowledge to perceive uncertainty and willingness to bear uncertainty, McMullen and Shepherd (2006, p137-9) conceptualize the entrepreneurial opportunities into two categories: third-person opportunity and first-person opportunity. Opportunity is not for everyone, just for someone in the market. A third-person opportunity represents an opportunity for those individuals with the right qualities, i.e. those who possess the pertinent knowledge. Only at the point when the prospective entrepreneur decides that a third-person opportunity is an opportunity for himself or herself, i.e. has the disposition to bear the uncertainty, does the third-person opportunity becomes the first-person opportunity.

As intention has been shown to be a good predictor of subsequent action, understanding the antecedent factors that have an influence on entrepreneurial intention is important when studying entrepreneurial action. Consistent with McMullen and Shepherd's work (2006), Fitzsimmons and Douglas (2011) use the

entrepreneur's perceived desirability and perceived feasibility (motivation and knowledge in McMullen and Shepherd's terminology respectively) to explain the individual's entrepreneurial intention; this is important for understanding the individual's behaviour as the antecedent of it. The empirical evidence from Fitzsimmons and Douglas (2011) suggests that the individual's entrepreneurial intention is positively related to both perceived desirability and perceived feasibility.

Unlike McMullen and Shepherd's work (2006), which suggests that to be an entrepreneur the individual has to, firstly, have sufficient knowledge to identify an opportunity (perceived feasibility) and secondly, sufficient willingness to bear the uncertainty (perceived desirability), Fitzsimmons and Douglas (2011) point out that, in some cases, an individual could become an entrepreneur with high perceived feasibility combined with low perceived desirability. This type of entrepreneur is named as an "accidental entrepreneur" in this case since this person does not start with a strong desire to be an entrepreneur, but forms the intention after recognising the high feasibility of entrepreneurial action. In some other cases, an individual could become an entrepreneur with low perceived feasibility and high perceived desirability. This type of entrepreneur is called an "inevitable entrepreneur" because he or she has a strong desire to become an entrepreneur and may explore lots of opportunities before ultimately forming the intention to act.

2.3.4 Research on Entrepreneurial Actions

Similar to the different views on the nature of entrepreneurial opportunities from the Schumpeterian and Kirznerian pathways, these two approaches also hold rather conflicting views on the actions taken by entrepreneurs. According to Schumpeterian view, opportunities come from the entrepreneur's tendency to launch changes.

Entrepreneur disturbs the economic equilibrium while changes are taking place. The entrepreneurial actions that disturb the equilibrium include: introduction of new product/service; introduction of new production method; establishing new market; utilization of new raw material; formulating new forms of organization.

(Schumpeter, 1934; Shane, 2003; Dutta and Crossan, 2005, pp. 429, Shane, 2003, pp.

34) In Schumpeterian view, opportunities emerge as the outcome of "creative destruction". The core action is creation.

In the contrast, Kirzner's theory of entrepreneurship focuses on understanding how entrepreneurs identify opportunity by taking advantage of differential access of information and knowledge. In this view, the entrepreneur's action is to restore the balance in the economy by identifying and acting on entrepreneurial opportunities that emerge from asymmetries in information and knowledge. In summary, the Kirznerian view believes that opportunities are discovered.

Because the Kirznerian view holds the belief that opportunity is discovered, it seems that opportunity is regarded as objective in nature, existing independently and waiting to be discovered by alert entrepreneurs. However, as argued by Dutta and

Crossan(2005), because of entrepreneurs' interpreting processes in the opportunity identification, subjectivism is also incorporated into the Kirznerian view of entrepreneurial opportunity. This ontological position suggests that the Kirznerian view regards opportunities as enacted by the entrepreneurs. In contrast, the Schumpeterian view, to some extent, follows the "opportunity discovered" ontological position. This is because the origins of Schumpeterian opportunities are exogenous shocks such as technological changes, political and regulatory changes, and social and demographic changes, which like what the discovery theory suggests.

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Another recent research example of using entrepreneurial action or behaviour to portray opportunities is provided by Dimov (2011). Realizing the reality that research into entrepreneurial opportunity is theoretically dynamic but empirically elusive, Dimov (2011) distinguishes two conceptions of entrepreneurial behaviour – a formal and a substantive type, to render the construct of opportunity empirically accessible.

The idea of formal and substantive conceptions of entrepreneurial behaviour is borrowed from Polanyi's (1957) inspiring view on economic behaviour and the distinction between formal and substantive meanings of "economic". The formal meaning is based on the logical framework of rational means-ends choice, under which all the economic-related behaviour is understood. On the other hand, the substantive meaning is based on "the empirical reality of how people earn their livelihood and can be viewed as an instituted process of individual's interaction with environment." (Dimov, 2011, pp.65)

Dimov (2011) argues that the formal conception of behaviour is not suitable to explain entrepreneurial behaviour because the central premises of behaviour as a benefit-maximizing choice is problematic as the result of entrepreneurial behaviour cannot be reliably anticipated. Instead of figuring out how entrepreneurs ought to act, the substantive conception of entrepreneurial behaviour is trying to make sense of how they act. To advance the substantive meaning of entrepreneurial opportunities, Dimov points out three preconditions that make the abstract notion of opportunity sounder ground: “(1) opportunity is happening, (2) opportunity is expressed in action and (3) opportunity is instituted in market structures.” (Dimov, 2011, pp. 66-8) The second premise implies that an idea could be viewed as “opportunity” only if it has been acted upon by the entrepreneur i.e., when it is regarded that there is an opportunity, there are actions have been taken. As such, an opportunity is thought as “a momentary, symbolic blueprint for the entrepreneur’s actions, interweaving the entrepreneur’s resources, aspirations, and business templates.”(Dimov, 2011, pp. 67)

From McMullen and Shepherd’s study of uncertainty in the context of entrepreneurial action, to Klein’s argument of opportunity can be treat as a concept hiding under entrepreneurial action, the real subject of interest, (Klein, 2008, pp.176), and then to Dimov’s effort to study the nature of opportunity by examining entrepreneurs’ behaviour, we can see that the research on entrepreneurial opportunity is brought down to earth by shifting the focus from the elusive nature of opportunity to the actions taken by entrepreneurs pursuing the opportunity. Thus, we believe that entrepreneurial opportunity could be better understood by the examination of entrepreneurial actions have been taken.

CHAPTER 3

RESEARCH QUESTIONS AND THE CONCEPTUAL FRAMEWORK OF THE RESEARCH

3.1 Main Research Question

At the very beginning of this study, our research is concerned with the entrepreneurial opportunity. Thereafter, the general research question asked is:

“What is an entrepreneurial opportunity?”

To locate an answer, the literature concerning entrepreneurship must be explored, especially literature focusing on the research about entrepreneurial opportunity. In previous research scholars from various fields, such as psychology (Gaglio and Katz, 2001; Baron and Ensley, 2006; Fitzsimmons et al, 2011; Gregoire et al., 2010), economics (Klein, 2008; Holcombe, 2003; Loasby, 2007; Casson and Wadeson, 2007), strategic management (Plummer et al., 2007) and of course, entrepreneurship (Shane, 2000; Venkataraman and Shane, 2000; Alvarez and Barney, 2007b, Dimov, 2011) have all made some efforts to investigate the nature and exploitation process of entrepreneurial opportunity.

3.2 Research Questions

In the study of the nature of entrepreneurial opportunities, some pioneering researchers (Dimov, 2007, 2011; McMullen and Shepherd, 2006; Klein, 2008) have emphasized the important role of the actions entrepreneurs have taken to pursue opportunities. The reason for the increasing attention on entrepreneurial action is because it has been widely realized that “entrepreneurship requires action” (McMullen and Shepherd, 2006) and opportunities are expressed in action (Dimov, 2011). An idea or thought cannot be labelled as an “opportunity” unless it is acted upon. To be an entrepreneur, one has to act on the possibility that one has identified an opportunity worth pursuing (McMullen and Shepherd, 2006). Through the examination of the forms and patterns of the action entrepreneurs have taken, the explanation of entrepreneurial opportunity becomes empirically accessible and does not have to stagnate at a theoretical level.

By realising the importance of entrepreneurial action, we develop a further research question to integrate actions into our research. This research question is:

“What is the relationship between the nature of entrepreneurial opportunity and the actions to pursue it?”

A closer look at this research question would reveal that we are interested in the relationship between two constructs: the nature of entrepreneurial opportunity and entrepreneurial action. To examine the relationship between two constructs, we firstly

have to adumbrate these two constructs. Thus, two sub research questions are proposed:

- 1. What is the nature of entrepreneurial opportunity?**
- 2. What is the role of entrepreneurial action in the pursuit of opportunity?**

Combined with the question regarding the relationship, there are three questions we plan to investigate in total.

3.3 Research Conceptual Framework

Despite the fragmentation of the conceptualization of entrepreneurial opportunity within the existing literature, a closer examination finds that there are three areas to discuss and compare the conflicting nature of entrepreneurial opportunities: (1) the discovery view versus the creation view; (2) the objective view versus the subjective view; and (3) the Schumpeterian view versus the Kirznerian view.

The first one, also the mostly disputed one, is concerned with how the entrepreneurial opportunities are formed. One stream of research suggests that the opportunities are discovered by entrepreneurs whereas the contrasting stream suggests that the opportunities are created by the entrepreneurs. (Alvarez and Barney, 2007b) The discovery view argues that opportunities exist independently of entrepreneurs, waiting to be discovered or explored. The creation or enactment view suggests the opportunities are the result of entrepreneurial action, which cannot exist

independently from entrepreneurs.

Views on Entrepreneurial Opportunities	Discovery View	Creation View
Existence of Entrepreneurial Opportunities	Exist independently from entrepreneurs as objective subjects, waiting to be discovered.	Exist because of entrepreneurs' perception, action and reaction to the external environment.
Entrepreneurs	Entrepreneurs are assumed to be significantly different from non-entrepreneurs in terms of their cognitive ability, prior knowledge, risk preference and etc.	While this theory is agnostic about the ex-ante significances (i.e. ex-ante entrepreneurs and non-entrepreneurs may or may not be significantly different), it acknowledges that the process of opportunity creation can magnify what were initially very small differences between entrepreneurs and non-entrepreneurs. As such, differences between these two groups are the result of the entrepreneurship taken, rather than just the cause of

		entrepreneurship.
Entrepreneurs' action	Scanning and searching for information; association and connection of previous-disparate information, and; evaluation and judgement about opportunities; being alert	Perception, interaction and reaction with the environment.
Research Focus	Factors facilitating the recognition of opportunities; difference between entrepreneurs and non-entrepreneurs	How entrepreneurs interact with the environment and how the opportunities are socially constructed in the process.
Decision Making Context	Risky - meaning when a decision is being made, the decision makers can collect enough information pertinent to the decision to forecast possible outcomes and to calculate the probability of each of those possible outcomes.	Uncertain - meaning the decision makers cannot collect the information required to anticipate either the possible outcomes related to the decision nor the probability of these outcomes when they are making a decision.
Consistent with...	Objective view on opportunities	Subjective view on opportunities

Table 3-1: Discovery View against Creation View

The dispute between the discovery and creation theory actually is rooted in the second fiercely debated areas: the ontological position the researchers take in their research to view the subject. Usually researchers with a strong realist view tend to treat the opportunity as objective in nature whereas researchers with social constructionist views are more likely to view the opportunity as subjective in nature. As pointed out by McMullen et al. (2007), the “objectivity” or “subjectivity” of opportunity is one of most important reasons for the confused understanding of the nature and origins of opportunities and is one most fundamental disputes about the nature of entrepreneurial opportunities.

Views on Entrepreneurial Opportunities	Objective View	Subjective View
Ontology	Realist or positivist	Social Constructionist
Nature of entrepreneurial opportunity	Entrepreneurial opportunity is an objective reality whose existence or description is not dependent or contingent on a specific situation, environment.	Entrepreneurial opportunity is a subjective reality which is socially constructed or enacted by the entrepreneurs.

Research Focus	Factors that allow entrepreneurs to discover opportunities. To inform researchers and practitioners about how to let entrepreneurs obtain capabilities that enable them to discover potential opportunities.	Features of entrepreneurial opportunities which are determined by individual's actions, and its process.
Consistent with...	Opportunity discovery view	Opportunity creation/enactment and imagination view.

Table 3-2: Objective View against Subjective View

The third pair of views worth comparing is the Schumpeterian view and Kirznerian view on entrepreneurial opportunities. In the Schumpeterian view, opportunities emerge as a process of “creative destruction”. Entrepreneurship is a force to disequilibrate the economy. By contrast, the Kirznerian view argues that the existence of opportunities requires only differential access to existing information. He suggests that entrepreneurs discover gaps caused by people’s differential access of information and knowledge in the market and act on them. Thus, the entrepreneur’s effort brings the economy closer to equilibrium.

Views on Entrepreneurial Opportunities	Schumpeterian View	Kirznerian View
Requirement for the opportunities	Introduction of new information	Differential access to existing information
Entrepreneurs	An entrepreneur is the innovator who shocks and disturbs the economic equilibrium by carrying out new combinations	Entrepreneurs perceive new frameworks of means and ends and discover gaps caused by people's differential access of information and knowledge in the market and act on them.
Entrepreneurs' effort is...	Disequilibrating force that disequilibrates the economy; creative deconstruction.	Equilibrating force that brings the economy closer to equilibrium and leads to a more efficient allocation of resources.
Source of opportunities:	(1) technological changes; (2) political and	Information and knowledge asymmetry;

	regulatory changes; and (3) social and demographical changes	errors and omissions made by prior market participants.
Entrepreneurial Actions	Introduction of new product/service; introduction of new production method; establishing new market; utilization of new raw material; formulating new forms of organization. (Schumpeter, 1934; Shane, 2003; Dutta and Crossan, 2005, pp. 429, Shane, 2003, pp. 34)	Combination and interpretation of knowledge in order to lead opportunity. Perception of the new means-ends framework.

Table 3-3: Schumpeterian View against Kirznerian View

The whole conceptual framework is illustrated in the figure 3-1.

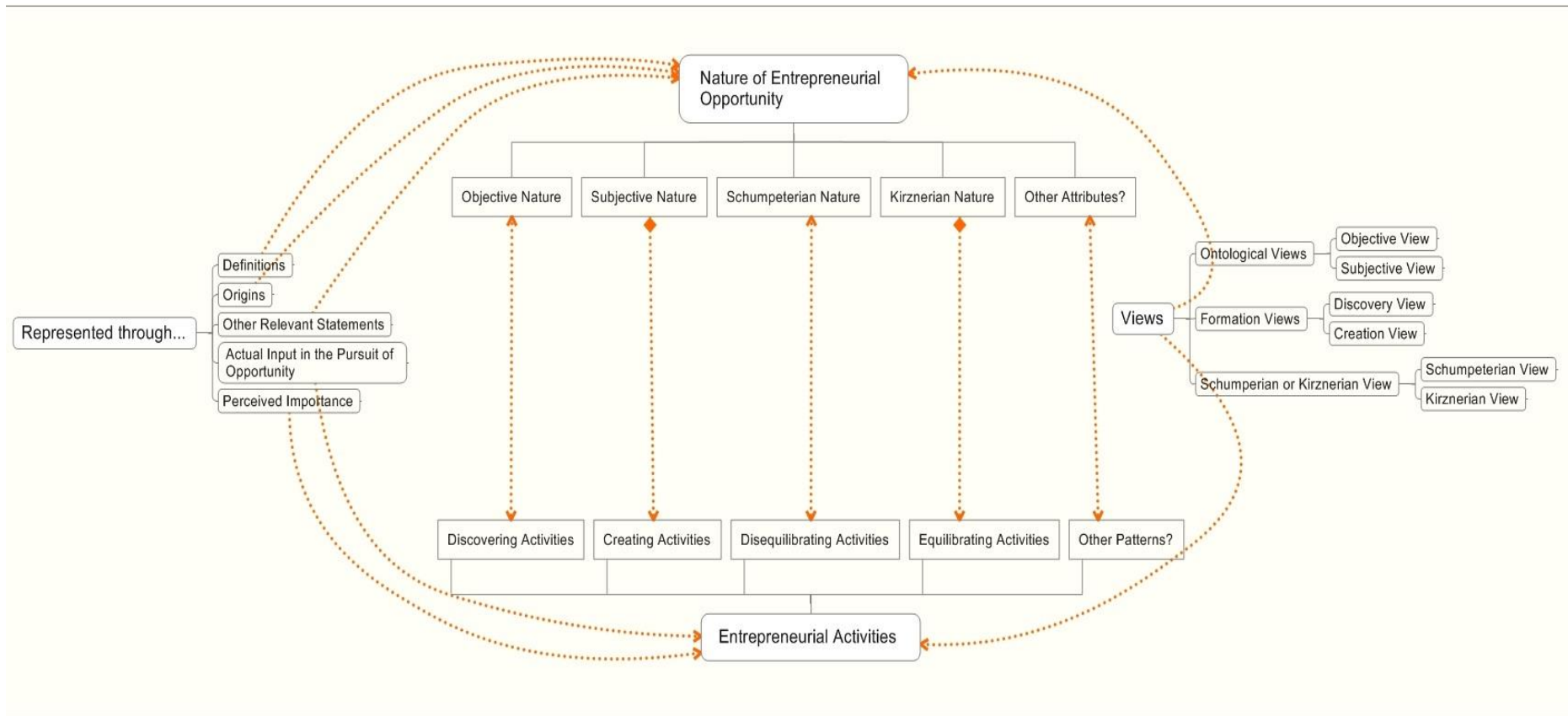


Figure 3-1: Conceptual Framework

3.3.1 Different views reflected by the definition of entrepreneurial opportunities

To integrate all of these three pairs of contrasting views on entrepreneurial opportunity and to further improve the understanding of the nature of it, we apply two approaches which are believed to be able to reflect some attributes of each views: (1) the understanding of the definition of entrepreneurial opportunities and (2) the actions taken by entrepreneurs.

The previous literature review reveals that the definitions of entrepreneurial opportunities are far from well-established. Among the various definitions of entrepreneurial opportunities provided by entrepreneurship scholars, Hansen et al (2011) identified 25 key elements used in the previous research. These elements include the entrepreneur, situation, possibilities, product, cognitive processes, and ideas etc. Based on the commonalities of these 25 key elements of the definition, Hansen et al (2011, p292) develops six composite definitions of opportunities through systematic synthesis. These six composite definitions of an opportunity are respectively presented as follows:

1. “An opportunity is the *possibility* of introducing a new product to the market at a profit.
2. An opportunity is a *situation* in which entrepreneurs envision or create new means ends frameworks.
3. An opportunity is an *idea* that has developed into a business form.

4. An opportunity is an entrepreneur's *perception* of a feasible means to obtain/achieve benefits.
5. An opportunity is an entrepreneur's *ability* to create a solution to a problem.
6. An opportunity is the *possibility* to serve customers differently and better."

It is worth pointing out that the terms "envision" and "create" are used together in the second definition, whereas we believe it would be better to present them separately as these two words are quite different. Thus in total there are seven definitions that we could apply to obtain some reflections on the nature of entrepreneurial opportunity from the creation/discovery view, objective/subjective view and Schumpeterian and Kirznerian view. This is summarized in the following table.

Views Definitions	Objective View	Subjective View	Schumpete rian View	<u>Kirznerian</u> View
D1: the <i>possibility</i> of introducing a new product to the market at a profit.	Yes		Yes	
D2: a <i>situation</i> in which entrepreneurs envision new means ends frameworks.		Yes		
D3: a <i>situation</i> in which entrepreneurs create new means ends frameworks.			Yes	
D4: an <i>idea</i> that has developed into a business form		Yes		
D5: an entrepreneur's <i>perception</i> of a feasible means to obtain/achieve benefits.		Yes		Yes
D6: an entrepreneur's <i>ability</i> to create a solution to a problem.		Yes?		
D7: the <i>possibility</i> to serve customers differently and better.	Yes			Yes

Table 3-4: Definitions and Views on Entrepreneurial Opportunity

The criterion to judge if each of these definitions could reflect the different views on the entrepreneurial opportunity is to see whether the key concept in the definitions

matches with the key feature from the different views. For the discovery view and creation view, the key to distinguish them is to see whether the definition regards the opportunity as the result of entrepreneurs' creation work or something waiting for entrepreneurs. For example, taking the third and seventh definitions (D3 and D7), it is obvious that D3 is a definition based on the creation views since the term "create" is used here to describe how the situation is formed, whereas D7 is based on the discovery view the "possibility" used there is something waiting to be found by the entrepreneurs.

The key to distinguishing the objective and subjective view is to see whether the entrepreneurs are involved in the definition, i.e., whether the entrepreneurs have to be part of the definition. From the first definition (D1), "an entrepreneurial opportunity is the *possibility* of introducing a new product to the market at a profit", it is found that the entrepreneurs do not have to be involved in this definition. Therefore, this definition is regarded as based on an objective view on opportunity. By contrast, the fourth, fifth and sixth definitions (D2, D4, D5 and D6) are regarded as based on the subjective view of opportunity since the entrepreneur is mentioned as an essential element in these definitions (i.e. envision, idea, perception and abilities cannot exist independently from entrepreneurs).

For the last pair of contrasting views on entrepreneurial opportunities, the Schumpeterian and Kirznerian views, the criterion to distinguish them is to see whether the introduction of new information is necessary in the definition. (Shane,

2003, pp. 20) In the first and third definitions (D1 and D3), new products and new means-ends frameworks are mentioned in these two definitions. Thus, both of them are regarded as being based on Schumpeterian view on opportunity. The examples of definition based on Kirznerian views are the fifth and seventh definitions (D5 and D7), where different access to information rather than new information is required for the opportunity.

It is worth pointing out that although some of these definitions may well match or reflect the various views on entrepreneurial opportunities, such as D3 which perfectly presents the essence of the creation view, some key features of the views cannot be obtained from those definitions. For instance, one of the most apparent differences between the Schumpeterian view and Kirznerian view is that the former suggests that the opportunities come from the new information generated from external changes (technological changes; political and regulatory changes; social and demographical changes) whereas the latter suggests that the opportunities come from entrepreneurs' differential access to existing information. None of these definitions catch this point. To obtain a better understanding of the nature of opportunities, more instruments are required in addition to the definitions. A question regarding the origin of entrepreneurial opportunity may reveal whether opportunity tends to be more Schumpeterian or Kirznerian in nature.

3.3.2 Different views reflected by entrepreneurial actions.

In the study of the nature of entrepreneurial opportunities, the importance of actions taken by entrepreneurs in pursuit of opportunity has been theoretically emphasized by several researchers (Dimov, 2007, 2011; McMullen and Shepherd, 2006; Klein, 2008). It has been widely realized that “entrepreneurship requires action” (McMullen and Shepherd, 2006) and opportunities are expressed in action (Dimov, 2011). An idea or thought cannot be labelled as an “opportunity” unless it is acted upon. To be an entrepreneur, one has to act on the possibility that one has identified an opportunity worth pursuing (McMullen and Shepherd, 2006). Klein (2008), who holds the beliefs that the entrepreneurial opportunities are the imagination of entrepreneurs and would be better understood as a “latent construct”, even suggests treating opportunities as a superfluous concept once action is taken into account. As such, Klein believes researchers could dispense with the notion of opportunity and just focus on the actions and the outcomes of those actions. Through the examination of the forms and amount of action entrepreneurs have taken, the explanation of entrepreneurial opportunity becomes empirically accessible and does not have to stagnate at a theoretical level.

From an opportunity discovery perspective, Tang et al (2012) identify three types of actions enabling entrepreneurs to be alert to the opportunities. Those three actions are: (1) scanning and searching for information, (2) association and connection of previous-disparate information, and (3) making evaluation and judgement regarding the existence of potential opportunities.

In a large scale review of previous literature, Hansen etc. (2011) identified 48 conceptual elements in the definitions of opportunity-related actions. Synthesising these definitions, the authors extract eight elements which they think best reflect various definitions in the literature. Those actions include:

1. Recognizing an idea and transforming it into a business concept.
2. Scanning or being alert.
3. Matching supply and demand.
4. Perception of a felt need.
5. Generating new alternatives in a creative way.
6. Solving problems.
7. Perceiving a possibility to profitably create a new business or improve an existing one.
8. Socially constructing within a window of time.

Through a synthesis of those various elements regarding entrepreneurial action we identify 15 types of actions, which could be classified into the discovering/creating group or the Schumpeterian/Kirznerian group based on their nature to reflect the creation/discovery view or Schumpeterian and Kirznerian view respectively. This is summarized below.

Views Actions	Discovery View	Creation View	Schumpete rian View	Kirznerian View
A1. Planning		Yes	Yes	
A2. Execution of Planning		Yes	Yes	
A3. Looking for Resources			Yes	
A4. Building social network	Yes			Yes
A5. Looking for and analysing information	Yes			Yes
A6. Technology Development		Yes	Yes	
A7. Problem Solving				Yes
A8. Learning	Yes			
A9. Opportunity Perception	Yes			

A10. Developing idea into business plan		Yes		
A11. Opportunity Scan	Yes			Yes
A12. Being alert to opportunity	Yes			Yes
A13. Being alert to imbalance in supply and demand	Yes			Yes
A14. New product/service development		Yes	Yes	
A15. Perception of a possibility to create a new business		Yes		

Table 3-5: Views on Entrepreneurial Actions

The key to distinguish the differences between the discovering action and creating action is to see whether the opportunity come first or the actions are taken first. If it is the case that the opportunity exists first and then the actions follow, these actions are classified as discovering actions. Conversely, if the actions come first, in other words,

the actions are the precondition of the emergence of the opportunities, these actions are classified as creating actions.

The criterion to judge whether the action belongs to a Schumpeterian or Kirznerian group is to see whether this action is a force to disequilibrate or equilibrate the current state, i.e., a force to disturb the equilibrium of the market or bring the market closer to the state of equilibrium. If the action is a disequilibrating force, then it is classified within the Schumpeterian group. On the other hand, if the action is an equilibrating force, it is classified in the Kirznerian group. Good examples of Schumpeterian actions are technological development (A6) and new product/service development (A14), whereas problem solving (A7) and being alert to imbalance in supply and demand (A13) are examples of Kirznerian actions.

Another key feature between these two types of actions is that Schumpeterian actions tend to be more proactive and bring about changes whereas the Kirznerian actions tend to be more passive, responding to the external environment.

CHAPTER 4

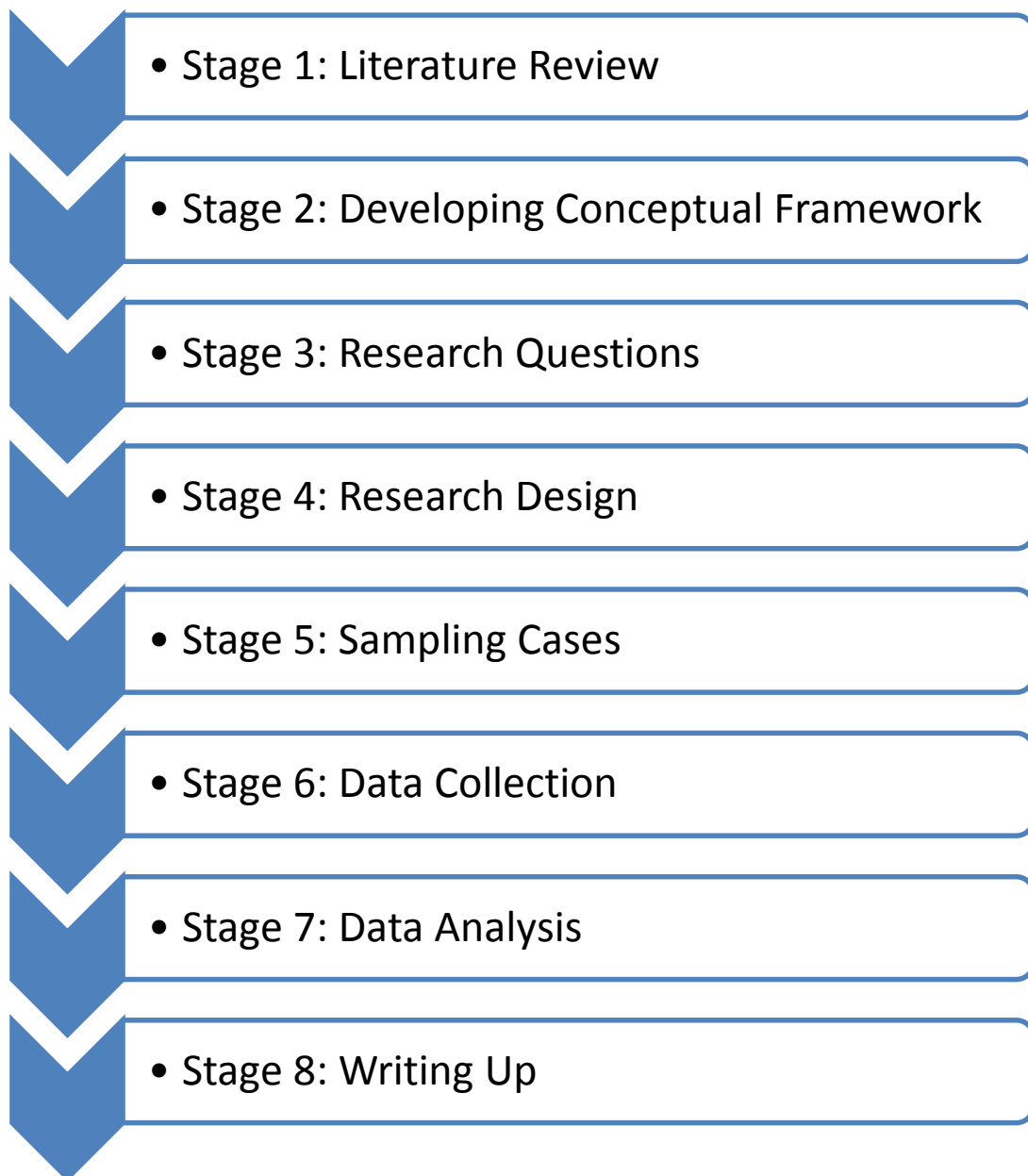
RESEARCH METHODOLOGY

4.1 Overview of the Research Process

4.1.1 Introduction

This section is concerned with the methodological issues of this research.

As an empirical social science research, the whole research generally follows the following procedures. (Bryman, 2012; Kumar, 2011)



4.1.2 Research Questions

The research question is the foundation guideline for all research. It is the research question that makes a research topic researchable. Generally, as mentioned in most academic understanding of research method, the research questions could fall into

three main categories: “what”, “why” and “how” questions (Yin, 1994; Blaikie, 2007).

Research directed by the “what” question is viewed as explorative research trying to discover and describe the characteristics of and patterns in some social phenomenon. A descriptive answer is required.

Explanatory research driven by the “why” question asks for the reasons for the existence of characteristics and regularities in a particular phenomenon. It tries to develop an understanding of the causal relationship between various events and activities.

Research lead by “how” question is concerned with bringing about changes, interventions and their practical outcomes. It usually seeks solutions and suggestions for a particular problem.

Reviewing our research questions, it is obvious that it largely falls into the explorative category. We choose a “what” question to answer because the current research on entrepreneurial opportunity has not convincingly answered the “what” question yet. We need to understand what is going on there before we can explain why something happens the way it does.

Although the research is obviously descriptive in nature, in the exploration of the relationship between the nature of entrepreneurial opportunities and entrepreneurial actions, there is a chance that a causal relationship could be identified between them. In other word, some types of entrepreneurial actions may be found to be the cause that could explain certain characteristics of the opportunities. This would provide some explanatory functions to the research.

4.2 Research Philosophy

4.2.1 Ontological Consideration

Ontology is concerned with the nature of what exists. In social science, ontology answers the question of what is the nature of social reality. Objectivism, subjectivism and constructionism are some of the examples of ontological positions the social science researcher takes. Objectivism asserts that social phenomena and their meaning have an existence which is independent of social actors. Objectivism encompasses the idea that all “things” have intrinsic meaning regardless of the researcher or observers. The researchers’ role is just to discover the meaning that already resides in the things.

Subjectivism is the completely opposite position to objectivism. As suggested by subjectivism, “things” make no contribution to their meaning at all; it is the observer who imposes it. As such, the “thing” may be given very different meaning by different observers.

Constructionism does not agree with either of the first two views. On the one side, constructionism disagrees with objectivism by suggesting that meaning is constructed rather than discovered. The meaning of a thing does not reside in it. The observer plays an active role in the creation of its meaning. On the other side, the meaning creation process is constrained by the nature of the things themselves. The thing's meaning is the result of the observer's engagement with them and the understanding of it that already exist. In short, constructionism asserts that social phenomena and their meanings are continually being accomplished by social actors (Bryman, 2012, pp. 32-33; Blaikie, 2007, pp.18-19; Creswell, 2009).

There are two branches in constructionism, namely constructivism and social constructionism. The former refers to the meaning-giving activities as an individual cognitive process whereas the latter refers to the inter-subjectively shared knowledge, meaning-giving that is social rather than individual. The focus of social constructionism is the collective generation and transmission of meaning.

4.2.2 Epistemological Consideration

Epistemology concerns the question of what should be regarded as acceptable knowledge in a discipline. An epistemology is a theory of knowledge; a theory of how we come to gain the knowledge around us. In social science, epistemologies offer answers to the question: "how can social reality be known?" (Blaikie, 2007, pp.18)

The central issue discussed in the context of social science research is whether the social world could and should be studied according to the same principles and procedures held by natural science disciplines.

Positivism is an epistemological position that affirms the importance of imitating the study of natural sciences by following the principles:

1. “Only phenomena and knowledge confirmed by the senses can genuinely be warranted as knowledge.
2. The purpose of theory is to generate hypotheses that can be tested and that will thereby allow explanations of laws to be assessed.
3. Knowledge is arrived at through the gathering of facts that provide the basis for laws.
4. Science must be conducted in a way that is value free, i.e., objective.”

(Bryman, 2012, pp.27-32)

Interpretivism is a contrasting epistemological position to positivism. This view suggests that the research subjects of social science, including people and their institutions, are fundamentally different from the research subject of natural science. Therefore, the study of the social world requires a different logic, as well as a different procedure to reflect the distinctiveness of the human condition against the natural phenomenon and to grasp the subjective meaning of social actions.

The key differences between the positivism and interpretivism are below.

	Positivism	Interpretivism
Nature of Knowledge	Knowledge is based on phenomena that are directly observable.	Knowledge is based on understanding interpretations and meanings that are not directly observable.
Approach to research social world	Social world should be studied by following the principles of natural science.	Social world should be studied using different approach from natural science.
Emphasis on:	Reliability and generalizability	Validity
Explanation is achieved through:	The establishment of causal laws and theories. (nomothetic approach)	Through descriptions of socially constructed meanings. (idiographic approach)
Research Logic	Deductive	Inductive

Role of theory	Theories are tested by the analysis of hypotheses generated from theories.	Theories are generated from data
Analysis	Analysis is usually based on the statistical testing of theories.	Analysis is usually based on the verbal descriptions and observations from which theory evolves.

Table 4-1: Differences between the Positivism and Interpretivism (Source:Henn, etc., 2009, pp.17)

4.2.3 Worldviews on Research

Creswell (2009) uses the term “worldview” as an alternative to the ontological and epistemological positions. As we find from the literature review, the worldview of researcher, i.e., the ontological and epistemological position researchers take, does implicitly or explicitly influence their description of the nature of entrepreneurial opportunities and their relationship with the entrepreneurs. As a result, it is necessary to take the worldview in the research into account and clearly articulate it.

In this research, we partly hold both the social constructionist and post-positivist worldview. This is because we believe that, as a social phenomenon, entrepreneurial opportunity has an intrinsic nature while its meaning is continually shaped by the social actors, just as suggested by social constructionism. At the same time we also hold a belief, as suggested by the post-positivist position, that there are laws or

theories that govern the world, and these need to be tested or verified and refined so that we could understand the world. The compromise of two or more worldviews is viewed as a pragmatic worldview, which is not committed to any one system of ontology and epistemology (Creswell, 2011, pp.10-11). This view provides the researcher a freedom to choose procedures, logic and methods that best meet the needs and purpose.

4.3 Research Strategies

4.3.1 Quantitative versus Qualitative Research Strategy

Some research methodology writers suggest that the distinction between quantitative research and qualitative research is only in the level of the form of data, since the former employs quantified measurement and the latter does not (De Vaus, 2001). However, other writers suggest that differences between quantitative research and qualitative research is much deeper than the mere presence or absence of quantification and thus, classifies them as two fundamentally different research strategies. (Bryman, 2012 and Creswell, 2011)

Bryman (2012) argues that quantitative and qualitative research represent different research strategies and that each of them carries fundamental differences in the following three aspects: (1) the role of theory; (2) ontological concerns and (3) epistemological concerns.

In addition to emphasizing the quantification in the data collection and analysis, quantitative research usually accesses the research via a deductive approach, i.e., the researcher begins the research with the theories available and the purpose is to test those theories. The researcher using quantitative methodologies usually holds an objectivist viewing of the social reality and the research subject, and thus follows or imitates the norms and procedures of the natural scientific model.

On the other hand, qualitative research emphasizes words rather than quantification in the collection and analysis of data. The relationship between research and theory is usually inductive. The purpose of the research is to generate theory by starting with the observation and collection of data. The qualitative researcher usually views the social world and research subject as a continuously changing entity created by social actors. As such, the norms and procedures of natural science are seen as inappropriate for social science. Qualitative research emphasizes the ways in which individuals interpret the social reality rather than the “objective” nature of it.

Those differences between these two contrasting research strategies are summarized in the following table.

	Quantitative Research	Qualitative Research

The Role of Theory in the Research	Deductive; testing theory	Inductive; generation of theory
Ontological Position	Objectivism	Constructionism
Epistemological Position	Same as natural science; Positivism	Interpretivism

Table 4-2: Differences between Quantitative and Qualitative Research Strategy

(Source: Bryman, 2012, pp36)

The differences between these two strategies are not limited to these three aspects. However, when we decide to make a choice between them, these three aspects provide a useful foundation for consideration.

When we consider the relationship between this research and theory, it is not difficult to find that it is deductive logic we follow. The deductive approach is decided by the purpose of this research: theory testing, i.e. to test and to refine the current theory regarding the nature and the formation of entrepreneurial opportunity. This results in the preferences for a quantitative research strategy.

Since the nature of entrepreneurial opportunity is our research subject, and its objective or subjective nature is the core debating area within the previous research,

we would not like to commit to a single ontological position and thereby reject the opposite one. Therefore, regarding ontological and epistemological consideration, rather than committing to one system of ontology and epistemology, we use a pragmatic approach comprising both social constructionism and positivism. This view provides the researcher a freedom to choose procedures, logic and methods that best meet the needs and purpose of the research.

In general, we believe social actors play an active role in the creation of a “thing’s” meaning; in the case of this research, the entrepreneurial opportunity. On the other side, the meaning creation process is constrained by the intrinsic nature of the opportunity itself. This is consistent with the view from social constructionism. However, we also partly agree with positivist suggestion that there are laws or theories that govern the world, and these need to be tested or verified and refined so that we could understand the world (Creswell, 2011, pp.10-11). We also agree that the positivist principles from natural science such as:

“The purpose of theory is to generate hypotheses that can be tested and that will thereby allow explanations of laws to be assessed”;

and, “knowledge is arrived at through the gathering of facts that provide the basis for laws”

should apply to social science research as well as the norms and procedures of natural science (Bryman, 2012, pp.27-32). The tendency towards the view of positivism results in the preference for a quantitative strategy.

The common process of quantitative research is illustrated below:



Figure 4-1: Process of Quantitative Research (Source: Bryman, 2012, pp.161)

4.4 Research Design

4.4.1 Research Designs

Since the two terms, the research design and research method, are often confused and used interchangeably by researchers (Creswell (2009) suggests that quantitative, qualitative and mixed methods as three types of research design; De Vaus (2001) suggests four types of research design: experimental design, longitudinal design, cross-sectional design and case study design), it is necessary to make some clarifications. We follow Bryman (2012) and De Vaus' (2011) differentiation between them by suggesting that when we use the term “research design” in this thesis, it represents a structure that guides the executions of a research method and the analysis of the data, whereas the “research method” simply represents a technique for collecting data. (Bryman, 2012, pp.44-46) The research design is treated as a logical structure of the inquiry rather than as a mode of data collection.

De Vaus suggests the purpose of a research design is to “reduce the ambiguity of much research evidence” and the function of a research design is to “ensure that the evidence obtained enable us to answer the initial question as unambiguously as possible.” (De Vaus, 2001, pp.9-11) Similarly, Kumar (2005) suggests that there are two main functions of research design. The first one is to identify or develop the procedures and logistical arrangements required to undertake research. The other is to guarantee the quality of these procedures to ensure validity, objectivity and accuracy (Kumar, 2005, pp.84).

Experimental design, longitudinal design, cross-sectional design and case study design are four different types of research design most commonly used to approach research (De Vaus, 2001; Kumar, 2005; Rugg and Petre, 2007). In a recent research method textbook, Bryman (2012) establishes comparative design as another type of research design.

The advantages, disadvantages and some key features of each of these designs are summarized in the following table(De Vaus, 2001; Yin, 1994; Bryman, 2012; Kumar, 2005; Rugg and Petre, 2007).

Research Designs	Advantages	Disadvantages	Key Features
Experimental Design	Good at drawing causal relationships between variables. Allows isolation of the impact of the experimental variable by randomly allocating people to experimental and control groups.	Not good at building a whole picture of the complex set of factors that produce a given result. Just focuses on the impact of a few factors. Normally costly; ethical issues, especially in social science research.	Manipulation of the variable through interventions.
Cross-sectional Design	Good at describing the prevalence of a phenomenon, differences in situation and attitudes. Good at identifying relationships between variables. Simple and cost effective. Strong external validity. Less ethical issue.	Not good at building causal relationships because of the lack of a time dimension.	No time dimension. The analysis relies on the sample's existing variance.
Longitudinal Design	Good at measuring changes over time, describing patterns of change and establishing cause-effect relationships in time order.	Time consuming. Sample may become unrepresentative if the population changes. Panel attrition: the loss of cases over time. The inference to research subject.	Collects data concerning at least two time points.
Case Study Design	Avoids examining just some of the constituent elements. Good at	Weak external validity. Reactive effect: doing a case study can	Case may consist of multiple levels or components. Emphasis

	build up a whole picture of the case by taking into account information obtained from many level. May produce idiographic and complete explanation for the case. High internal validity.	produce changes in the case and we can confuse this effect with effects of other variables.	on understanding the whole case and studies the case within its broader context. The boundary between phenomenon and context are not clearly evident.
Comparative Design	Establishes explanations for similarities and differences, and thus achieve greater awareness and deeper understanding of phenomenon in different contexts.	Costly and time consuming.	Studies two or more contrasting cases using identical methods.

Table 4-3: Comparison among Different Types of Research Designs

Research design is something used to answer a research question. For different research questions, different research designs are required. To choose which one from the different types of research design, the most important consideration should be the research questions and the purpose of the research. Some other practical factors including the timescale and the budget of the research as well as the experience of the researchers should be taken into account at the same time.

4.4.2 Cross-Sectional Design

Bryman (2012) defines the cross-sectional design as a logical structure which “entails the collection of data on more than one case and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more variables, which are then examined to detect patterns of association.” (Bryman, 2012, pp.58)

According to De Vaus (2001), cross-sectional designs have three distinctive features: (1) no time dimension; (2) a reliance on existing differences rather than change following intervention; (3) groups based on existing differences rather than random allocation.

The most important consideration for cross-sectional design is to obtain a structure set that enables systematic comparisons between cases. The analysis of cross-sectional

data requires data from multiple cases using the same variables. Analysis relies on comparing cases and accounting for variation between cases on one variable in terms of variation on another variable (De Vaus, 2001, pp185).

Based on these features of cross-sectional design, Kumar (2005) points out that this design is best for research aimed at finding out the prevalence of a phenomenon, situation, problem, attitude and relationship by taking a cross-section of the population.

Because of “no time dimension” feature, the biggest disadvantage of a cross-sectional design is that it can only measure the differences between groups but cannot measure changes over a period of time (Kumar, 2005, pp.95; De Vaus, 2001, pp.171). The lack of time dimension is the main source of challenge in establishing a causal relationship.

4.4.3 Selection of Research Design

By reviewing our research questions and taking into account the nature of this research, it is found that the cross-sectional design is quite well suited to answer the research question.

Let us review the main research question and its sub-questions.

Research Question: What is the relationship between the nature of entrepreneurial opportunity and the actions to pursue it?

Sub-research question 1: What is the nature of entrepreneurial opportunity?

Sub-research question 2: What role do entrepreneurial actions play in the pursuit of opportunities?

An experimental design is the first one we can dismiss because of the “real world” nature of this research on entrepreneurship. Although there are some examples of experimental designs in studying entrepreneurship (e.g. the research from Gielnik etc., (2012b) who attempt to examine the effect of diversity of information on entrepreneurial opportunity identification process by a designed experiment), it is very difficult, although possible, to put the real concept of entrepreneurial opportunity and entrepreneurial actions into laboratory settings. Entrepreneurship, as a complex social phenomenon, involves so many social actors including policy makers, individual entrepreneurs, investors etc that entrepreneurship would lose its true meaning if it is put into an experiment. In other words, the entrepreneurial opportunity would no longer be the real “entrepreneurial opportunity”; the entrepreneurial action would no longer be the real “entrepreneurial action” we want to study. In addition, manipulation of variables through interventions, a key feature in experimental design is difficult to accomplish in real world. Even if interventions are accomplished, the effects of the intervention on the outcomes are easily confused with the effects from some other factors because of the complexity of the context. As a result, experimental design is excluded from our consideration.

When we look at these research questions, it is easy to identify the general descriptive nature of the research because of the “what” questions. In terms of the capability of description, a cross-sectional design has an advantage compared to other designs. What we want to find and describe in the research is the relationship between two concepts: the nature of entrepreneurial opportunity and entrepreneurial actions. To find the relationship, it is necessary to have a systematic and standardized method to measure the variation and establish the variation between cases (Bryman, 2012, pp.59). Regarding this point, a cross-sectional design and longitudinal designs have the advantages to track the variation among cases or along the timeline, respectively. By contrast, a case study does not have any advantage in this regard.

Although case study design has an advantage in producing explanations for a relationship, the design usually produces a complete and idiographic explanation by taking into account many factors at different levels. What we are interested in this research is simply the relationship between two concepts rather than the whole picture including all kinds of related factors. Hence case study design is excluded from the options.

Cross-sectional design and longitudinal design remain. Both of them are capable of establishing a systematic and standardized method for gauging the variation to identify the pattern of association. Longitudinal design is especially good at tracking

variation over time and finding the pattern of changes. Since time order is the precondition for a causal relationship, the causal relationship established by longitudinal research is usually sounder than a cross-sectional design, which faces the difficulties in unambiguously identifying the time sequence of events. The advantage of longitudinal design does not cost anything. The most obvious drawback of it is the time consumption, whereas one-off cross-sectional design has a big advantage in this regard.

Before undertaking research, we are not sure if there is a causal relationship between the two concepts. Thus, a description of the influence on them and their patterns of association should be thoroughly examined in the beginning. For this, a cost-effective cross-sectional design is preferred. In addition, causal inferences can also be drawn from a cross-sectional design, as long as they conform to certain principles and procedures (Bryman, 2012, pp.59).

To briefly summarise the Research Methodology Chapter: this research embodies a worldview of pro-positivism in tandem with social constructivism to view the social world and research field. By taking into account the nature of the research questions, a quantitative research strategy is preferred as the appropriate approach to access the research questions. Through the examination and comparison of different research designs, cross-sectional design is regarded as the most appropriate one and the most practical one to unambiguously and satisfactorily answer the research questions.

4.5 Components in the Research

4.5.1 Theories

A theory is “a set of interrelated variables, definitions, and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining phenomena.” Under this definition, a theory is an interrelated set of variables formed into propositions, or hypotheses that specify the relationship among variables (Creswell, 2009, pp. 51).

In a quantitative study, theories are usually applied deductively and placed at the very beginning of the study. With the objective of testing and verifying the theory rather than developing it, the researcher advances a theory, collects data to test it, and reflects on its confirmation or disconfirmation by the result. The theories have three main functions in the study: firstly, theories are used to construct the framework for the whole research. Secondly, theories are used to build an organizing model for the specific research questions and hypotheses. Thirdly, theories are used as the guideline for the data collection procedure (Creswell, 2009, pp. 55).

4.5.2 Hypotheses

The research questions are usually too general and too abstract to enable us to carry out the data collection and analysis. They need to be translated in a more specific and

operational way. Hypotheses are specific statements that relate to the research questions.

A good set of hypotheses is essential to structure the research study. The importance of hypotheses lies in their ability to bring direction, precision and focus to a research question. They inform the researcher what specific information to collect and thus provide greater focus (Kumar, 2011, pp.82).

There are many versions of the definition of a hypothesis. According to Webster's dictionary (2013), a hypothesis is defined as "an idea or theory that is not proven but that leads to further study or discussion" or "a tentative assumption made in order to draw out and test its logical or empirical consequences." According to Frankfort-Nachmias and Nachmias(1996), a hypothesis is defined as "a tentative answer to a research problem (research question), expressed in the form of a clearly stated relation between the independent and the dependent variables" (Frankfort-Nachmias and Nachmias,1996; Henn etc., 2009, pp.55). Kerlinger (1986) simply defines it as "a conjectural statement of the relationship between two or more variables" (Kerlinger, 1986, pp.17; Kumar, 2011, pp.82).

Based on these definitions, three obvious characteristics of a hypothesis emerge: (1) a hypothesis is tentative since they could be verified only after it has been tested

empirically; (2) the validity of a hypothesis is unknown; (3) it specifies a relationship between two or more variables in most cases (Kumar, 2011).

In the case of this research, the hypotheses are deducted from existing theories regarding the entrepreneurial opportunities and entrepreneurial actions. They are presented as below.

Hypothesis 1: Entrepreneurial opportunities with more objectivity in nature are more likely to be discovered by entrepreneurs, i.e., objectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs' discovering actions.

Hypothesis 2: Entrepreneurial opportunities with more subjectivity in nature are more likely to be created by entrepreneurs, i.e., subjectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs' creating actions.

Hypothesis 3: Opportunity's Schumpeterian nature has a positive relationship with entrepreneurs' actions that disturbs the equilibrium of the market.

Hypothesis 4: Opportunity's Kirznerian nature has a positive relationship with entrepreneurs' actions that result in the equilibrium of the market.

4.5.3 Concepts

A concept is an “abstract summary of a particular phenomenon which is of interest to the researcher – a representation of an object or one of its properties” (Henn etc. 2009, pp56-59). Entrepreneurial opportunity and entrepreneurial action are the two key concepts in this research.

For most of the concepts, there are different dimensions which are useful, sometimes even necessary, to distinguish in the research (Henn etc. 2009, pp56-59). Taking the concept of entrepreneurial opportunity as the example, there are at least two dimensions by which the entrepreneurial opportunity could vary based on the previous research. The first dimension regards the perceived objectivity of the opportunity and the other one regards the Schumpeterian or Kirznerian nature of the opportunity. By distinguishing these two dimensions of entrepreneurial opportunity, opportunity is rendered as two variable attributes.

In like manner, the concept of entrepreneurial action also has at least two dimensions. The first dimension is its discovering or creating nature. In other words, whether the action is the reaction/result of the opportunity or the action is the precondition of the emergence of opportunity. The second dimension is about the equilibrating or disequilibrating nature (i.e. whether the entrepreneurial action leads the economy closer to equilibrium or disturbs the equilibrium) of the entrepreneurial action. By

delineating these dimensions of entrepreneurial opportunity and entrepreneurial action, more sophisticated theorizing and more useful analysis could be generated (Henn etc. 2009, pp57).

Once the different dimensions of the concepts are specified, the next step is to move from the abstract to the concrete. This step is called operationalization and refers to the process through which indicators are developed to measure the concepts; in other words, to transform the different dimensions of concepts into observable phenomena (Henn etc. 2009, pp58).

4.5.4 Indicators

The concepts have to be measured to be employed in quantitative research. In order to provide a measure of concept (also known as operational definition), it is necessary to have an indicator or indicators that will represent the characteristics and meaning of the concept. Thereafter, an indicator is something that is devised or already exists and that is employed as though it were a measure of a concept (Bryman, 2012, pp.164).

The Likert Scale is essentially a multiple-indicator of a set of attitudes relating to a particular area. The goal of the Likert scale is to measure the intensity of feelings about the area in question (Bryman, 2012, pp.166).

In this research, a 5 point Likert scale is used to gather respondents' opinions to what extent they agree or disagree on some statements concerning the concepts we need to measure. It is also used to gather respondents' opinions to what extent they regard some issues as important or not important.

4.5.5 Variables

“In a quantitative research study, variables are related to answer the research questions or to make predictions and hypotheses about what is expected.” (Creswell, 2009, pp. 50)

A variable refers to a characteristic or attribute of an individual or an organization that can be measured or observed and that varies among the people or organization studied (Creswell, 2009, pp. 50). According to Kumar (2011), the key difference between a concept and a variable is measurability. A concept cannot be measured whereas a variable can be quantified by units of measurement. As such, a concept that is capable of measurement-hence capable of taking on different values- is called a variable (Kumar, 2011, pp.62).

Measurement is central to any research. The way a variable is measured determines the type of analysis that can be performed, the statistical procedures that can be applied to the data, the way the data can be interpreted and the findings that can be communicated (Kumar, 2011, pp73-4).

4.5.6 Operationalization

The operationalization process of the concept is the process of identifying indicators which are a set of criteria reflective of the concept and converting them into variables.

The process is illustrated as follows:

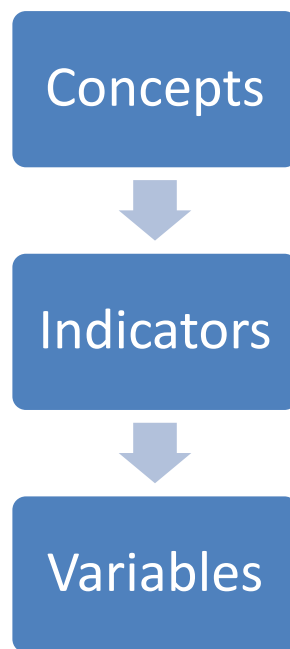


Figure 4-2: Process of Converting Concept into Variables (Source: Kumar, 2011, pp.65)

In case of this research, the dimensions of concepts are added. The whole operationalization process and elements in each step are summarized in the following table.

Concepts	Dimensions of Concept	Indicators	Variables
Nature of Entrepreneurial Opportunity	Objective or subjective nature of opportunities	Q10_1: This entrepreneurial opportunity is objective in nature	V1.Objective opportunity
		Q10_2: This entrepreneurial opportunity is subjective in nature	V2.Subjective opportunity
		Q10_6: Most people could identify this opportunity. Q15_1: The entrepreneurial opportunity exists before any action takes place.	V3.Index of objectivity of opportunity
		Q10_5: This opportunity comes from entrepreneur's perception. Q15_2: It is the entrepreneurial action that forms the opportunity.	V4.Index of Subjectivity of opportunity
	Schumpeterian or Kirznerian nature of opportunities	Q10_8: This opportunity has high levels of innovation. Q10_10: This opportunity comes from changes of external environment. (e.g. change in policy, new emergence of technology, social structure)	V5.Schumpeterian Index of opportunity
		Q10_9: This opportunity comes from information asymmetry. Q10_11: This opportunity comes from changes in supply and demand.	V6.Kirznerian Index of opportunity
Entrepreneurial Actions	Discovering or creating action	Q10_3: This entrepreneurial opportunity is discovered or recognized.	V7.Discovery
		Q10_4: This entrepreneurial opportunity is created or constructed.	V8.Creation

		Q16_5: Looking for and analysis of information Q16_7: Problem solving Q16_9: Opportunity Perception Q16_11: Opportunity Scan Q16_12: Being alert to opportunities Q16_13: Being alert to imbalance in supply and demand Q16_15: Perceiving a possibility to create a new business or improve an existing one.	V9. Index of Discovering actions (input)
		Q16_1: Planning Q16_2: Execution of planning Q16_3: Looking for resource Q16_4: Building social network Q16_6: Technology development Q16_10: Development of idea into business plan Q16_14: New product or service development	V10. Index of Creating actions ((input))
	Equilibrating or disequilibrating action (Schumpeterian or Kirznerian Actions)	Q16_6: Technology development Q16_8: Learning Q16_14: New product or service development	V11. Index of Schumpeterian action (input)
		Q16_5: Looking for and analysis of information Q16_9: Opportunity Perception Q16_11: Opportunity Scan Q16_12: Being alert to opportunities Q16_13: Being alert to imbalance in supply and demand Q16_15: Perceiving a possibility to create a new business or improve an existing one.	V12. Index of Kirznerian actions (input)

Table 4-4: Operationalization: Concepts, Indicator and Variables. (Specific Entrepreneurial Opportunity)

By the operationalization process, the concepts of this research, the nature of entrepreneurial opportunity and entrepreneurial actions, and their different dimensions become observable through the indicators and are converted into different variables available for further analysis.

It is worth pointing out that the above operationalization process is based on the entrepreneurs' understanding of the specific opportunity they are pursuing and the actual actions they have taken. A comprehensive understanding would be achieved if we could have a broader perspective. Thus, entrepreneurs' perception of general entrepreneurial opportunities and their attitudes towards the importance of different entrepreneurial actions would be examined in a similar process but with different indicators (e.g. attitudes towards different definitions of entrepreneurial opportunity is applied as indicators; perceived importance rather than actual input of different entrepreneurial actions are used as indicators). This process is presented as follows:

Concepts	Dimensions of Concept	Indicators	Variables
Nature of Entrepreneurial Opportunity	Objective or subjective nature of opportunities	Q11_1: Entrepreneurial opportunity is objective, existing independently from entrepreneurs	V13. Objective opportunity (G)
		Q11_2: Entrepreneurial opportunity is subjective.	V14. Subjective opportunity (G)
		Q11_6: Most of people could identify opportunity. Q15_1: The entrepreneurial opportunity exists before any action takes place. Q12_1: An opportunity is the possibility of introducing a new product to the market at a profit. Q12_7: An opportunity is the possibility to serve customers differently and better.	V15. Index of objectivity of opportunity (G)
		Q11_5: Opportunity comes from entrepreneur's perception. Q15_2: It is the entrepreneurial action that forms the opportunity. Q12_2: An opportunity is a situation in which entrepreneur envision new means-ends framework. Q12_4: An opportunity is an idea that has developed into a business form. Q12_5: An opportunity is an entrepreneurs' perception of a feasible means to achieve benefits.	V16. Index of Subjectivity of opportunity (G)

		Q12_6: An opportunity is an entrepreneur's ability to create a solution to a problem.	
	Schumpeterian or Kirznerian nature of opportunities	Q11_8: Opportunity is with high level of innovation. Q11_10: Opportunity comes from changes of external environment. (e.g. change in policy, new emergence of technology, social structure) Q12_3: An opportunity is a situation in which entrepreneurs create new means-ends framework.	V17. Schumpeterian Index of opportunity (G)
		Q11_9: Opportunity comes from information asymmetry. Q11_11: Opportunity comes from changes in supply and demand. Q12_5: An opportunity is an entrepreneurs' perception of a feasible means to achieve benefits. Q12_7: An opportunity is the possibility to serve customers differently and better.	V18. Kirznerian Index of opportunity (G)
Entrepreneurial Actions	Discovering or creating action	Q11_3: Entrepreneurial opportunity is discovered or recognized.	V19. Discovery (G)
		Q11_4: Entrepreneurial opportunity is created or constructed.	V20. Creation (G)
		Q16_5: Looking for and analysis of information Q16_7: Problem solving Q16_9: Opportunity Perception Q16_11: Opportunity Scan Q16_12: Being alert to opportunities Q16_13: Being alert to imbalance in supply and demand Q16_15: Perceiving a possibility to create a new business or improve an existing one.	V21. Index of Discovering actions (Perceived importance)

		Q16_1: Planning Q16_2: Execution of planning Q16_3: Looking for resource Q16_4: Building social network Q16_6: Technology development Q16_10: Develop idea into business plan Q16_14: New product or service development	V22. Index of Creating actions (Perceived importance)
	Equilibrating or disequilibrating action (Schumpeterian or Kirznerian Actions)	Q16_6: Technology development Q16_8: Learning Q16_14: New product or service development	V23. Index of Schumpeterian action (Perceived importance)
		Q16_5: Looking for and analysis of information Q16_9: Opportunity Perception Q16_11: Opportunity Scan Q16_12: Being alert to opportunities Q16_13: Being alert to imbalance in supply and demand Q16_15: Perceiving a possibility to create a new business or improve an existing one.	V24. Index of Kirznerian actions (Perceived importance)

Table 4-5: Operationalization: Concepts, Indicator and Variables. (General Entrepreneurial Opportunity)

By using the indicators and converted variables, we are able to give a closer examination of the four hypotheses proposed earlier. Because both the information on the specific entrepreneurial opportunity the entrepreneurs are pursuing and the attitude of general opportunities would be gathered, there would be at least two tests on each hypothesis based on “specific opportunity” and “general opportunities”. All the tests that will be conducted and the expected results are summarized in the following table:

	Specific Opportunity	General Opportunities
Hypothesis 1:	Objectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs' discovering actions	
Tests and Expected Results	Test 1: V1 "Objective opportunity" is positively related to V7 "Discovery"	Test 3: V13 "Objective opportunity (G)" is positively related to V19 "Discovery (G)"
	Test 2: V3 "Index of objectivity of opportunity" is positively related to V9 "Index of Discovering actions (Input)"	Test 4: V15 "Index of objectivity of opportunity (G)" is positively related to V21 "Index of Discovering actions (Perceived importance) "
Hypothesis 2:	Subjectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs' creating actions.	
Tests and Expected Results	Test 5: V2 "Subjective opportunity" is positively related to V8 "Creation"	Test 7: V14 "Subjective opportunity (G)" is positively related to V20 "Creation (G)"
	Test 6: V4 "Index of Subjectivity of opportunity" is positively related to V10 "Index of Creating actions (Input)"	Test 8: V16 "Index of Subjectivity of opportunity (G)" is positively related to V22 "Index of Creating actions (Perceived importance)"
Hypothesis 3:	Opportunity's Schumpeterian nature has a positive relationship with entrepreneurs' actions that disturb the equilibrium of market.	
Tests and Expected Results	Test 9: V5 "Schumpeterian Index of opportunity" is positively related to V11 "Index of Schumpeterian action (Input)"	Test 10: V17 "Schumpeterian Index of opportunity (G)" is positively related to V23 "Index of Schumpeterian action (Perceived importance)"
Hypothesis 4:	Opportunity's Kirznerian nature has a positive relationship with entrepreneurs' actions that resort the equilibrium of market.	
Tests and Expected Results	Test 11: V6 "Kirznerian Index of opportunity" is positively related to V12 "Index of Kirznerian actions (Input)"	Test 12: V18 "Kirznerian Index of opportunity (G)" is positively related to V24 "Index of Kirznerian actions (Perceived importance)"

Table 4-6: Hypotheses and Tests

The above table could be simplified into the following one by using signs. (H for hypothesis, T for test, V for variable, “+” and arrow for a positive relationship)

	Specific Opportunity	General Opportunities
H 1:	Objectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs’ discovering actions.	
Tests and Expected Results	T 1: V1 $\xrightarrow{+}$ V7	T 3: V13 $\xrightarrow{+}$ V19
	T 2: V3 $\xrightarrow{+}$ V9	T 4: V15 $\xrightarrow{+}$ V21
H 2:	Subjectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs’ creating actions.	
Tests and Expected Results	T 5: V2 $\xrightarrow{+}$ V8	T 7: V14 $\xrightarrow{+}$ V20
	T 6: V4 $\xrightarrow{+}$ V10	T 8: V16 $\xrightarrow{+}$ V22
H 3:	Opportunity’s Schumpeterian nature has a positive relationship with entrepreneurs’ actions that disturb the equilibrium of market.	
Tests and Expected Results	T 9: V5 $\xrightarrow{+}$ V11	T 10: V17 $\xrightarrow{+}$ V23
Hypothesis 4:	Opportunity’s Kirznerian nature has a positive relationship with entrepreneurs’ actions that resort the equilibrium of market.	
Tests and Expected Results	T 11: V6 $\xrightarrow{+}$ V12	T 12: V18 $\xrightarrow{+}$ V 24

Table 4-7: Hypotheses and Tests (Simplified)

4.6 Research Methods

As distinguished earlier, the term ‘research design’ represents a structure that guides the executions of a research method and the analysis of the data, whereas the term “research method”, which will be discussed in this part, simply represents a method for collecting data.

4.6.1 Data Collection Instruments

Structured interview and self-completion questionnaire are the two main methods for data collection in a cross-sectional design. The key difference lies in the presence or absence of an interviewer in the administration of the questionnaire (Bryman, 2012, pp.233). We chose the self-completion questionnaire over structured interview as the instrument to gather the data because of its advantages: (1) cheaper administration; (2) faster administration; (3) greater convenience for respondents.

However, at the same time, collecting data through self-completion questionnaires bears some risks and disadvantages in: (1) not knowing who answers the questions; (2) being unable to probe respondents to collect additional data; (3) a greater risk of missing data; (4) lower response rates. Being aware of these disadvantages and risks, we have made some special efforts to reduce the risk and diminish the disadvantages in the administration process, which will be mentioned later.

The questionnaire is designed by generally following the procedures proposed by Churchill (2005), which consist of nine steps.

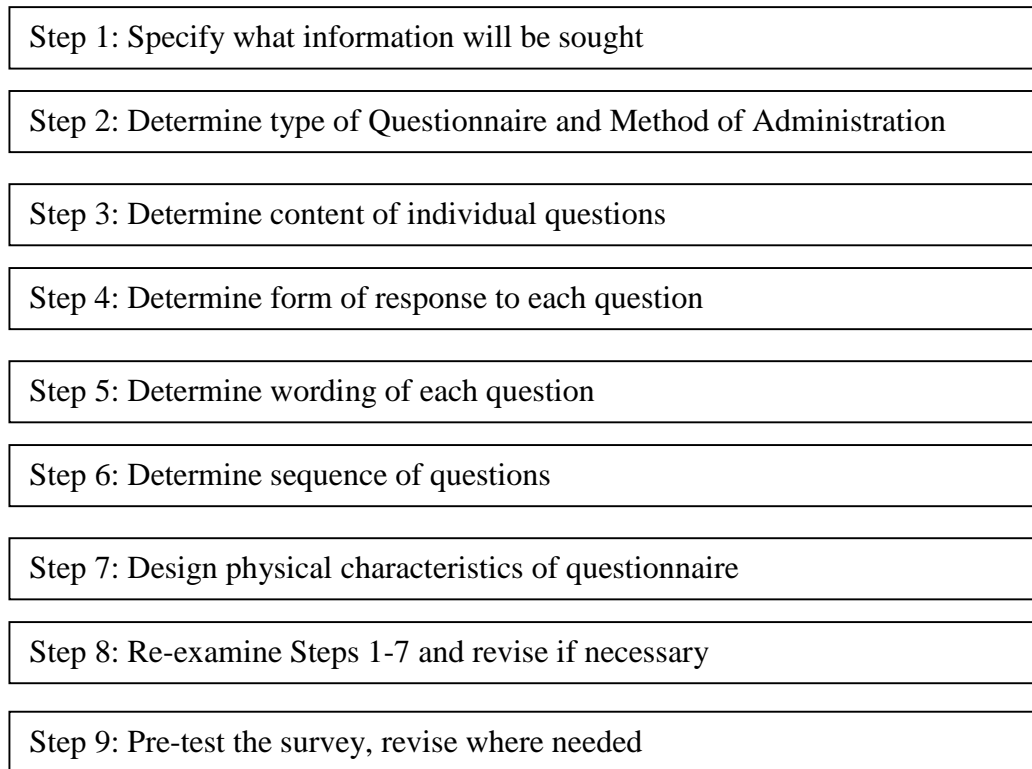


Figure 4-3: Procedure for Developing a Questionnaire (Source: Churchill, 2005, pp.234)

4.6.2 Questionnaire Administration

4.6.2.1 Translation

Since all of the literature, theories, hypotheses, concepts and questions are communicated in English, whereas the target research sample are Chinese entrepreneurs, one of the necessary processes in the questionnaire administration is to translate the designed questions from English into Chinese. The adoption of self-

completion questionnaire faces a potential risk in that the respondents may not understand some of the questions very well because of poor wording and may find themselves without any help. This may lead to the collection of more missing or inaccurate data. Questionnaires that have different languages in the design stage and implementation stage, face increased risk because of the additional translation process. Being aware of this, the questionnaire is carefully translated by following steps.

All of the questions are initially developed in English based on the literature and theories, most of which are in English (Version 1e, 'e' is for English). This is because it is important that all the questions could truly reflect the precise meaning of concepts in the research. After all the questions were design by the author, the questionnaire in English was reviewed by the author's supervisor and peers. Some wording judged too confusing or too academic to be understood by people outside of academia are refined and replaced (Version 2e).

Then the questionnaire in Version 2e was translated by the author carefully from English into Chinese (Version 2c, 'c' for Chinese). Both Version 2e and 2c are reviewed by author's peers who are bilingual to make the comparison between these two versions. According to their comments and suggestions, Version 3c is developed. This version of the questionnaire is used in the pilot study. After the completion of the pilot study, based on the feedback, a new version of the questionnaire is refined in English and reviewed by the supervisor (Version 4e, which is attached in the

Appendix 1). After the translation and proof reading from peer, the final version, Version 4c is completed and applied into the research to collect data.

4.6.2.2 Layout

Because the questionnaire is to be completed online by the respondents, it is very easy for them to close the window with just one click. As such, the principle for the layout of this questionnaire is to be as simple as possible and as engaging as possible.

The online questionnaire has three pages; only one of them contains the questions. The first page is a brief introduction of this study and indicates to the respondent that the completion of the whole questionnaire will take about 10-15 minutes on average. The last page acknowledges the researcher's appreciation for the respondent's cooperation and gives them the option to leave details for the future contact.

The questions are contained within one webpage. The purpose of this design is to let the respondents have a direct idea of how many questions they are going to answer. By putting all of the questions into a single page, the respondent could simply scroll up or down to know where exactly they are, instead of clicking "next page" page after page. Based on the content of the questions, the questions are naturally divided into six blocks. Each of the blocks has a short title allowing the respondents to know the content they are going to answer. For questions with several sub-questions whose answers are in same format, a matrix was built to make it look neat and simple.

4.6.3 Pilot Study

A pilot study offers the opportunity to obtain an indication of how respondents might answer the questions. One of the main purposes of the pilot study is to carry out a critical examination of the understanding of each question and its meaning as understood by a respondent to test the clarity and consistency. It is also a pre-test of the design of the questionnaire and the administration of data collection and data processing (Churchill, 1999; Kumar, 2011).

There are three commonly used pre-testing methods for a questionnaire: focus group, in-depth interview and field pre-testing. For this pilot study, we chose a field pre-testing followed by an interview. The pilot sample comprised seven people who are all very well known by the author. They are actively involved in entrepreneurial activities, either as an employee or an employer, a circumstance which is very similar to the actual research sample population in many aspects. A field pre-testing is most similar to the actual study and thus has the best chance to reveal any potential problems.

The pilot study consists of two steps. The respondents are first asked to fill the online questionnaire by themselves. In the second step, they are interviewed individually by the author after the completion of the questionnaire. The interview provides the chance for them to criticize the questions in terms of clarity, wording and content. They are also asked to put comments if there is anything may raise their concern in the whole process.

As mentioned earlier, the questionnaire in Version 3c was applied in the pilot study. Based on the feedbacks and comments from the respondents, several amendments were made to finalize the questionnaire.

The data from these seven cases are then input into the statistical analysis software (SPSS) and processed to check the coding.

4.6.4 Sampling

4.6.4.1 Random Sampling and Non-Random Sampling

Sampling is the process of “selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimates or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group” (Kumar, 2011, pp.192). The primary goal of sampling is to achieve maximum precision in the estimate within a given size and to avoid bias in the selection of sample.

Sampling methods are generally divided into two categories: random or probability sampling and non-random or non-probability sampling. Randomization is the key feature of a random sampling to ensure an unbiased sample is generated. To be qualified as a random or probability sampling, it is necessary that each case in the

population has an equal and independent chance of selection in the sample. Non-random or non-probability sampling does not follow the theory of probability in the choice of cases from the sampling population. In non-random sampling the randomization does not apply whereas other factors such as the researcher's ease of access and researcher's judgment will function in the sampling process. Convenience sampling, quota sampling and judgmental sampling are some examples of non-random sampling (Kumar, 2011, Bryman, 2012).

The main consideration in convenience sampling and quota sampling is the researcher's ease of access to the sample population. The biggest advantage of using these sampling methods is that it requires the least time and other resources.

However, it bears an obvious disadvantage in that the most accessible respondents might have some unique characteristics to them and hence might be unrepresentative of the population. In a judgmental sampling, the researcher, based on his or her judgment, only goes to those people who are most likely to have the required information and most likely to share them with the researcher (Kumar, 2011, pp206-7).

4.6.4.2 Sampling Process

In the sampling process of this research, both the techniques of random sampling and non-random sampling are used in different stages. To satisfactorily explore the research question, entrepreneurs are the target research population, yet it is obvious that it is impossible to study all of the entrepreneurs in one country, or even in one

single area. Therefore in the study, we will use the techniques of convenience sampling and judgmental sampling to reduce the target into an operational scale.

During the study of entrepreneurship, it has been found that there are many entrepreneurship associations in China. They are either non-governmental organizations or organizations that have a government background, sharing some common goals and functions. At a macro level, these associations aim to develop the local economy and generate employment by the promotion of entrepreneurship. At an individual level they aim to improve entrepreneurs' skills and abilities and to enhance communication among entrepreneurs by providing a platform for various events such as conferences, seminars, training and the publication of periodicals or journals. The Chinese Entrepreneur Association (CEA), China Association of Technology Entrepreneurs (CATE), International Council of Small Business in China (ICSB), China Association of Technology Entrepreneurs Incubation are some of the leading examples of this kind of association.

These associations work as: potential entrepreneurs register either as an individual member or as a company member of a certain association. The associations are responsible for evaluating the candidates and offering various kinds of service to help their members. These services include providing the entrepreneurs opportunities to access potential investors and other resources providers, organizing training and workshops to develop further abilities, carrying out conferences and seminars to enhance communication and to build strong social networks among

entrepreneurs. Thus, these associations have a close relationship with their entrepreneur members. It is believed that we could get in contact with a considerable number of entrepreneurs by just accessing several entrepreneurs associations.

By using the entrepreneur members of certain associations, the ease of access to the research target would be considerably enhanced. In addition, it is this group of members that are believed to most likely have the information we need. However, this sampling process has its own risk in that the entrepreneurs from one or more certain associations might have some unique features (might caused by a special event, or a special membership requirement and etc.) and would not be representative of the whole sample population.

During the research period, a gatekeeper to the entrepreneur members of several associations was identified. 51 Diaocha is a company who helps the registration and administration of the entrepreneurs for the abovementioned associations. 51 Diaocha has a close relationship with entrepreneur associations and claims to have access to over 10,000 contacts who are entrepreneurs registered in the one of the associations. We managed to obtain a random list containing 2000 entrepreneurs as our sample. This process is regarded as a random sampling since every member of the population has an equal and independent chance to be selected in the sample. The process of randomization is to enhance the representation by increasing the heterogeneity of the sample. In this case, the randomization ensures the entrepreneurs from different

associations are selected. Thus the risk caused by quota sampling and judgmental sampling is mitigated.

4.6.4.3 Criteria Question

Although all of the 2000 individuals in the list produced by 51 Diaocha are members of entrepreneur associations, it is not guaranteed that all of them have the information we need. Because of the nature of this research, the central point to be qualified in the sample is that the respondent must be involved in entrepreneurial activity, or have been engaged in entrepreneurial activity within the past two years. This criteria is adopted with the reference of the large scale survey produced by Global Entrepreneurship Monitor (GEM)² (Reynolds, etc., 2005; Arenius and Minniti, 2005).

The criteria question was “Over the past two years, have you done anything to help start a new business, such as looking for equipment or a location, organizing a start-up team, working on a business plan, beginning to save money, or any other activities that would help launch a business?” Only by answering “yes” to this question, could the respondent be regarded as a qualified case and hence be permitted to continue to the questionnaire. Otherwise, the questionnaire would stop.

² Global Entrepreneurship Monitor (GEM), initiated in 1999 as a joint research program between London Business School and Babson College, is the largest ongoing study of entrepreneurial dynamics in the world. In 2013, the survey is set to cover 75% of world population and 89% of world GDP. The questions presented are based on the questions that are used to identify entrepreneurs and owners in GEM's 2010 survey

Apart from the criteria question, there are also another three questions to identify the respondents' employment status and to further distinguish them between “entrepreneurs as employer” and “entrepreneur as employees”. The sequence and logic of these questions is illustrated as following (Source: Global Entrepreneurship Monitor GEM 2010 Adult Population Survey, 2010).

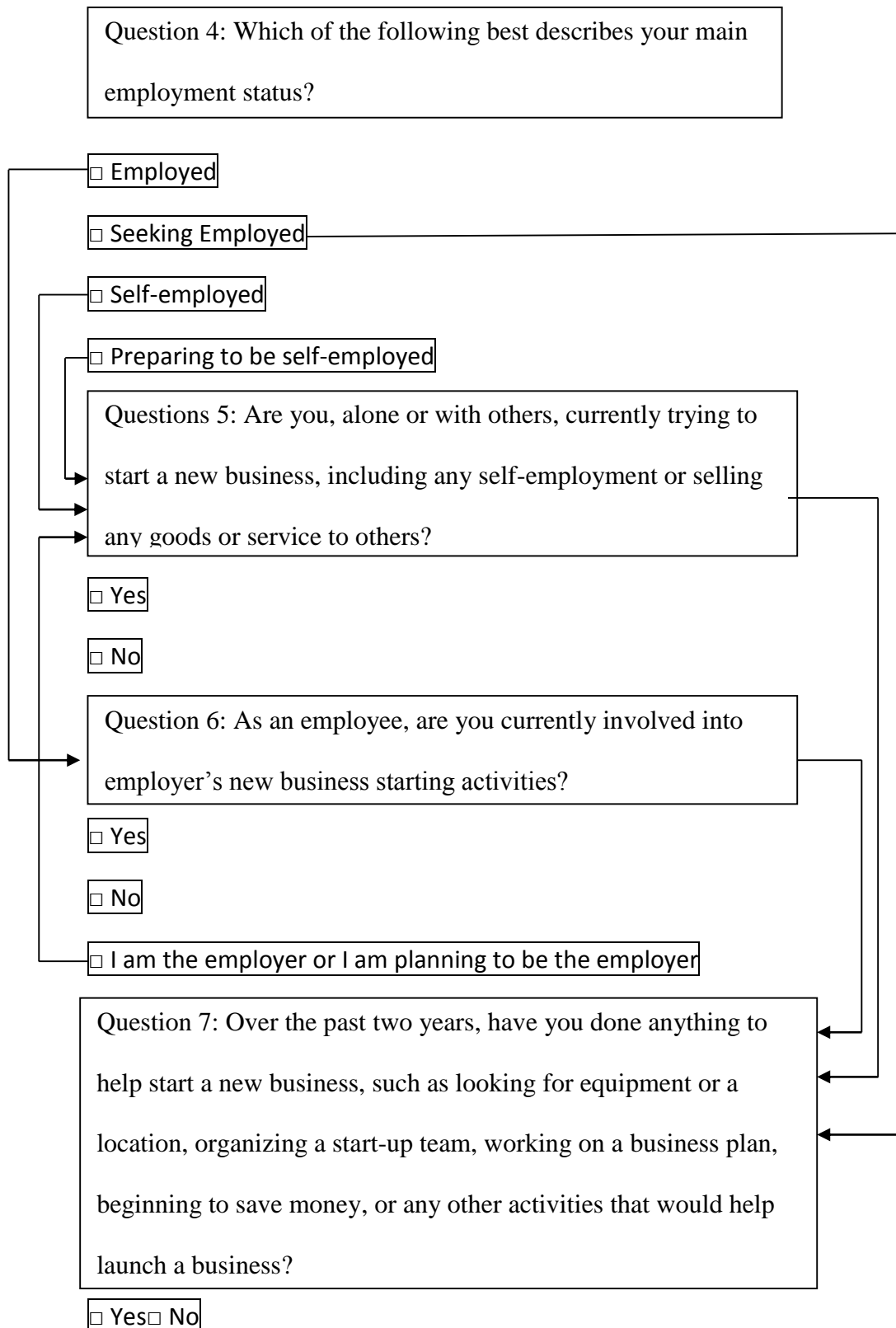


Figure 4-4: Identify Respondents' Employment Status

4.6.4.4 Data Collection

As being pointed out earlier, a self-completion questionnaire has to bear some risks and disadvantages in that the researcher: (1) does not know who answers the questions; (2) cannot probe respondents to collect additional data; (3) bears a greater risk of missing data; (4) experiences a lower response rate. We managed to overcome the disadvantages and reduce the risk by following these procedures respectively. (1) We set a criteria question to ensure the right people answered the questions. (2) We allowed plenty of opportunities at different stages of the questionnaire for the respondents to leave additional information. The result of this action was satisfactory and we did obtain some additional data. (3) Some central questions, which are very important, were set as compulsory in the online questionnaire, i.e., the respondents have to answer them to continue with the rest. (4) To increase response rate, we sent another two following emails to chase up the respondent. In addition, with assistance from the gatekeeper, 51 Diaocha, we introduced some incentives for the respondents to complete the whole questionnaire.

We sent an email containing the link to the questionnaire to 2000 contacts as our sample. With one week of interval, a reminder email was sent. After two waves of follow up, 308 were answered with a response rate of 15.4%. From the 308 questionnaires, 160 (51.9% of 308) respondents answered “yes” to the criteria question. Thus the final usable data consists of 160 cases (8% of 2000). The whole process of sampling and data collection is illustrated as follows.

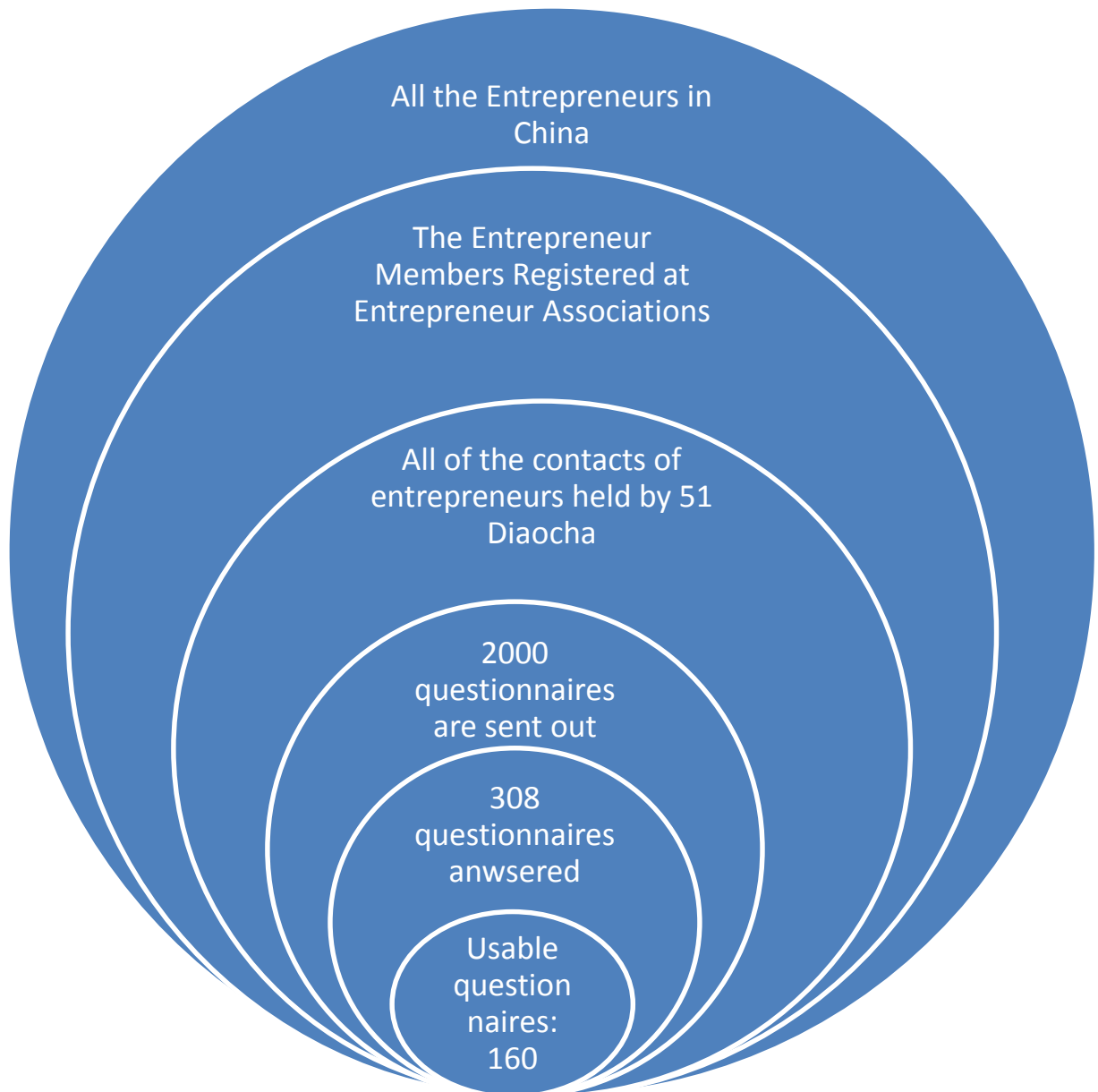


Figure 4-5: The Process of Sampling and Data Collection

4.7 Criteria for the Evaluation

Reliability, replication and validity are three of the most important criteria for the evaluation of social research. (Bryman, 2012, pp.46)

4.7.1 Reliability

The first criterion is about the reliability of the research. Reliability is concerned with the question of whether the measures devised for the concepts in the research are consistent, i.e. whether the result of a study is repeatable. Research with good reliability means the results of a measurement of a concept should not fluctuate if it is measured again in the future. A reliable measure is one that produces the same “reading” when it is used on repeated occasions.

To test if the measurement in this research is reliable, Cronbach’s alpha is used to here to test the scales in the questionnaire. Specifically, there are 12 index with more than three variables have been developed to capture the various aspects of entrepreneurial opportunity and associated activities (see Table 4-4). All of them are tested by Cronbach’s test and the results are presented in the following table. As suggested by Field (2009), a cut-off point of .7 is used here, i.e., value above .7 means an acceptable reliability whereas value below .7 means a relatively low reliability. The results show among the 12 index developed, 8 of them have a good reliability while the other 4 have a relatively low reliability. As such, greater cautions will be risen for any conclusion drawn based on those indices with low reliability.

Scale	Cronbach's Alpha	Number of items
V9: Index of Discovering Actions (Input)	.905	7
V10: Index of Creating Actions (Input)	.872	7
V11: Index of Schumpeterian Actions (Input)	.761	3
V12: Index of Kirznerian Actions (Input)	.895	6
V15: Index of Objectiveness of Opportunity (General)	.433	4
V16: Index of Subjectiveness of Opportunity (General)	.626	6
V17: Index of Opportunity's Schumpeterian Nature (General)	.522	3
V18: Index of Opportunity's Kirznerian Nature (General)	.572	4
V21: Index of Discovering Actions (Perceived Importance)	.886	7
V22: Index of Creating Actions (Perceived Importance)	.887	7

V23: Index of Schumpeterian Actions (Perceived Importance)	.775	3
V24: Index of Kirznerian Actions (Perceived Importance)	.874	6

Table 4-8: Reliability Test: Cronbach's Alpha

Unreliability could come from many aspects, for example, poor question wording.

This can lead the respondent to understand the question differently on different occasions (De Vaus, 2001, pp.30-31). Processes applied in order to avoid the unreliability caused by poor wording are presented in details in section 4.6.2. In short, peer review and pilot study are two main methods used to reduce the poor wording in the design of questionnaire and translation.

4.7.2 Replication

The second criterion for a good research is that it must be capable of replication. This criterion is more concerned with the procedures of research. In order to assess the first criterion, reliability, someone else must be able to replicate the research in the same way. To guarantee the replication of this research, all of the procedures are recorded. In addition, the set of data is saved as a new copy in the processing to make sure every process could be tracked.

4.7.3 Validity

The most important criterion of research is about its validity, which is concerned with the integrity of the conclusions produced from a study. There are three main types of validity that need to be considered: measurement validity, internal validity and external validity (Bryman, 2012; De Vaus, 2001).

Measurement validity, also known as construct validity, is concerned with the question of whether a measure that is devised by a concept really does reflect the concept that it is supposed to be denoting. Measurement validity has a close relationship with reliability as the assessment of measurement validity presupposes reliability. In other words, if the measurement of a concept fluctuates, it is not reliable, as it does not have the chance to provide a valid measure of that concept. The test of measurement validity for the variable is presented in the table 4-8.

Internal validity takes the concept of causality into account, and is concerned with the question of whether a conclusion that incorporates a causal relationship between two or more concept is reasonable.

External validity is concerned with the question of whether the results of the study can be generalized to a broader context. The external validity is systematically concerned in the sampling process. The technique of random sampling, judgmental sampling and

convenience sampling are used to guarantee the external validity within the available resource and time.

CHAPTER 5

DATA ANALYSIS AND DISCUSSION

5.1 Descriptive Analysis

This chapter will present some descriptive analysis of the data as the general information for this research. We have sent an email containing the link to the questionnaire to 2000 individuals as our sample (the sampling process is presented and detailed in the last chapter). There have been 308 responses to the email: a response rate of 15.4%. From these 308 questionnaires, 160 (51.9% of 308) respondents answered “Yes” to the criteria question, meaning their answers are usable for the analysis. Thus, the final usable data consists of 160 cases (8% of 2000) and all the following analysis is based on this data.

5.1.1 Basic Information of the Respondents

Three pieces of basic information were obtained from the respondents: gender, group of age and highest level of education. The results are shown below.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	110	68.8	68.8	68.8
Female	50	31.3	31.3	100.0
Total	160	100.0	100.0	

Table 5-1: Gender

There are two times the number of male respondents than female respondents.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid <18	1	.6	.6	.6
19-24	34	21.3	21.3	21.9
25-34	81	50.6	50.6	72.5
35-44	30	18.8	18.8	91.3
45-54	14	8.8	8.8	100.0
Total	160	100.0	100.0	

Table 5-2: Group of Age

Respondents aged between 25 to 34 years old comprise the largest portion, representing more than half of the total number.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid High school or under	9	5.6	5.6	5.6
College	33	20.6	20.6	26.3
Undergraduate Degree	96	60.0	60.0	86.3
Master Degree	18	11.3	11.3	97.5
Doctoral Degree	3	1.9	1.9	99.4
others	1	.6	.6	100.0
Total	160	100.0	100.0	

Table 5-3: Highest Level of Education

People with an undergraduate degree make up the largest part of the total respondents. (60 percent)

5.1.2 Constituent of the Respondents

As filtered by the criteria question (“Over the past two years, have you done anything to help start a new business, such as looking for equipment or a location, organizing a start-up team, working on a business plan, beginning to save money, or any other activities that would help launch a business?”), all respondents in the 160 cases claim that they have conducted some entrepreneurial actions over the past two year. The following table and graph presents how many months they have been involved in those entrepreneurial actions.

	N	Minimum	Maximum	Mean	Std. Deviation
How many months have you been involved?	160	1	96	7.97	11.287
Valid N (listwise)	160				

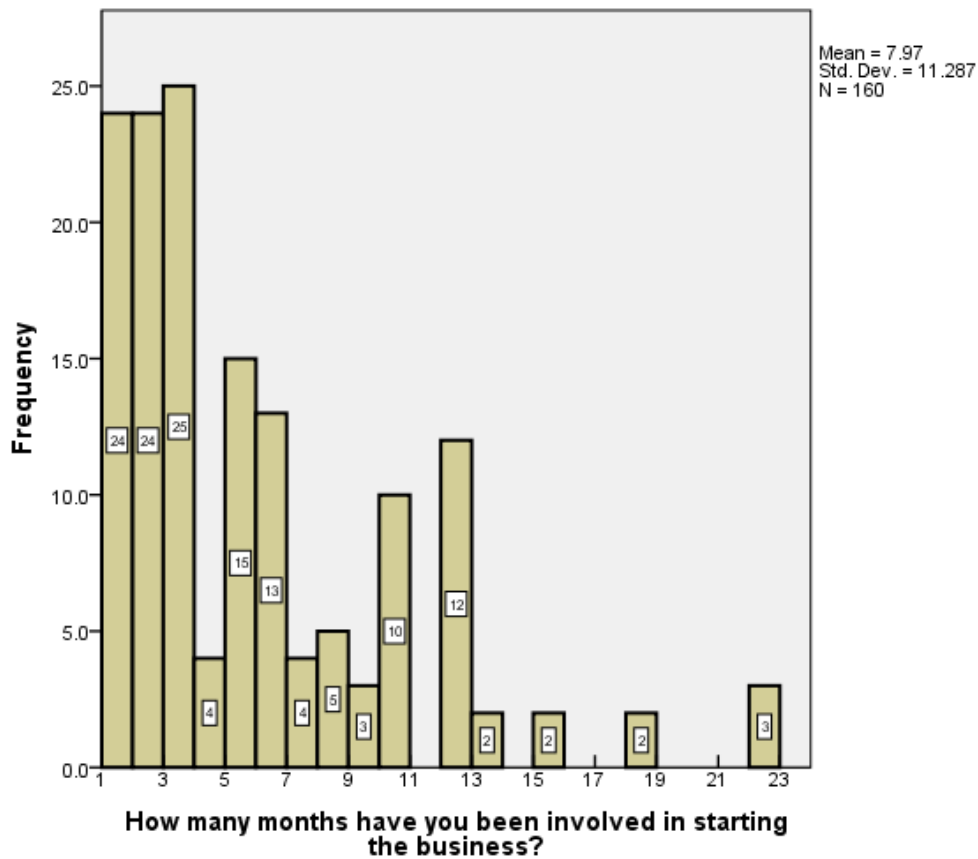


Figure 5-1: Time Length of Entrepreneurial Action

It was thought that it would be useful if we could distinguish them based on employment status. Thus the following question is asked.

Which is the best one to describe your current employment status?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid employed	79	49.4	49.4	49.4
seeking employment	17	10.6	10.6	60.0
self-employed	23	14.4	14.4	74.4
prepare to be self-employed	41	25.6	25.6	100.0
Total	160	100.0	100.0	

Table 5-4 Employment Status (1)

For those who answered “employed” (79 cases), the following question was asked:

As an employee, are you involved into new business starting activities as your daily job?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	60	37.5	75.9	75.9
	no	13	8.1	16.5	92.4
	I am an employer	6	3.8	7.6	100.0
	Total	79	49.4	100.0	
Missing	System	81	50.6		
	Total	160	100.0		

Table 5-5: Employment Status (2)

Thus, we have identified 60 employees from the respondents who are currently involved in new business starting activities as their daily job. We call them “employee entrepreneurs”. Those who answered “self-employed” (23) and “prepare to be self-employed” (41), are labelled as “employer entrepreneurs”, numbering 64 in total. Other respondents are either employees not involved into entrepreneurship as their daily job, or currently seeking employment. But the common feature among this group is that they all took part in some entrepreneurial activities in the past two years.

5.1.3 Ownership

What is percentage of your ownership of the company ?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid All	24	15.0	15.0	15.0
more than half	43	26.9	26.9	41.9
less than half	62	38.8	38.8	80.6
None	31	19.4	19.4	100.0
Total	160	100.0	100.0	

Table 5-6: Ownership of the Company

As we could see from this table, there are 24 individuals who have the whole ownership of the company, whereas 43 individuals possess more than half of the ownership, which is basically consistent with the 64 “employer entrepreneurs” we identified earlier.

5.2 Bivariate and Relationship Analysis

Bivariate analysis is concerned with the analysis of two variables in order to identify whether or not the two variables are related. Exploring relationships between variables means to look for evidence that the variation of one variable coincides with the variation in another variable. There are many techniques available for exploring this relationship. The nature of the variables being analysed determines the choice of the analysis techniques (Bryman, 2012, pp.339).

5.2.1 Correlation Tests One: Spearman's Coefficient

Spearman's rho is designed for the use of a pair of ordinal variables to test the relationship, whereas Pearson's r is a method for examining relationships between interval or ratio variables (Bryman, 2012; Field, 2009). Multiple-indicator measures of concepts, such as the Likert scale used in this research generate ordinal variables. However, some writers suggest that they could be treated as though they generate interval variables (Bryman, 2012, pp.335). We will firstly use Spearman's rho to test those relationships we hypothesized in the last chapter.

	Specific Opportunity	General Opportunities
H 1:	Objectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs' discovering actions	
Tests and Expected Results	T 1: V1 $\xrightarrow{+}$ V7	T 3: V13 $\xrightarrow{+}$ V19
	T 2: V3 $\xrightarrow{+}$ V9	T 4: V15 $\xrightarrow{+}$ V21
H 2:	Subjectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs' creating actions.	
Tests and Expected Results	T 5: V2 $\xrightarrow{+}$ V8	T 7: V14 $\xrightarrow{+}$ V20
	T 6: V4 $\xrightarrow{+}$ V10	T 8: V16 $\xrightarrow{+}$ V22
H 3:	Opportunity's Schumpeterian nature has a positive relationship with entrepreneurs' actions that disturb the equilibrium of market.	
Tests and Expected Results	T 9: V5 $\xrightarrow{+}$ V11	T 10: V17 $\xrightarrow{+}$ V23
Hypothesis 4:	Opportunity's Kirznerian nature has a positive relationship with entrepreneurs' actions that resort the equilibrium of market.	
Tests and Expected Results	T 11: V6 $\xrightarrow{+}$ V12	T 12: V18 $\xrightarrow{+}$ V 24

Table 5-7: Hypotheses and Tests

5.2.1.1 Specific Entrepreneurial Opportunity

The analysis in this part is based on information regarding the specific opportunity the respondents are pursuing. In the next part, the analysis is based on the information

about the general opportunities, i.e., respondents' understanding of general entrepreneurial opportunities and attitudes towards entrepreneurial actions.

By using the Variables 1-12, a cross table of correlations has been produced. The ones we need for the tests are marked with **bold** font. The first row represents the Spearman's correlation coefficient and the second row represent the significance (1-tailed), n=160.

** : Correlation is significant at the 0.01 level (1-tailed).

* : Correlation is significant at the 0.05 level (1-tailed).

<i>Spearman's rho</i>	V1_Ob Op	V2_Sub Op	V3n_Id xObOpp	V4_Idx SubOpp	V5_Idx Sch	V6_Idx Kir	V7_Dis cv	V8_Crt	V9_Idx DiscvA ct	V10_Id xCrtAct	V11n_I dxSchac tinp	V12_Id xKirAct Inp
V1_ObOp	1.000 .	-.063 .213	-.307** .000	.113 .078	.177* .013	.268** .000	.060 .227	.144* .034	-.133* .047	-.073 .180	.150* .029	-.143* .036
V2_SubOp	-.063 .213	1.000 .	-.122 .063	.269** .000	.110 .083	.104 .096	.188** .009	.262** .000	-.197** .006	-.142* .037	.169* .016	-.208** .004
V3n_IdxOb Opp	-.307** .000	-.122 .063	1.000 .	-.184** .010	-.140* .039	-.152* .027	-.071 .187	-.107 .089	.171* .015	.151* .028	-.084 .146	.163* .020
V4_IdxSub Opp	.113 .078	.269** .000	-.184** .010	1.000 .	.355** .000	.215** .003	.302** .000	.364** .000	-.407** .000	-.381** .000	.339** .000	-.394** .000
V5_IdxSch	.177* .013	.110 .083	-.140* .039	.355** .000	1.000 .	.399** .000	.157* .024	.333** .000	-.185** .010	-.175* .013	.211** .004	-.170* .016
V6_IdxKir	.268** .000	.104 .096	-.152* .027	.215** .003	.399** .000	1.000 .	.188** .009	.073 .179	-.042 .301	-.001 .495	.018 .412	-.037 .319
V7_Discv	.060 .227	.188** .009	-.071 .187	.302** .000	.157* .024	.188** .009	1.000 .	.106 .091	-.370** .000	-.282** .000	.270** .000	-.368** .000
V8_Crt	.144* .034	.262** .000	-.107 .089	.364** .000	.333** .000	.073 .179	.106 .091	1.000 .	-.235** .001	-.301** .000	.184** .010	-.232** .002
V9_IdxDisc vAct	-.133* .047	-.197** .006	.171* .015	-.407** .000	-.185** .010	-.042 .301	-.370** .000	-.235** .001	1.000 .	.850** .000	-.815** .000	.992** .000
V10_IdxCrt Act	-.073 .180	-.142* .037	.151* .028	-.381** .000	-.175* .013	-.001 .495	-.282** .000	-.301** .000	.850** .000	1.000 .	-.835** .000	.839** .000
V11n_IdxSc hactinp	.150* .029	.169* .016	-.084 .146	.339** .000	.211** .004	.018 .412	.270** .000	.184** .010	-.815** .000	-.835** .000	1.000 .	-.809** .000
V12_IdxKir ActInp	-.143* .036	-.208** .004	.163* .020	-.394** .000	-.170* .016	-.037 .319	-.368** .000	-.232** .002	.992** .000	.839** .000	-.809** .000	1.000 .

Table 5-8: Spearman's test on Specific Opportunity

- *Tests of Hypothesis 1 based on the specific entrepreneurial opportunity*

Test 1 disproved the hypothesized positive relationship between V1 “objective opportunity” and V7 “Discovery”. Test 2 shows that there is a significant positive relationship between V3 “Index of objectivity of opportunity” and V9 “Index of discovering actions”, $r=.17$, p (one-tailed) $< .05$. Explanations for the contradicted results could either be that the index we developed is problematic or the relationship we hypothesized does not exist. Thus, we tentatively reject the hypothesis that the objectivity of entrepreneurial opportunity has a positive relationship with entrepreneurs’ discovering actions based on the evidence from the specific opportunity.

- *Tests of Hypothesis 2 based on the specific entrepreneurial opportunity*

Test 5 shows that there is a significant positive relationship between V2 “Subjective opportunity” and V8 “creation”, $r=.26$, p (one-tailed) $< .001$. Test 6 shows that although there is a significant relationship between V4 “index of subjectivity of opportunity” and V10 “index of creating actions”, $r= -.38$, p (one-tailed) $< .001$, the relationship is negative, which is opposite to our hypothesis. As a result, we reject the hypothesis that there is a positive relationship between the subjectivity of opportunity and entrepreneurs creating actions based on the evidence from the specific opportunity.

- *Tests of Hypothesis 3 based on the specific entrepreneurial opportunity*

Test 9 shows that there is a significant positive relationship between V5 “Index of Schumpeterian opportunity” and V11 “Index of Schumpeterian actions”, $r = .21$, p (one-tailed) $< .005$. As such, hypothesis 3, “opportunity’s Schumpeterian nature has a positive relationship with the entrepreneur’s actions that disturbs the equilibrium of market”, has obtained some supportive evidence based on the specific opportunity.

- *Tests of Hypothesis 4 based on the specific entrepreneurial opportunity*

Test 11 shows that the relationship between V6 “Index of Kirznerian opportunity” and V12 “index of Kirznerian actions” does not exist at all. Thereafter, based on the specific opportunity, we reject the hypothesis that opportunity’s Kirznerian nature has a positive relationship with the entrepreneur’s action that brings the market closer to equilibrium.

5.2.1.2 General Entrepreneurial Opportunity

In contrast to the last section, where the analysis was based on the information regarding the specific opportunity pursued by the respondents, the analysis in this part is based on information about the general opportunities, i.e., respondents’ understanding of general entrepreneurial opportunities and attitude towards entrepreneurial actions.

By using Variables 13 - 24, a cross table of correlation is produced. The ones we need for the tests are marked in **boldfont**. The first row represents the Spearman’s

correlation coefficient and the second row represents the significance (1-tailed),
n=160.

**: Correlation is significant at the 0.01 level (1-tailed).

*: Correlation is significant at the 0.05 level (1-tailed).

<i>Spearman's rho</i>	V13_ObOpG	V14_SubOpG	V15_IdxObOppG	V16_IdxsubOppG	V17_IdxSchG	V18_IdxKirG	V19_DisG	V20_CreG	V21n_IdxDisAct	V22n_IdxCrtAct	V23n_IdxSchAct	V24_IdxKirAct
V13_ObOpG	1.000	-.021	.302**	.194**	.154*	.235**	.153*	.051	.064	.104	.114	-.081
	.	.397	.000	.007	.026	.001	.026	.259	.211	.096	.076	.155
V14_SubOpG	-.021	1.000	.199**	.191**	.283**	.184**	.090	.322**	.038	-.037	.009	-.036
	.397	.	.006	.008	.000	.010	.130	.000	.316	.322	.454	.324
V15_IdxObOppG	.302**	.199**	1.000	.517**	.469**	.579**	.211**	.261**	.265**	.271**	.230**	-.273**
	.000	.006	.	.000	.000	.000	.004	.000	.000	.000	.002	.000
V16_IdxsubOppG	.194**	.191**	.517**	1.000	.503**	.674**	.406**	.412**	.535**	.531**	.442**	-.530**
	.007	.008	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
V17_IdxSchG	.154*	.283**	.469**	.503**	1.000	.585**	.269**	.406**	.322**	.311**	.301**	-.306**
	.026	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
V18_IdxKirG	.235**	.184**	.579**	.674**	.585**	1.000	.329**	.235**	.346**	.361**	.280**	-.339**
	.001	.010	.000	.000	.000	.	.000	.001	.000	.000	.000	.000
V19_DisG	.153*	.090	.211**	.406**	.269**	.329**	1.000	.275**	.247**	.201**	.143*	-.246**
	.026	.130	.004	.000	.000	.000	.	.000	.001	.005	.035	.001
V20_CreG	.051	.322**	.261**	.412**	.406**	.235**	.275**	1.000	.274**	.263**	.255**	-.258**
	.259	.000	.000	.000	.000	.001	.000	.	.000	.000	.001	.001
V21n_IdxDisAct	.064	.038	.265**	.535**	.322**	.346**	.247**	.274**	1.000	.850**	.800**	-.990**
	.211	.316	.000	.000	.000	.000	.001	.000	.	.000	.000	.000
V22n_IdxCrtAct	.104	-.037	.271**	.531**	.311**	.361**	.201**	.263**	.850**	1.000	.891**	-.831**
	.096	.322	.000	.000	.000	.000	.005	.000	.000	.	.000	.000
V23n_IdxSchAct	.114	.009	.230**	.442**	.301**	.280**	.143*	.255**	.800**	.891**	1.000	-.785**
	.076	.454	.002	.000	.000	.000	.035	.001	.000	.000	.	.000
V24_IdxKirAct	-.081	-.036	-.273**	-.530**	-.306**	-.339**	-.246**	-.258**	-.990**	-.831**	-.785**	1.000
	.155	.324	.000	.000	.000	.000	.001	.001	.000	.000	.000	.

Table 5-9: Spearman's test on General Opportunity

- *Tests of Hypothesis 1 based on general entrepreneurial opportunity*

Test 3 indicates that there is a significant relationship between V13 “objective opportunity (G)” and V19 “discovery (G)”, $r=.15$, p (one-tailed) $<.05$. At the same time, test 4 shows that there is also a significant relationship between V15 “index of objectivity of opportunity (G)” and V21 “index of Discovering actions”, $r=.27$, p (one-tailed) $<.001$. Both of these two tests, based on the information concerning general opportunity, provide evidence which supports hypothesis 1, “objectivity of entrepreneurial opportunity has a positive relationship with entrepreneurs’ discovering actions”.

- *Tests of Hypothesis 2 based on general entrepreneurial opportunity*

Test 7 shows that there is a significant positive relationship between V14 “subjective opportunity (G)” and V20 “creation (G)”, $r=.32$, p (one-tailed) $<.001$. Test 8, with same function, also shows that there is a significant positive relationship between V16 “index of subjectivity of opportunity” and V22 “index of creating actions”, $r=.53$, p (one-tailed) $<.001$. Both of these two tests provide supportive evidence to hypothesis 2, indicating the subjectivity of entrepreneurial opportunity is positively related with entrepreneurs’ creating actions.

- *Tests of Hypothesis 3 based on general entrepreneurial opportunity*

Test 10 shows that there is a significant positive relationship between V17 “Index of Schumpeterian opportunity (G)” and V23 “Index of Schumpeterian actions”, $r=.30$, p (one-tailed) $<.001$. As such, hypothesis 3, “opportunity’s Schumpeterian nature has a

positive relationship with entrepreneur' actions that disturb the equilibrium of market", has obtained supportive evidence based on the general entrepreneurial opportunity.

- *Tests of Hypothesis 4 based on general entrepreneurial opportunity*

Test 12 shows that there is a significant negative relationship between V18 "Index of Kirznerian opportunity" and V24 "Index of Kirznerian actions", which contradicts hypothesis 4. As such, it has to be rejected.

5.2.2 Correlation Tests Two: Kendall's Coefficient

Kendall's tau is another non-parametric correlation test which is believed to work better when there is a small data set with a large number of tied ranks (Field, 2009, pp.181). In this stage, we will follow a process very similar to the Spearman's rho test demonstrated above but using Kendall's tau test to generate the correlation coefficients.

5.2.2.1 Specific Entrepreneurial Opportunity

The analysis in this part is based on information regarding the specific opportunities pursued by the respondents. By using Variables 1-12, a cross table of Kendall's correlation coefficients is produced. The ones we need for the tests are marked **in bold font**. The first row represents Kendall's correlation coefficient and the second row represents the significance (1-tailed), n=160.

**: Correlation is significant at the 0.01 level (1-tailed).

*: Correlation is significant at the 0.05 level (1-tailed).

<i>Kendall's tau</i>	V1_Ob Op	V2_Sub Op	V3n_Id xObOp p	V4_Idx SubOpp	V5_Idx Sch	V6_Idx Kir	V7_Dis cv	V8_Crt	V9_Idx DiscvA ct	V10_Id xCrtAct	V11n_I dxSchac tinp	V12_Id xKirAct Inp
V1_ObOp	1.000 .	-.063 .174	-.254** .000	.091 .082	.148* .012	.227** .000	.052 .220	.123* .033	-.109* .037	-.058 .168	.118* .028	-.114* .030
V2_SubOp	-.063 .174	1.000 .	-.100 .058	.222** .000	.088 .086	.084 .094	.162** .008	.232** .000	-.149** .006	-.104* .040	.131* .015	-.158** .004
V3n_IdxOb Opp	-.254** .000	-.100 .058	1.000 .	-.141* .011	-.114* .033	-.126* .021	-.058 .184	-.090 .078	.127* .014	.112* .026	-.060 .154	.123* .017
V4_IdxSub Opp	.091 .082	.222** .000	-.141* .011	1.000 .	.288** .000	.164** .004	.255** .000	.304** .000	-.302** .000	-.276** .000	.255** .000	-.289** .000
V5_IdxSch	.148* .012	.088 .086	-.114* .033	.288** .000	1.000 .	.319** .000	.124* .027	.276** .000	-.133* .011	-.125* .016	.151** .005	-.122* .019
V6_IdxKir	.227** .000	.084 .094	-.126* .021	.164** .004	.319** .000	1.000 .	.159** .007	.061 .172	-.028 .315	-.001 .493	.013 .410	-.028 .318
V7_Discv	.052 .220	.162** .008	-.058 .184	.255** .000	.124* .027	.159** .007	1.000 .	.085 .102	-.287** .000	-.219** .000	.213** .000	-.286** .000
V8_Crt	.123* .033	.232** .000	-.090 .078	.304** .000	.276** .000	.061 .172	.085 .102	1.000 .	-.178** .001	-.225** .000	.140* .011	-.176** .002
V9_IdxDisc vAct	-.109* .037	-.149** .006	.127* .014	-.302** .000	-.133* .011	-.028 .315	-.287** .000	-.178** .001	1.000 .	.695** .000	-.652** .000	.946** .000
V10_IdxCrt Act	-.058 .168	-.104* .040	.112* .026	-.276** .000	-.125* .016	-.001 .493	-.219** .000	-.225** .000	.695** .000	1.000 .	-.687** .000	.677** .000
V11n_IdxSc hactinp	.118* .028	.131* .015	-.060 .154	.255** .000	.151** .005	.013 .410	.213** .000	.140* .011	-.652** .000	-.687** .000	1.000 .	-.645** .000
V12_IdxKir ActInp	-.114* .030	-.158** .004	.123* .017	-.289** .000	-.122* .019	-.028 .318	-.286** .000	-.176** .002	.946** .000	.677** .000	-.645** .000	1.000 .

Table 5-10 Kendall's test on Specific Opportunity

5.2.2.2 General Entrepreneurial Opportunity

The analysis in this part is based on the information about the general opportunities, i.e. the respondents' understanding of general entrepreneurial opportunities and attitudes towards entrepreneurial actions. By using Variables 13 - 24, a cross table of correlation has been produced. The ones we need for the tests are marked **in bold font**. The first row represents the Kendall's correlation coefficient and the second row represents the significance (1-tailed), n=160.

******: Correlation is significant at the 0.01 level (1-tailed).

*****: Correlation is significant at the 0.05 level (1-tailed).

<i>Kendall's tau</i>	V13_ObOpG	V14_SubOpG	V15_IdxObOppG	V16_IdxsubOppG	V17_IdxSchG	V18_IdxKirG	V19_DisG	V20_CreG	V21n_IdxDiscAct	V22n_IdxCrtAct	V23n_IdxSchAct	V24_IdxKirAct
V13_ObOpG	1.000	-.025	.237**	.155**	.124*	.189**	.136*	.044	.048	.082	.089	-.061
	.	.354	.000	.006	.025	.001	.023	.256	.215	.088	.072	.155
V14_SubOpG	-.025	1.000	.157**	.143*	.228**	.143*	.078	.282**	.030	-.027	.008	-.026
	.354	.	.006	.010	.000	.011	.127	.000	.309	.330	.450	.332
V15_IdxObOppG	.237**	.157**	1.000	.400**	.362**	.454**	.173**	.206**	.186**	.194**	.169**	-.193**
	.000	.006	.	.000	.000	.000	.004	.001	.001	.000	.002	.000
V16_IdxSubOppG	.155**	.143*	.400**	1.000	.390**	.532**	.327**	.334**	.387**	.391**	.325**	-.387**
	.006	.010	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
V17_IdxSchG	.124*	.228**	.362**	.390**	1.000	.458**	.220**	.334**	.241**	.231**	.228**	-.231**
	.025	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
V18_IdxKirG	.189**	.143*	.454**	.532**	.458**	1.000	.270**	.190**	.247**	.265**	.204**	-.241**
	.001	.011	.000	.000	.000	.	.000	.001	.000	.000	.000	.000
V19_DisG	.136*	.078	.173**	.327**	.220**	.270**	1.000	.238**	.188**	.154**	.114*	-.188**
	.023	.127	.004	.000	.000	.000	.	.000	.001	.006	.034	.001
V20_CreG	.044	.282**	.206**	.334**	.334**	.190**	.238**	1.000	.207**	.198**	.198**	-.197**
	.256	.000	.001	.000	.000	.001	.000	.	.000	.001	.001	.001
V21n_IdxDiscAct	.048	.030	.186**	.387**	.241**	.247**	.188**	.207**	1.000	.692**	.635**	-.937**
	.215	.309	.001	.000	.000	.000	.001	.000	.	.000	.000	.000
V22n_IdxCrtAct	.082	-.027	.194**	.391**	.231**	.265**	.154**	.198**	.692**	1.000	.742**	-.672**
	.088	.330	.000	.000	.000	.000	.006	.001	.000	.	.000	.000
V23n_IdxSchAct	.089	.008	.169**	.325**	.228**	.204**	.114*	.198**	.635**	.742**	1.000	-.623**
	.072	.450	.002	.000	.000	.000	.034	.001	.000	.000	.	.000
V24_IdxKirAct	-.061	-.026	-.193**	-.387**	-.231**	-.241**	-.188**	-.197**	-.937**	-.672**	-.623**	1.000
	.155	.332	.000	.000	.000	.000	.001	.001	.000	.000	.000	.

Table 5-11: Kendall's test on General Opportunity

5.2.3 Summary and Comparison

	Specific Opportunity	General Opportunities
H 1: Objectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs' discovering actions		
Tests and expected result	T 1: V1 $\xrightarrow{+}$ V7	T 3: V13 $\xrightarrow{+}$ V19
Actual Result:	$r = .06$, p (one-tailed) $> .05$	$r = .15$, p (one-tailed) $< .05$
Spearman's r	rejected	approved
Kendall's tau	$r = .05$, p (one-tailed) $> .05$	$r = .14$, p (one-tailed) $< .05$
	rejected	approved
Tests and expected result	T 2: V3 $\xrightarrow{+}$ V9	T 4: V15 $\xrightarrow{+}$ V21
Actual Result	$r = .17$, p (one-tailed) $< .05$	$r = .27$, p (one-tailed) $< .001$
Spearman's r	approved	approved
Kendall's tau	$r = .13$, p (one-tailed) $< .05$	$r = .19$, p (one-tailed) $< .01$
	approved	approved

H 2: Subjectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs' creating actions.		
Tests and expected result	T 5: V2 $\xrightarrow{+}$ V8	T 7: V14 $\xrightarrow{+}$ V20
Actual Result	$r = .26, p \text{ (one-tailed)} < .001$	$r = .32, p \text{ (one-tailed)} < .001$
Spearman's r	approved	approved
Kendall's tau	$r = .23, p \text{ (one-tailed)} < .001$ approved	$r = .28, p \text{ (one-tailed)} < .001$ approved
Tests and expected result	T 6: V4 $\xrightarrow{+}$ V10	T 8: V16 $\xrightarrow{+}$ V22
Actual Result	$r = -.38, p \text{ (one-tailed)} < .001$	$r = .53, p \text{ (one-tailed)} < .001$
Spearman's r	rejected	approved
Kendall's tau	$r = -.28, p \text{ (one-tailed)} < .001$ rejected	$r = .39, p \text{ (one-tailed)} < .001$ approved
H 3: Opportunity's Schumpeterian nature has a positive relationship with entrepreneurs' actions that disturb the equilibrium of market.		
Tests and expected result	T 9: V5 $\xrightarrow{+}$ V11	T 10: V17 $\xrightarrow{+}$ V23

Actual Result	$r = .21, p \text{ (one-tailed)} < .05$	$r = .30, p \text{ (one-tailed)} < .001$
Spearman's r	approved	approved
Kendall's tau	$r = .15, p \text{ (one-tailed)} < .01$	$r = .23, p \text{ (one-tailed)} < .001$
	approved	approved
Hypothesis 4: Opportunity's Kirznerian nature has a positive relationship with entrepreneurs' actions that resort the equilibrium of market.		
Tests and expected result	T 11: $V6 \xrightarrow{+} V12$	T 12: $V18 \xrightarrow{+} V24$
Actual Result	$r = -.37, p \text{ (one-tailed)} > .05$	$r = -.34, p \text{ (one-tailed)} < .001$
Spearman's r	rejected	rejected
Kendall's tau	$r = -.03, p \text{ (one-tailed)} > .05$	$r = -.24, p \text{ (one-tailed)} < .001$
	rejected	rejected

Table 5-12: Comparison between Spearman's Test and Kendall's Test

The results of all the tests are summarized in the table above. The results generated by the Spearman's test and Kendall's test are perfectly consistent, with the only exception that the Kendall's correlation coefficients are generally smaller than the Spearman's correlation coefficients. According to Field (2009), most cases will be like this and Kendall's test is better when there is a small set of data with a large number of tied ranks (Field, 2009, pp. 181-2). Considering that the variables in our

data set could only vary between 1-5 and the large number of tied ranks is inevitable, we will adopt Kendall's correlation coefficient for future use.

For both the Spearman's test and Kendall's test, there are three points that need to be highlighted. Firstly, for both hypotheses 1 and 2, three out of four tests for each hypothesis provide supportive evidences. In addition, information gathered based on general opportunity all support the two hypotheses. In other words, based on respondents' perception of general entrepreneurial opportunities (not the specific opportunity they are pursuing), the objectivity of opportunity has a positive relationship with the perceived importance of discovering actions. Despite the supportive evidence, we cannot be fully assured about these two hypotheses since contradictory evidence has been obtained from tests 1 and 6.

Secondly, hypothesis 3 received substantial evidence from the two tests designed for it (test 9 and test 10). Therefore, this hypothesis is tentatively accepted, which means opportunity's Schumpeterian nature is more likely to appear accompanying the entrepreneurs' action that disturbs the equilibrium of market.

Thirdly, no evidence has been obtained to support hypothesis 4. As such, we reject the assumption that there is a relationship between opportunity's Kirznerian nature and those actions that restores the equilibrium of market.

5.2.4 Correlation Tests Three

As mentioned in the earlier part, we have identified 60 “employee entrepreneurs” whose daily job involves entrepreneurial activities (starting a new business). We have also identified 64 “employer entrepreneurs” who describe their employment status as “self-employed” or “preparing to be self-employed”. All of the “employer entrepreneurs” have or will have more than half of the ownership of the company. It is thought that it would be useful to test the hypotheses by distinguishing these two groups of people. Thus, we use Kendall’s test to explore the correlations by using the same structure as above but based on two different groups of people.

5.2.4.1 *Result of Employer Entrepreneurs*

n=64

**: Correlation is significant at the 0.01 level (1-tailed).

*: Correlation is significant at the 0.05 level (1-tailed).

<i>Kendall' tau/ employer</i>	V1_Ob Op	V2_Sub Op	V3n_Id xObOpp	V4_Id SubOpp	V5_Id Sch	V6_Id Kir	V7_Dis cv	V8_Crt	V9_Id DiscvA ct	V10_Id xCrtAct	V11n_I dxSchac tinp	V12_Id xKirAct Inp
V1_ObOp	1.000 .	-.048 .328	-.271** .004	-.008 .470	.166 .055	.144 .083	.004 .485	.088 .206	-.042 .333	.083 .198	.023 .407	-.062 .263
V2_SubOp	-.048 .328	1.000 .	-.082 .213	.106 .152	.071 .245	.005 .480	.035 .372	.154 .074	-.124 .101	-.067 .245	.127 .097	-.126 .096
V3n_Id Opp	-.271** .004	-.082 .213	1.000 .	-.203* .020	-.187* .029	-.211* .016	-.054 .297	-.111 .138	.039 .335	.042 .327	.067 .235	.052 .287
V4_Id Sub Opp	-.008 .470	.106 .152	-.203* .020	1.000 .	.465** .000	.185* .032	.114 .132	.394** .000	-.173* .032	-.251** .004	.259** .003	-.142 .065
V5_Id Sch	.166 .055	.071 .245	-.187* .029	.465** .000	1.000 .	.382** .000	.086 .199	.283** .003	-.091 .164	-.097 .147	.159* .045	-.074 .212
V6_Id Kir	.144 .083	.005 .480	-.211* .016	.185* .032	.382** .000	1.000 .	.107 .149	-.126 .111	-.113 .113	-.032 .365	.076 .210	-.119 .101
V7_Dis cv	.004 .485	.035 .372	-.054 .297	.114 .132	.086 .199	.107 .149	1.000 .	.098 .178	-.299** .001	-.237** .007	.206* .017	-.294** .001
V8_Crt	.088 .206	.154 .074	-.111 .138	.394** .000	.283** .003	-.126 .111	.098 .178	1.000 .	-.203* .017	-.293** .001	.193* .024	-.208* .015
V9_Id Disc vAct	-.042 .333	-.124 .101	.039 .335	-.173* .032	-.091 .164	-.113 .113	-.299** .001	-.203* .017	1.000 .	.638** .000	-.550** .000	.926** .000
V10_Id Crt Act	.083 .198	-.067 .245	.042 .327	-.251** .004	-.097 .147	-.032 .365	-.237** .007	-.293** .001	.638** .000	1.000 .	-.605** .000	.628** .000
V11n_Id Sc hactinp	.023 .407	.127 .097	.067 .235	.259** .003	.159* .045	.076 .210	.206* .017	.193* .024	-.550** .000	-.605** .000	1.000 .	-.556** .000
V12_Id Kir ActInp	-.062 .263	-.126 .096	.052 .287	-.142 .065	-.074 .212	-.119 .101	-.294** .001	-.208* .015	.926** .000	.628** .000	-.556** .000	1.000 .

Table 5-13: Employer Entrepreneur: Kendall's test on Specific Opportunity, n=64

<i>Kendall' tau/ employer</i>	V13_Ob OpG	V14_Su bOpG	V15_Id xObOpp G	V16_Id xsubOp pG	V17_Id xSchG	V18_Id xKirG	V19_Di sG	V20_Cr eG	V21n_I dxDisA ct	V22n_I dxCrtAc t	V23n_I dxSchA ct	V24_Id xKirAct
V13_ObO pG	1.000 .	.050 .322	.250** .007	.051 .307	.014 .446	.168* .047	.131 .119	-.048 .328	.002 .490	-.007 .473	-.029 .385	-.029 .382
V14_Sub OpG	.050 .322	1.000 .	.219* .015	.089 .187	.230* .012	.258** .005	.099 .186	.212* .024	.050 .303	.020 .418	-.037 .352	-.052 .298
V15_IdxO bOppG	.250** .007	.219* .015	1.000 .	.376** .000	.403** .000	.514** .000	.194* .030	.285** .002	.125 .085	.185* .021	.145 .058	-.149 .051
V16_Idxs ubOppG	.051 .307	.089 .187	.376** .000	1.000 .	.438** .000	.571** .000	.283** .003	.344** .000	.415** .000	.454** .000	.381** .000	-.423** .000
V17_IdxS chG	.014 .446	.230* .012	.403** .000	.438** .000	1.000 .	.522** .000	.189* .035	.351** .000	.365** .000	.382** .000	.396** .000	-.346** .000
V18_IdxK irG	.168* .047	.258** .005	.514** .000	.571** .000	.522** .000	1.000 .	.317** .001	.257** .005	.276** .001	.296** .001	.197* .016	-.269** .001
V19_DisG	.131 .119	.099 .186	.194* .030	.283** .003	.189* .035	.317** .001	1.000 .	.356** .001	.296** .001	.288** .002	.255** .006	-.276** .003
V20_CreG	-.048 .328	.212* .024	.285** .002	.344** .000	.351** .000	.257** .005	.356** .001	1.000 .	.320** .000	.334** .000	.331** .000	-.307** .001
V21n_Idx DisAct	.002 .490	.050 .303	.125 .085	.415** .000	.365** .000	.276** .001	.296** .001	.320** .000	1.000 .	.694** .000	.605** .000	-.921** .000
V22n_Idx CrtAct	-.007 .473	.020 .418	.185* .021	.454** .000	.382** .000	.296** .001	.288** .002	.334** .000	.694** .000	1.000 .	.699** .000	-.670** .000
V23n_Idx SchAct	-.029 .385	-.037 .352	.145 .058	.381** .000	.396** .000	.197* .016	.255** .006	.331** .000	.605** .000	.699** .000	1.000 .	-.579** .000
V24_IdxK irAct	-.029 .382	-.052 .298	-.149 .051	-.423** .000	-.346** .000	-.269** .001	-.276** .003	-.307** .001	-.921** .000	-.670** .000	-.579** .000	1.000 .

Table 5-14: Employer Entrepreneur: Kendall's test on General Opportunity, n=64

5.2.4.2 Result of Employee Entrepreneurs

n=60

** : Correlation is significant at the 0.01 level (1-tailed).

* : Correlation is significant at the 0.05 level (1-tailed).

<i>Kendall' tau/ employee</i>	V1_Ob Op	V2_Sub Op	V3n_Id xObOpp	V4_Idx SubOpp	V5_Idx Sch	V6_Idx Kir	V7_Dis cv	V8_Crt	V9_Idx DiscvA ct	V10_Id xCrtAct	V11n_I dxSchac tinp	V12_Id xKirAct Inp
V1_ObOp	1.000 .	-.057 .305	-.320** .002	.231* .017	.060 .290	.246* .012	.118 .150	.116 .152	-.060 .277	-.055 .296	.163 .057	-.076 .228
V2_SubOp	-.057 .305	1.000 .	-.040 .353	.317** .001	.117 .132	.049 .318	.353** .001	.306** .002	-.250** .006	-.197* .022	.175* .039	-.267** .003
V3n_IdxOb Opp	-.320** .002	-.040 .353	1.000 .	-.137 .091	-.123 .116	-.162 .057	-.132 .110	-.087 .207	.164* .044	.203* .018	-.150 .062	.157 .052
V4_IdxSub Opp	.231* .017	.317** .001	-.137 .091	1.000 .	.213* .019	.090 .189	.304** .002	.301** .002	-.455** .000	-.340** .000	.350* .000	-.450** .000
V5_IdxSch	.060 .290	.117 .132	-.123 .116	.213* .019	1.000 .	.245** .008	.148 .085	.291** .003	-.162* .046	-.157 .051	.168* .043	-.142 .071
V6_IdxKir	.246* .012	.049 .318	-.162 .057	.090 .189	.245** .008	1.000 .	.176 .051	.111 .147	.089 .178	.122 .102	-.070 .236	.076 .214
V7_Discv	.118 .150	.353** .001	-.132 .110	.304** .002	.148 .085	.176 .051	1.000 .	.078 .241	-.306** .001	-.143 .078	.215* .018	-.317** .001
V8_Crt	.116 .152	.306** .002	-.087 .207	.301** .002	.291** .003	.111 .147	.078 .241	1.000 .	-.200* .023	-.270** .003	.158 .059	-.189* .029
V9_IdxDisc vAct	-.060 .277	-.250** .006	.164* .044	-.455** .000	-.162* .046	.089 .178	-.306** .001	-.200* .023	1.000 .	.719** .000	-.694** .000	.955** .000
V10_IdxCrt Act	-.055 .296	-.197* .022	.203* .018	-.340** .000	-.157 .051	.122 .102	-.143 .078	-.270** .003	.719** .000	1.000 .	-.699** .000	.687** .000
V11n_IdxSc hactinp	.163 .057	.175* .039	-.150 .062	.350** .000	.168* .043	-.070 .236	.215* .018	.158 .059	-.694** .000	-.699** .000	1.000 .	-.679** .000
V12_IdxKir ActInp	-.076 .228	-.267** .003	.157 .052	-.450** .000	-.142 .071	.076 .214	-.317** .001	-.189* .029	.955** .000	.687** .000	-.679** .000	1.000 .

Table 5-15: Employee Entrepreneur: Kendall's test on Specific Opportunity, n=60

<i>Kendall' tau/ employee</i>	V13_ObOpG	V14_SubOpG	V15_IdxObOppG	V16_IdxsubOppG	V17_IdxSchG	V18_IdxKirG	V19_DisG	V20_CreG	V21n
V13_ObOpG	1.000	-.066	.275**	.330**	.206*	.272**	.156	-.013	
	.	.272	.004	.001	.025	.004	.080	.453	
V14_SubOpG	-.066	1.000	.071	.146	.222*	.120	.114	.444**	
	.272	.	.245	.076	.017	.123	.152	.000	
V15_IdxObOppG	.275**	.071	1.000	.419**	.303**	.453**	.060	.150	
	.004	.245	.	.000	.001	.000	.284	.076	
V16_IdxsubOppG	.330**	.146	.419**	1.000	.364**	.488**	.289**	.283**	
	.001	.076	.000	.	.000	.000	.003	.003	
V17_IdxSchG	.206*	.222*	.303**	.364**	1.000	.384**	.248*	.343**	
	.025	.017	.001	.000	.	.000	.010	.001	
V18_IdxKirG	.272**	.120	.453**	.488**	.384**	1.000	.086	.138	
	.004	.123	.000	.000	.000	.	.208	.094	
V19_DisG	.156	.114	.060	.289**	.248*	.086	1.000	.138	
	.080	.152	.284	.003	.010	.208	.	.111	
V20_CreG	-.013	.444**	.150	.283**	.343**	.138	.138	1.000	
	.453	.000	.076	.003	.001	.094	.111	.	
V21n_IdxDisAct	.096	.076	.321**	.409**	.240**	.261**	.112	.133	
	.167	.222	.000	.000	.006	.003	.135	.094	
V22n_IdxCrtAct	.159	.041	.303**	.460**	.264**	.363**	.037	.141	
	.055	.340	.001	.000	.003	.000	.359	.082	
V23n_IdxSchAct	.157	.069	.284**	.378**	.273**	.302**	.047	.142	
	.059	.248	.001	.000	.002	.001	.326	.084	
V24_IdxKirAct	-.090	-.061	-.315**	-.391**	-.237**	-.238**	-.099	-.101	
	.183	.270	.000	.000	.007	.006	.164	.159	

Table 5-16: Employee Entrepreneur: Kendall's test on General Opportunity, n=60

5.2.5 Comparison between employer and employee entrepreneurs

The next table presents the Kendall's correlation coefficients for the employer and employee entrepreneurs separately. The differences between them and the significances are also calculated and presented (Field, 2009, pp. 173-4).

Kendall's test	Specific Opportunity	General Opportunities
H 1: Objectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs' discovering actions		
Tests and expected result	T 1: V1 $\xrightarrow{+}$ V7	T 3: V13 $\xrightarrow{+}$ V19
Actual Result: Employer Entrepreneur	$r = .00$, p (one-tailed) $> .05$ rejected	$r = .13$, p (one-tailed) $> .05$ rejected
Employee Entrepreneur	$r = .19$, p (one-tailed) $> .05$ rejected	$r = .16$, p (one-tailed) $> .05$ rejected
z-score of difference and significance	$z = -1.04$ p (two-tailed) $> .05$	$z = -.16$ p (two-tailed) $> .05$
Tests and expected result	T 2: V3 $\xrightarrow{+}$ V9	T 4: V15 $\xrightarrow{+}$ V21
Actual Result: Employer Entrepreneur	$r = .04$, p (one-tailed) $> .05$ rejected	$r = .13$, p (one-tailed) $> .05$ rejected
Employee Entrepreneur	$r = .16$, p (one-tailed) $< .05$ approved	$r = .32$, p (one-tailed) $< .01$ approved
z-score of difference and significance	$z = -.66$ p (two-tailed) $> .05$	$z = -1.09$ p (two-tailed) $> .05$
H 2: Subjectivity of entrepreneurial opportunities has a positive relationship with entrepreneurs' creating actions.		
Tests and expected result	T 5: V2 $\xrightarrow{+}$ V8	T 7: V14 $\xrightarrow{+}$ V20
Actual Result: Employer Entrepreneur	$r = .15$, p (one-tailed) $> .05$ rejected	$r = .21$, p (one-tailed) $< .05$ approved
Employee Entrepreneur	$r = .31$, p (one-tailed) $< .001$ approved	$r = .44$, p (one-tailed) $< .001$ approved
z-score of difference and significance	$z = -.92$ p (two-tailed) $> .05$	$z = -1.40$ p (two-tailed) $> .05$
Tests and expected result	T 6: V4 $\xrightarrow{+}$ V10	T 8: V16 $\xrightarrow{+}$ V22

Actual Result: Employer Entrepreneur	$r = -.25$, p (one-tailed) $< .001$ rejected	$r = .45$, p (one-tailed) $< .001$ approved
Employee Entrepreneur	$r = -.34$, p (one-tailed) $< .001$ rejected	$r = .46$, p (one-tailed) $< .001$ approved
z-score of difference and significance	$z = -.54$ p (two-tailed) $> .05$	$z = -.07$ p (two-tailed) $> .05$
H 3: Opportunity's Schumpeterian nature has a positive relationship with entrepreneurs' actions that disturb the equilibrium of market.		
Tests and expected result	T 9: V5 $\xrightarrow{+}$ V11	T 10: V17 $\xrightarrow{+}$ V23
Actual Result: Employer Entrepreneur	$r = .16$, p (one-tailed) $< .05$ approved	$r = .40$, p (one-tailed) $< .001$ approved
Employee Entrepreneur	$r = .17$, p (one-tailed) $< .05$ approved	$r = .27$, p (one-tailed) $< .01$ approved
z-score of difference and significance	$z = -.06$ p (two-tailed) $> .05$	$z = -.80$ p (two-tailed) $> .05$
Hypothesis 4: Opportunity's Kirznerian nature has a positive relationship with entrepreneurs' actions that resort the equilibrium of market.		
Tests and expected result	T 11: V6 $\xrightarrow{+}$ V12	T 12: V18 $\xrightarrow{+}$ V 24
Actual Result: Employer Entrepreneur	$r = -.12$, p (one-tailed) $> .05$ rejected	$r = -.27$, p (one-tailed) $< .01$ rejected
Employee Entrepreneur	$r = -.08$, p (one-tailed) $> .05$ rejected	$r = -.24$, p (one-tailed) $< .01$ rejected
z-score of difference and significance	$z = -.20$ p (two-tailed) $> .05$	$z = -.17$ p (two-tailed) $> .05$

**Table 5-17: Comparison of Results between Employer and Employee
Entrepreneurs**

Although the statistics indicates that there is no significant difference between the group of employer entrepreneurs and the group of employee entrepreneurs in terms of their correlation coefficients, it was found that some differences are present in the results of test 2, test 4 and test 5. In all of these three tests, the correlation coefficients

in the group of employer entrepreneurs are not significant anymore which means that they do not provide supportive evidence to the hypotheses tests.

It is worth mentioning that when the two groups of samples are put together, test 2, 4 and 5 all support the hypotheses they are testing, which leads us to accept the hypotheses. Nevertheless, when we test those hypotheses based on the subgroups of the sample, the group of employee entrepreneurs still provides supportive evidence whereas the group of employer entrepreneurs does not provide supportive evidence anymore. Thus cautiousness has to be raised when accepting these hypotheses (H 1 and H 2).

5.3 Factor Analysis One: the Importance of Various

Entrepreneurial Activities

5.3.1 Introduction

Factor analysis and principal component analysis is the technique for identifying groups of clusters of variable. It has three main functions: (1) to understand the structure of a set of variables; (2) to construct a questionnaire to measure underlying variables; and (3) to reduce a large data set to a smaller size but retaining as much of the original information as possible (Field, 2009, pp.628).

Based on previous research into entrepreneurial activities, 15 types of activities have been identified. For the general entrepreneurial opportunities, respondents' perceptions of the importance of these activities have been measured by a 10 point Likert-Scale. For the specific entrepreneurial opportunity pursued by entrepreneurs, the actual inputs of those activities have also been measured by the 10 point Likert-scale. By using the technique of principal component analysis, it is possible to identify the clusters of those activities and thus gain a better understanding of the structure of them. The analysis will be divided into two parts. The analysis in this section is based on the information regarding the perceived importance of various entrepreneurial activities and the analysis in following section is based on the actual input of those activities.

5.3.2 Preliminary Analysis

5.3.2.1 Sample Size

The common rule regarding the sample size of a factor analysis is to suggest that there should be at least 10 to 15 participants per variable (Field, 2009, pp. 647). In this research, there are 15 variables to be analysed. As such, a sample including 160 cases is sufficient to conduct the factor analysis.

The Kaiser-Meyer-Olkin test measures sampling adequacy (KMO), and is an index that tests the appropriateness of the sample size. A value close to 1 indicates that the patterns of correlations are relatively compact and so factor analysis should obtain a

distinct and reliable factor (Field, 2009, pp.647). Conducting the KMO test on our sample produced a result of .941 indicating that the sample size is good enough. The KMO statistics for individual variables are calculated in the Anti-Image Matrices, which are attached in the appendix 2.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.941
Bartlett's Test of Sphericity	Approx. Chi-Square	1548.741
	df	105
	Sig.	.000

Table 5-18: KMO and Bartlett's Test (Factor Analysis One)

5.3.2.2 Correlation between Variables

For factor analysis to work, some relationship between the variables is required. Bartlett's measure tests whether the original correlation matrix (R-matrix) is an identity matrix -if the correlation matrix is an identify matrix, all correlation coefficient would be zero (Field, 2009, pp.660). In this research, the Bartlett's test is highly significant ($p < .001$), which means that the correlation matrix is not an identify matrix and there are some relationship between the variables. The determinant of the correlation table is 4.06E-005, which is greater than the necessary value of 0.00001 (Field, 2009, pp.65). Therefore, factor analysis is appropriate.

	Q16_1 a_Plan x	Q16_2 a_Exe Planx	Q16_3 a_FdR esx	Q16_4 a_Bld Netx	Q16_5 a_Srch Infox	Q16_6 a_Dvl pExptx	Q16_7 a_Solv Probx	Q16_8 a_Lrni ngx	Q16_9 a_Rec Oppx	Q16_1 0a_De vIdeax	Q16_1 1a_Op pScan x	Q16_1 2a_Be Alertx	Q16_1 3a_Ale rtInbln cx	Q16_1 4a_Cre NewPr odx	Q16_1 5a_Per cAltnx
16_1a_Planx	1.000	.712	.625	.573	.597	.422	.535	.598	.526	.506	.452	.472	.509	.444	.410
Q16_2a_ExePlanx	.712	1.000	.646	.540	.576	.393	.574	.582	.475	.475	.413	.435	.434	.391	.340
Q16_3a_FdResx	.625	.646	1.000	.621	.666	.568	.615	.611	.559	.605	.495	.545	.518	.537	.495
Q16_4a_BldNetx	.573	.540	.621	1.000	.574	.530	.489	.615	.531	.518	.469	.424	.495	.366	.444
Q16_5a_SrchInfox	.597	.576	.666	.574	1.000	.617	.453	.626	.538	.528	.466	.465	.503	.519	.495
Q16_6a_DvlpExptx	.422	.393	.568	.530	.617	1.000	.530	.549	.475	.592	.503	.395	.469	.497	.544
Q16_7a_SolvProbx	.535	.574	.615	.489	.453	.530	1.000	.582	.544	.676	.483	.463	.534	.484	.515
Q16_8a_Lrningx	.598	.582	.611	.615	.626	.549	.582	1.000	.589	.551	.511	.502	.541	.556	.492
Q16_9a_RecOppx	.526	.475	.559	.531	.538	.475	.544	.589	1.000	.641	.678	.591	.492	.514	.500
Q16_10a_DevIdeax	.506	.475	.605	.518	.528	.592	.676	.551	.641	1.000	.641	.608	.552	.611	.540
Q16_11a_OppScanx	.452	.413	.495	.469	.466	.503	.483	.511	.678	.641	1.000	.623	.505	.568	.487
Q16_12a_BeAlertx	.472	.435	.545	.424	.465	.395	.463	.502	.591	.608	.623	1.000	.573	.545	.451
Q16_13a_AlertInblncx	.509	.434	.518	.495	.503	.469	.534	.541	.492	.552	.505	.573	1.000	.464	.679
Q16_14a_CreNewProdx	.444	.391	.537	.366	.519	.497	.484	.556	.514	.611	.568	.545	.464	1.000	.501
Q16_15a_PercAltnx	.410	.340	.495	.444	.495	.544	.515	.492	.500	.540	.487	.451	.679	.501	1.000

Table 5-19: Correlation Matrix (R-matrix) Action Importance

5.3.3 Factor Extraction

5.3.3.1 Total Variance Explained

There would be as many components (eigenvectors) in the R-matrix as there are variables, but just a few will be important. To determine the importance of a particular component, we look at the magnitude of the associated eigenvalues presented in the following table. Kaiser's criterion of retaining factors with eigenvalues that are greater than 1 is adopted here.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.418	56.117	56.117	8.418	56.117	56.117	7.540
2	1.100	7.335	63.452	1.100	7.335	63.452	6.936
3	.794	5.296	68.749				
4	.677	4.512	73.261				
5	.604	4.023	77.285				
6	.571	3.806	81.091				
7	.442	2.945	84.036				
8	.411	2.739	86.775				
9	.356	2.374	89.149				
10	.352	2.348	91.497				
11	.306	2.042	93.538				
12	.272	1.814	95.352				
13	.252	1.682	97.034				
14	.227	1.514	98.548				
15	.218	1.452	100.000				

Table 5-20: Total Variance Explained (Factor Analysis One)

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

One of the important decisions in the factor analysis is the number of factors to extract. The eigenvalues, average communality and scree plot are issues that should be taken into account. At this stage, SPSS has extracted two factors. The scree plot also justifies this decision.

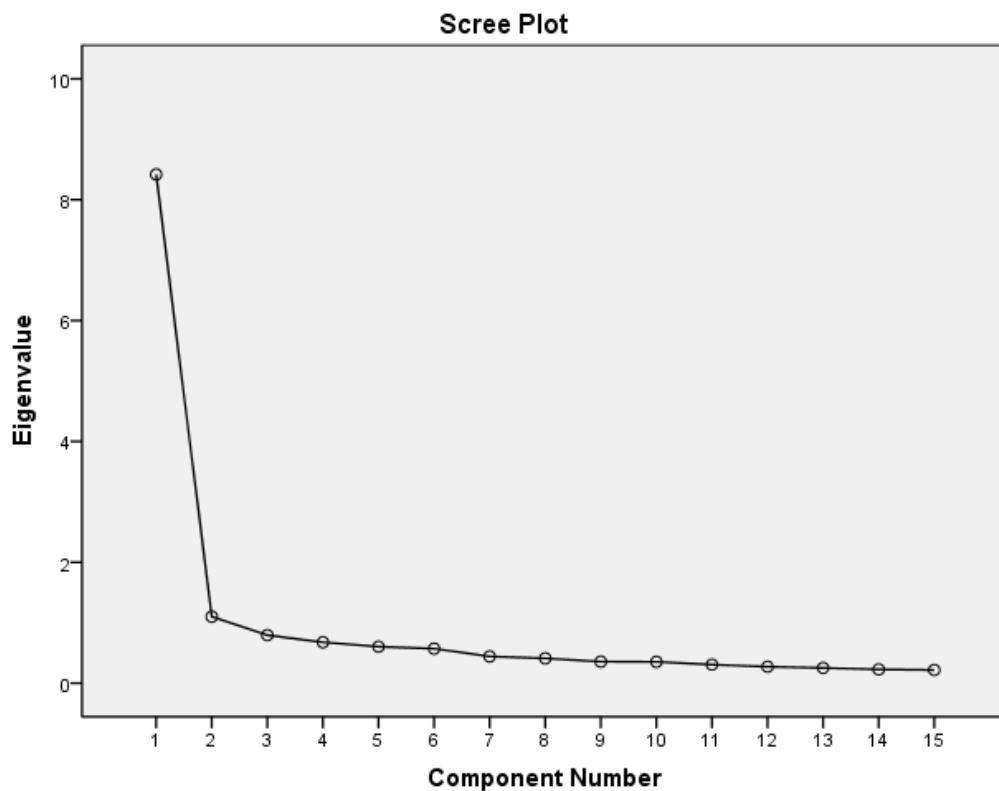


Figure 5-2: Scree Plot for Action Importance (Factor Analysis One)

5.3.3.2 Communalities

The following table presents the communalities (i.e. the proportion of common variance within a variable) before and after extraction. Because the analysis is based on the initial assumption that all variance is common, therefore before extraction the

communalities are all 1. After the two factors have been extracted, we know that, for instance, 71.8% of the variance associated with Q16_1a is common, or shared variance. In other words, that is the proportion of variance explained by the two underlying factors when the other factors are discarded. The average communality for the 15 variables is .635.

Communalities

	Initial	Extraction
Q16_1a_Planx	1.000	.718
Q16_2a_ExePlanx	1.000	.755
Q16_3a_FdResx	1.000	.714
Q16_4a_BldNetx	1.000	.612
Q16_5a_SrchInfox	1.000	.640
Q16_6a_DvlpExptx	1.000	.522
Q16_7a_SolvProbx	1.000	.573
Q16_8a_Lrningx	1.000	.658
Q16_9a_RecOppx	1.000	.621
Q16_10a_DevIdeax	1.000	.707
Q16_11a_OppScanx	1.000	.665
Q16_12a_BeAlertx	1.000	.596
Q16_13a_AlertInblncx	1.000	.573
Q16_14a_CreNewProdx	1.000	.585
Q16_15a_PercAltnx	1.000	.579

Extraction Method: Principal Component Analysis.

Table 5-21: Communalities (Factor Analysis One)

5.3.3.3 Reproduced Correlations

The correlations in the reproduced matrix stem from the factor model rather than the observed data (the top half of the following table). To assess the fit of the model we will look at the difference between the observed correlations and the correlations based on the model (residuals, in the lower half of the following table). To be regarded as a good model, we want most the differences to be less than 0.05. In fact, there are 37 residuals (35%) with absolute values greater than 0.05, which is acceptable (Field, 2009, pp.66).

Reproduced Correlation	Q16_1a _Planx	Q16_2a _ExePl anx	Q16_3a _FdRes x	Q16_4a _BldNet tx	Q16_5a _SrcIn fox	Q16_6a _DvlpE xptx	Q16_7a _SolvPr obx	Q16_8a _Lrning x	Q16_9a _RecO ppx	Q16_10 a_DevI deax	Q16_11 a_OppS canx	Q16_12 a_BeAl ertx	Q16_13 a_Alert Inblncx	Q16_14 a_CreN ewProd x	Q16_15 a_Perc Altnx
Q16_1a_Planx	.718 ^a	.731	.698	.658	.663	.511	.577	.657	.514	.510	.412	.426	.475	.418	.403
Q16_2a_ExePlan x	.731	.755 ^a	.692	.660	.657	.479	.553	.645	.471	.458	.352	.373	.431	.365	.349
Q16_3a_FdResx	.698	.692	.714 ^a	.658	.676	.571	.622	.683	.593	.605	.522	.523	.556	.515	.502
Q16_4a_BldNetx	.658	.660	.658	.612 ^a	.624	.506	.560	.625	.519	.523	.440	.446	.484	.439	.426
Q16_5a_SrchInfo x	.663	.657	.676	.624	.640 ^a	.539	.588	.647	.559	.570	.491	.492	.524	.484	.472
Q16_6a_DvlpEx ptx	.511	.479	.571	.506	.539	.522 ^a	.542	.562	.566	.596	.554	.536	.540	.530	.523
Q16_7a_SolvPro bx	.577	.553	.622	.560	.588	.542	.573 ^a	.606	.579	.604	.548	.536	.550	.529	.520
Q16_8a_Lrningx	.657	.645	.683	.625	.647	.562	.606	.658 ^a	.589	.605	.532	.528	.555	.520	.509
Q16_9a_RecOpp x	.514	.471	.593	.519	.559	.566	.579	.589	.621 ^a	.661	.625	.600	.596	.594	.588
Q16_10a_DevIde ax	.510	.458	.605	.523	.570	.596	.604	.605	.661	.707 ^a	.677	.646	.636	.640	.635
Q16_11a_OppSc anx	.412	.352	.522	.440	.491	.554	.548	.532	.625	.677	.665 ^a	.628	.606	.623	.620
Q16_12a_BeAler tx	.426	.373	.523	.446	.492	.536	.536	.528	.600	.646	.628	.596 ^a	.580	.590	.587
Q16_13a_AlertIn blncx	.475	.431	.556	.484	.524	.540	.550	.555	.596	.636	.606	.580	.573 ^a	.574	.569
Q16_14a_CreNe wProdx	.418	.365	.515	.439	.484	.530	.529	.520	.594	.640	.623	.590	.574	.585 ^a	.582
Q16_15a_PercAl tnx	.403	.349	.502	.426	.472	.523	.520	.509	.588	.635	.620	.587	.569	.582	.579 ^a

Residual	Q16_1a _Planx	Q16_2a _ExePl anx	Q16_3a _FdRes x	Q16_4a _BldNe tx	Q16_5a _SrcIn fox	Q16_6a _DvlpE xptx	Q16_7a _SolvPr obx	Q16_8a _Lrning x	Q16_9a _RecO ppx	Q16_10 a_DevI deax	Q16_11 a_OppS canx	Q16_12 a_BeAl ertx	Q16_13 a_Alert Inblncx	Q16_14 a_CreN ewProdx	Q16_15a_PercAl tnx
Q16_1a_Planx		-.019	-.074	-.085	-.066	-.089	-.042	-.059	.012	-.004	.040	.047	.034	.026	.007
Q16_2a_ExePlanx	-.019		-.046	-.120	-.081	-.085	.021	-.063	.004	.017	.061	.062	.004	.026	-.008
Q16_3a_FdResx	-.074	-.046		-.037	-.010	-.003	-.007	-.072	-.034	.001	-.028	.022	-.038	.022	-.007
Q16_4a_BldNetx	-.085	-.120	-.037		-.050	.024	-.071	-.010	.012	-.005	.029	-.022	.011	-.073	.018
Q16_5a_SrchInfox	-.066	-.081	-.010	-.050		.078	-.136	-.021	-.021	-.042	-.025	-.026	-.021	.035	.023
Q16_6a_DvlpExptx	-.089	-.085	-.003	.024	.078		-.012	-.013	-.091	-.005	-.051	-.141	-.071	-.033	.021
Q16_7a_SolvProbx	-.042	.021	-.007	-.071	-.136	-.012		-.025	-.036	.072	-.064	-.073	-.015	-.045	-.005
Q16_8a_Lrningx	-.059	-.063	-.072	-.010	-.021	-.013	-.025		.000	-.055	-.020	-.025	-.014	.036	-.017
Q16_9a_RecOppx	.012	.004	-.034	.012	-.021	-.091	-.036	.000		-.020	.053	-.009	-.104	-.080	-.088
Q16_10a_DevIdeax	-.004	.017	.001	-.005	-.042	-.005	.072	-.055	-.020		-.036	-.039	-.083	-.029	-.095
Q16_11a_OppScanx	.040	.061	-.028	.029	-.025	-.051	-.064	-.020	.053	-.036		-.005	-.101	-.055	-.134
Q16_12a_BeAlertx	.047	.062	.022	-.022	-.026	-.141	-.073	-.025	-.009	-.039	-.005		-.007	-.045	-.136
Q16_13a_AlertInblncx	.034	.004	-.038	.011	-.021	-.071	-.015	-.014	-.104	-.083	-.101	-.007		-.110	.110
Q16_14a_CreNewProdx	.026	.026	.022	-.073	.035	-.033	-.045	.036	-.080	-.029	-.055	-.045	-.110		-.080
Q16_15a_PercAltnx	.007	-.008	-.007	.018	.023	.021	-.005	-.017	-.088	-.095	-.134	-.136	.110	-.080	

Table 5-22: Reproduced Correlations and Residuals

Extraction Method: Principal Component Analysis.

5.3.4 Factor Rotation

Rotation produces the effect of optimizing the factor structure and one consequence for this data is that the relative importance of the extracted factors is equalized (Field, 2009, pp.660). The choice of rotation depends upon whether there is a good theoretical reason to suppose that the factors should be related or independent. At this stage, we are not sure if the factors would be related or not, and thus we run both of the two types of rotation: orthogonal rotation and oblique rotation.

5.3.4.1 *Orthogonal Rotation*

In orthogonal rotation, all the factors are assumed to be independent. Orthogonal rotation ensures that the factors remain uncorrelated after rotation. Table 5-23 shows the rotated component matrix which is a matrix of the factor loading for each variable onto each factor. It is suggested that the 0.4 cut-off point is appropriate for an interpretative purpose, i.e. loadings greater than 0.4 represent substantive values (Fields, 2009, pp. 666; Stevens, 2002). Loadings with a value greater than 0.4 are marked in **bold** font.

This matrix could be used for comparison with the original matrix. Before the rotation, every variable was loaded highly onto the first factor whereas only two variables have substantive loadings on the second factor which makes the interpretation complicated. After the rotation, 12 variables were highly loaded onto the first factor whereas 9 variables were loaded highly on to the second factor. There were still 6 variables highly load onto both of the two factors. The interpretation for this is still complicated. Therefore, the oblique rotation has been used to see if situation will improve.

Rotated Component Matrix^a

	Component	
	1	2
Q16_1a_Planx	.279	.800
Q16_2a_ExePlanx	.185	.849
Q16_3a_FdResx	.446	.717
Q16_4a_BldNetx	.345	.702
Q16_5a_SrchInfox	.416	.683
Q16_6a_DvlpExptx	.574	.439
Q16_7a_SolvProbx	.536	.535
Q16_8a_Lrningx	.477	.655
Q16_9a_RecOppx	.675	.407
Q16_10a_DevIdeax	.752	.375
Q16_11a_OppScanx	.778	.245
Q16_12a_BeAlertx	.719	.282
Q16_13a_AlertInblncx	.665	.362
Q16_14a_CreNewProdx	.714	.274
Q16_15a_PercAltnx	.717	.254

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Component Matrix

	Component	
	1	2
Q16_1a_Planx	.747	-.400
Q16_2a_ExePlanx	.712	-.499
Q16_3a_FdResx	.814	-.225
Q16_4a_BldNetx	.730	-.283
Q16_5a_SrchInfox	.769	-.220
Q16_6a_DvlpExptx	.719	.066
Q16_7a_SolvProbx	.756	-.030
Q16_8a_Lrningx	.795	-.159
Q16_9a_RecOppx	.772	.158
Q16_10a_DevIdeax	.808	.234
Q16_11a_OppScanx	.738	.347
Q16_12a_BeAlertx	.719	.280
Q16_13a_AlertInblncx	.734	.184

Rotated Component Matrix^a

	Component	
	1	2
Q16_1a_Planx	.279	.800
Q16_2a_ExePlanx	.185	.849
Q16_3a_FdResx	.446	.717
Q16_4a_BldNetx	.345	.702
Q16_5a_SrchInfox	.416	.683
Q16_6a_DvlpExptx	.574	.439
Q16_7a_SolvProbx	.536	.535
Q16_8a_Lrningx	.477	.655
Q16_9a_RecOppx	.675	.407
Q16_10a_DevIdeax	.752	.375
Q16_11a_OppScanx	.778	.245
Q16_12a_BeAlertx	.719	.282
Q16_13a_AlertInblncx	.665	.362
Q16_14a_CreNewProdx	.714	.274
Q16_15a_PercAltnx	.717	.254

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Q16_14a_CreNewProdx	.711	.283
Q16_15a_PercAltnx	.700	.299

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Table 5-23: Rotated Component Matrix (Factor Analysis One)

5.3.4.2 Oblique Rotation

The difference between orthogonal rotation and oblique rotation is that oblique rotation allows for correlation between factors.

After the oblique rotation two loadings matrices are produced: the pattern matrix and structure matrix. The former is preferable for interpretative reasoning because it contains information about the unique contribution of a variable to a factor whereas the shared variance is taken into account in the latter (Field, 2009, pp.667). The pattern matrix contains the factor loadings for each variable onto to the two factors. Just like the previous one, a loading value of 0.4 is set as the cut-off point indicating that value greater than 0.4 represents substantive values (Fields, 2009, pp. 666; Stevens, 2002).

Pattern Matrix^a

	Component	
	1	2
Q16_1a_Planx	-.029	-.867
Q16_2a_ExePlanx	-.171	-.977
Q16_3a_FdResx	.226	-.675
Q16_4a_BldNetx	.104	-.708
Q16_5a_SrchInfox	.204	-.647
Q16_6a_DvlpExptx	.523	-.256
Q16_7a_SolvProbx	.428	-.397
Q16_8a_Lrningx	.296	-.580
Q16_9a_RecOppx	.668	-.163
Q16_10a_DevIdeax	.782	-.083
Q16_11a_OppScanx	.878	.096
Q16_12a_BeAlertx	.784	.018
Q16_13a_AlertInblncx	.677	-.111
Q16_14a_CreNewProdx	.783	.026
Q16_15a_PercAltnx	.796	.053

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Structure Matrix

Pattern Matrix^a

	Component	
	1	2
Q16_1a_Planx	-.029	-.867
Q16_2a_ExePlanx	-.171	-.977
Q16_3a_FdResx	.226	-.675
Q16_4a_BldNetx	.104	-.708
Q16_5a_SrchInfox	.204	-.647
Q16_6a_DvlpExptx	.523	-.256
Q16_7a_SolvProbx	.428	-.397
Q16_8a_Lrningx	.296	-.580
Q16_9a_RecOppx	.668	-.163
Q16_10a_DevIdeax	.782	-.083
Q16_11a_OppScanx	.878	.096
Q16_12a_BeAlertx	.784	.018
Q16_13a_AlertInblncx	.677	-.111
Q16_14a_CreNewProdx	.783	.026
Q16_15a_PercAltnx	.796	.053

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

	Component	
	1	2
Q16_1a_Planx	.562	-.847
Q16_2a_ExePlanx	.495	-.860
Q16_3a_FdResx	.686	-.828
Q16_4a_BldNetx	.587	-.779
Q16_5a_SrchInfox	.645	-.786
Q16_6a_DvlpExptx	.698	-.613
Q16_7a_SolvProbx	.699	-.689
Q16_8a_Lrningx	.691	-.782
Q16_9a_RecOppx	.779	-.619
Q16_10a_DevIdeax	.839	-.616
Q16_11a_OppScanx	.812	-.503
Q16_12a_BeAlertx	.772	-.517
Q16_13a_AlertInblncx	.753	-.573
Q16_14a_CreNewProdx	.765	-.507
Q16_15a_PercAltnx	.760	-.490

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

Table 5-24: Pattern and Structure Matrix (Factor Analysis One)

The pattern matrix could be used for comparison with the unrotated solution. Before the rotation, every variable was loaded highly onto the first factor whereas only two variables had substantive loadings on the second factor, which made the interpretation complicated. The rotation of the factor structure has clarified things considerably: of the 15 variables, nine of them load highly on the first factors and the other six variables load highly on the second factor.

Table 5-25 is a correlation matrix between the two factors. The fact that the correlation exists tell us that the constructs measured could be interrelated and justifies the use of oblique rotation. Therefore, the results after the oblique rotation are more meaningful while the results of orthogonal rotation should be discarded.

**Component Correlation
Matrix**

Component	1	2
1	1.000	-.682
2	-.682	1.000

Extraction Method: Principal
Component Analysis.

Rotation Method: Oblimin with
Kaiser Normalization.

Table 5-25: Component Correlation Matrix (Factor Analysis One)

5.3.5 Interpretation

From the pattern matrix for the data, two factors have emerged. The first factor has nine highly loaded variables which are the perceived importance of following entrepreneurial activities: “development expertise”, “problem solving”, “opportunity recognition”, “develop idea into business plan”, “opportunity scan”, “being alert to opportunity”, “being alert to imbalance in supply and demand”, “new product or service development” and “perceiving a possibility to create a new business”. The second factor has six highly loaded variables which are the perceived importance of following entrepreneurial activities: “planning”, “execution of planning”, “looking for resource”, “building social network”, “looking for and analysing information” and “learning”.

Items (Importance of following entrepreneurial activities)	Factor One: Opportunity-specific activity	Factor Two: Opportunity-Preparing activity
Opportunity Scan (Q16_11a)	.878	.096
Perceiving a possibility to create a new business (Q16_15a)	.796	.053
Being Alert to opportunity (Q16_12a)	.784	.018

New product or service development (Q16_14a)	.783	.026
Develop idea into business plan (Q16_10a)	.782	-.083
Being alert to imbalance in supply and demand (Q16_13a)	.677	-.111
Opportunity Recognition (Q16_9a)	.668	-.163
Develop Expertise (Q16_6a)	.523	-.256
Problem Solving (Q16_7a)	.428	-.397
Execution of Plan (Q16_2a)	-.171	-.977
Planning (Q16_1a)	-.029	-.867
Building Social Network (Q16_4a)	.104	-.708
Looking for Resources (Q16_3a)	.226	-.675
Looking for Information and analysing information (Q16_5a)	.204	-.647
Learning (Q16_8a)	.296	-.508

Table 5-26: Interpretation (Factor Analysis One)

When placing the two clusters of activities together for comparison, it is found that the activities in the second group all have some common features. Firstly, all of them

seem to be the groundwork for a long term development. Typical examples include “planning”, “building social network”, “looking for resources” and “learning”. The main purpose of these actions is to make good preparations for future development. The second common feature of the activities in this group is that they are not related to the specific opportunity. The term “opportunity” does not appear in the statement at all. All of these activities are generally conducted for the purpose to create a better environment to support the emergence or creation of an entrepreneurial opportunity, but has little to do with the specific opportunity. Considering the two features of the items in the second group, we will label the second factor “opportunity-preparing activities”.

It is difficult to discern the common features of the nine items of the first factor with a quick glance. However, when comparing them with the six items of the second factor, especially after the common features of those six items have been identified, some characteristics of the nine items of the first factor can be identified. Unlike the “opportunity-preparing activities”, the nine items of the first factor have a close relationship with entrepreneurial opportunity. In other words, these nine activities do not work as the preparation for opportunity emergence or creation, rather they either relate to directly working on the opportunity (e.g. opportunity recognition, problem solving, new product or service development), or opportunities are the direct results

from these activities (e.g. perceiving a possibility to create a new business, being alert to opportunity, develop idea into business plan). Compared to those “preparing activities”, the relationship between the nine activities of the first factor and the pursued opportunity is much closer. For this reason, the first factor is called “opportunity-specific activities”.

5.3.6 Summarized Report

A principal component analysis (PCA) was conducted on the 15 items regarding the importance of various entrepreneurial activities with oblique rotation (direct oblimin). The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis. The KMO = .94, and all KMO values for individual items were > .91, which is well above the acceptable limit of .5 (Field, 2009). Bartlett’s test of sphericity ($\chi^2 = 1548.74$, $p < .001$), indicated that the correlations between items were sufficiently large for PCA. An initial analysis was run to obtain eigenvalues for each component in the data set. Two components had eigenvalues over Kaiser’s criterion of 1 and in combination explained 63.45% of the variance. The scree plot showed inflexions that justified retaining these two components. Given the Kaiser’s criterion and scree plot, two components were retained in the final analysis. Table 5-24 shows the factor loadings after rotation. The items that cluster on the same components suggest that

factor 1 represents “opportunity-specific activities” and factor 2 represents “opportunity-preparing activities”.

5.3.7 Reliability Analysis

Reliability analysis in this part is to test whether the measure consistently reflects the construct that it is measuring (Fields, 2009, pp.673). Cronbach’s alpha is the measure that we adopt to test the reliability.

The first factor that we identified from analysis, “opportunity-specific activities”, has a high reliability: Cronbach’s $\alpha = .91$, whereas the second factor also had a high reliability: Cronbach’s $\alpha = .90$. The value in the column labelled “Cronbach’s Alpha if Item is Deleted” in each table indicates that none of the items there would increase the reliability if they were deleted because all values in that column are less than the overall reliability of .91 and .90 respectively.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.913	.914	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q16_6a_DvlpExptx	59.03	183.641	.642	.455	.908
Q16_7a_SolvProbx	58.77	185.600	.683	.522	.904
Q16_9a_RecOppx	58.71	181.504	.717	.567	.902
Q16_10a_DevIdeax	59.04	179.124	.796	.664	.897
Q16_11a_OppScanx	59.18	182.120	.728	.590	.901
Q16_12a_BeAlertx	58.99	186.704	.685	.542	.904
Q16_13a_AlertInblncx	59.29	181.150	.687	.569	.904
Q16_14a_CreNewProdx	58.92	183.220	.673	.476	.905
Q16_15a_PercAltnx	59.13	185.159	.683	.554	.904

Table 5-27: Reliability Statistics for Factor 1 (Factor Analysis One)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.903	.904	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q16_1a_Planx	37.55	88.803	.752	.596	.884
Q16_2a_ExePl anx	37.22	93.194	.740	.588	.885
Q16_3a_FdRes x	37.59	94.683	.767	.599	.881
Q16_4a_BldNe tx	37.56	94.890	.698	.502	.891
Q16_5a_SrchIn fox	37.84	97.269	.730	.549	.887
Q16_8a_Lrning x	37.80	94.186	.729	.539	.887

Table 5-28: Reliability Statistics for Factor 2 (Factor Analysis One)

5.4 Factor Analysis Two: the Actual Input of Various

Entrepreneurial Activities

5.4.1 Preliminary Analysis

The KMO measure verified the sampling adequacy for the analysis, KMO = .94, and all KMO values for individual items were > .88 (see appendix 3), which is well above the acceptable limit of .5 (Field, 2009). Bartlett's test of sphericity (103) = 1555.96 is highly significant, $p < .001$, indicating that correlations between items are sufficiently large for PCA. The determinant of the correlation matrix is .19, which is greater than the necessary value of 0.00001 (Field, 2009, pp.65) Thereafter, the factor is appropriate.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.944
Bartlett's Test of Sphericity	Approx. Chi-Square	1555.962
	df	105
	Sig.	.000

Table 5-29: KMO and Bartlett's Test (Facto Analysis Two)

5.4.2 Factor Extraction

5.4.2.1 *Total Variance Explained*

There were 15 components identified and the same number of variables to be analysed, but just a few of them will be important. To determine the importance of a particular component, we look at the magnitude of the associated eigenvalues presented in the following table. Kaiser's criterion of retaining factors with eigenvalues greater than 1 is adopted here. As a result, there are two components identified as important. The combination of these two factors explains 64.14% of the variance. The scree plot shows inflexions that justify retaining these two components.

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.403	56.023	56.023	8.403	56.023	56.023	7.796
2	1.217	8.115	64.138	1.217	8.115	64.138	6.176
3	.686	4.572	68.710				
4	.623	4.156	72.867				
5	.586	3.907	76.773				
6	.568	3.789	80.562				
7	.457	3.045	83.607				
8	.415	2.767	86.374				
9	.402	2.678	89.052				
10	.372	2.477	91.529				
11	.328	2.184	93.713				
12	.282	1.881	95.594				
13	.277	1.849	97.443				
14	.202	1.348	98.791				
15	.181	1.209	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 5-30: Total Variance Explained (Factor Analysis Two)

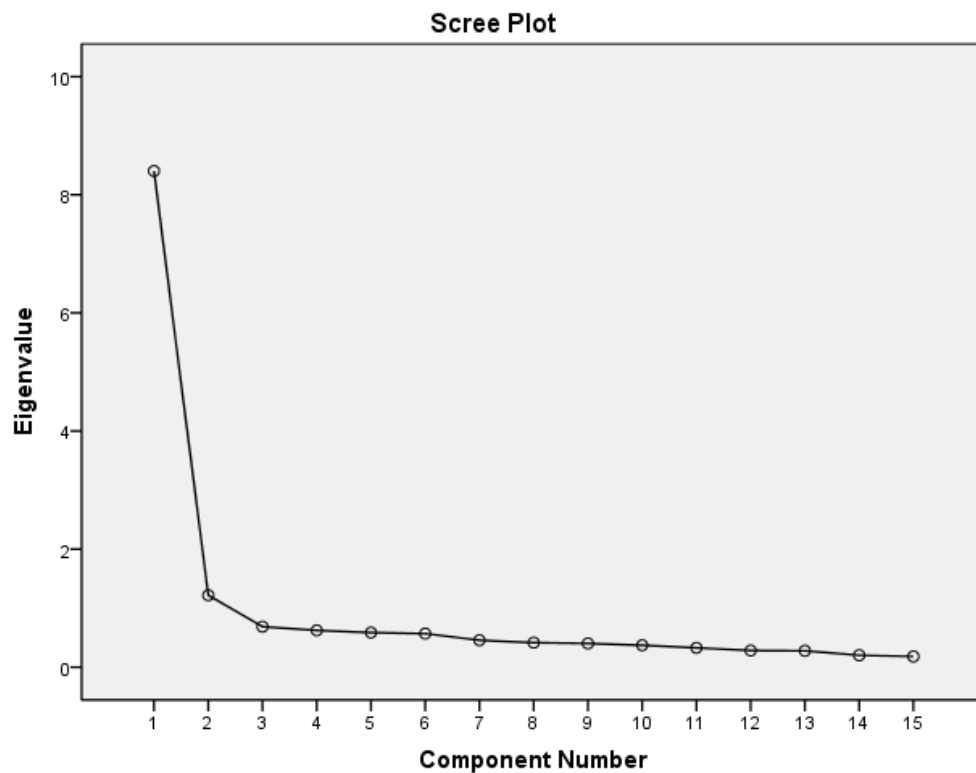


Figure 5-3: Scree Plot (Factor Analysis Two)

5.4.2.2 Communalities and Reproduced Correlations

The following table presents the communalities (i.e. the proportion of common variance within a variable) before and after extraction. After the two factors have been extracted, taking Q16_1b as an example, 75.2% is explained by the two underlying factors when the other factors are discarded. The average communality for the 15 variables is .64.

Communalities

	Initial	Extraction
Q16_1b_PlanInpx	1.000	.752
Q16_2b_ExePlanInpx	1.000	.782
Q16_3b_FdResInpx	1.000	.672
Q16_4b_BldNetInpx	1.000	.562
Q16_5b_SrchInfoInpx	1.000	.620
Q16_6b_DvlpExptInpx	1.000	.609
Q16_7b_SolvProbInpx	1.000	.582
Q16_8b_LrningInpx	1.000	.555
Q16_9b_RecOppInpx	1.000	.527
Q16_10b_DevIdeaInpx	1.000	.660
Q16_11b_OppScanInpx	1.000	.779
Q16_12b_BeAlertInpx	1.000	.675
Q16_13b_AlertInblncInpx	1.000	.695
Q16_14b_CreNewProdInpx	1.000	.537
Q16_15b_PercAltnInpx	1.000	.615

Extraction Method: Principal Component Analysis.

Table 5-31: Communalities (Factor Analysis Two)

The correlations in the reproduced matrix and differences between the observed correlations and the correlations based on the model (residuals, presented in the appendix 4) are used to assess the fit of the model. To be regarded as a good model,

we want most the residuals to be less the 0.05. In fact, there are 38 residuals (36%) with absolute values greater than 0.05, which is acceptable (Field, 2009, pp.664).

5.4.3 Factor Rotation

A pattern matrix is obtained from oblique rotation. The pattern matrix contains the factor loadings for each variable onto to the two factors. Just as previously suggested, a cut-off point of 0.4 is adopted for interpretative purposes, i.e. loadings greater than 0.4 represent substantive values (Fields, 2009, pp. 666; Stevens, 2002). Loadings with a value greater than 0.4 are marked in **boldfont**.

The rotation of the factors clarifiesthe structure, enabling interpretation. There are 15 variables, eleven of which load highly on the first factors and five variables that load highly on the second factor. Only one variable (Q16_5b_SrchInfoInpx) highly loads on both of the two factors.

Table 5-32 is a correlation matrix between the two factors. The fact that the correlations exist tell us that the constructs measured could be interrelated and

justifies the use of oblique rotation. Therefore, the results after the oblique rotation are more meaningful.

Pattern Matrix^a

	Component	
	1	2
Q16_1b_PlanInpx	-.062	.905
Q16_2b_ExePlanInpx	-.074	.930
Q16_3b_FdResInpx	.118	.740
Q16_4b_BldNetInpx	.268	.551
Q16_5b_SrchInfoInpx	.406	.464
Q16_6b_DvlpExptInpx	.703	.114
Q16_7b_SolvProbInpx	.560	.273
Q16_8b_LrningInpx	.468	.355
Q16_9b_RecOppInpx	.549	.241
Q16_10b_DevIdeaInpx	.799	.020
Q16_11b_OppScanInpx	.928	-.075
Q16_12b_BeAlertInpx	.853	-.050
Q16_13b_AlertInblncInpx	.844	-.016
Q16_14b_CreNewProdInpx	.801	-.117
Q16_15b_PercAltnInpx	.759	.038

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table 5-32: Patter Matrix(Factor Analysis Two)

**Component Correlation
Matrix**

Component	1	2
1	1.000	.633
2	.633	1.000

Extraction Method: Principal
Component Analysis.

Rotation Method: Oblimin with
Kaiser Normalization.

Table 5-33: Component Correlation Matrix(Factor Analysis Two)

5.4.4 Interpretation

From the pattern matrix for the data presented above, two clusters of variables measuring the actual input of the entrepreneurial activities have emerged to form two factors. The first factor has eleven highly loaded variables whereas the second factor has five highly loaded variables. Those variables are sorted by the weight of their factor loadings and presented in the following table.

Items (Actual Input of entrepreneurial activities)	Factor One: Opportunity-specific activity	Factor Two: Opportunity-Preparing activity
Opportunity Scan (Q16_11b)	.928	-.075
Being Alert to opportunity (Q16_12b)	.853	-.050
Being alert to imbalance in supply and demand (Q16_13b)	.844	-.016
New product or service development (Q16_14b)	.801	.117
Develop idea into business plan (Q16_10b)	.799	.020
Perceiving a possibility to create a new business (Q16_15b)	.759	.038
Develop Expertise (Q16_6b)	.703	.114
Problem Solving (Q16_7b)	.560	.273
Opportunity Recognition (Q16_9b)	.549	.241
Learning (Q16_8b)	.468	-.355
Looking for Information and analysing information (Q16_5b)	.406	.464
Execution of Plan (Q16_2b)	-.074	.930
Planning (Q16_1b)	-.062	.905
Looking for Resources (Q16_3b)	.118	.740
Building Social Network (Q16_4b)	.268	.551

Table 5-34: Interpretation (Factor Analysis Two)

A closer comparison between the results above and the results produced based on the information regarding perceived importance of entrepreneurial activities reveals that they share a great proportion of commonality. Based on the different features of those variables for the two factors, we still could use the term “opportunity-specific activities” and “opportunity-preparing activities” to distinguish these two factors. The former one represents activities that have a direct effect on the opportunities whereas the latter represents activities that function as preparation for the emergence or creation of an opportunity.

Compared to the analysis based on the perceived importance of various activities, all 15 variables regarding the actual input of activities cluster in a very similar way with only two exceptions. (1) “Learning” (Q16_8b) previously loaded highly on the factor of “opportunity-preparing activities” with a factor loading of .51. But in this analysis, this item highly loads on the factor of “opportunity-specific activities” with a loading of a factor loading of .47. (2) “Looking for Information and analysing information” (Q15_5b) previously highly loaded on the factor of “opportunity-preparing activities” with a factor loading of .65. But in this analysis, it highly loads on both of the two factors with factor loadings of .41 and .46 respectively.

5.4.5 Summarized Report

A principal component analysis (PCA) was conducted on the 15 items regarding the actual input of various entrepreneurial activities when entrepreneurs pursue opportunities. Oblique rotation (direct oblimin) was conducted to optimize the factor structure. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis; the KMO = .94, and all KMO values for individual items were > .88, which is well above the acceptable limit of .5 (Field, 2009). Bartlett's test of sphericity ($103 = 1555.96$, $p < .001$), indicated that correlations between items were sufficiently large for PCA. An initial analysis was run to obtain eigenvalues for each component in the data set. Two components had eigenvalues over Kaiser's criterion of 1 and in combination explained 64.14% of the variance. The scree plot showed inflexions that justified retaining these two components. Given the Kaiser's criterion and scree plot, two components were retained in the final analysis. Table XX shows the factor loadings after rotation. The items that cluster on the same components suggest that factor 1 represents "opportunity-specific activities" and factor 2 represents "opportunity-preparing activities".

Results from the two factor analyses (based on the perceived importance and actual input of various entrepreneurial activities) are generally consistent. Mutually they provide support to the identification of the two factors.

5.4.6 Reliability Analysis

The first factor identified from the analysis, “opportunity-specific activities”, has a high reliability: Cronbach’s $\alpha = .93$, whereas the second factor also had a high reliability: Cronbach’s $\alpha = .87$. The value in the column labelled “Cronbach’s Alpha if Item is Deleted” in each table indicates that none of the items there would increase the reliability if they were deleted because all values in that column were less than the overall reliability of .93 and .87 respectively.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.934	.934	11

Item-Total Statistics

	Scale Mean if Item Delete d	Scale Varianc e if Item Deleted	Corrected Item-Total Correlatio n	Squared Multiple Correlatio n	Cronbach' s Alpha if Item Deleted
Q16_5b_SrchInfoInpx	68.69	348.065	.697	.517	.929
Q16_6b_DvlpExptInpx	68.68	345.024	.732	.574	.927
Q16_7b_SolvProbInpx	68.22	352.716	.703	.524	.928
Q16_8b_LrningInpx	68.63	347.796	.677	.501	.929
Q16_9b_RecOppInpx	68.33	352.258	.665	.504	.930
Q16_10b_DevIdeaInpx	68.50	343.937	.760	.629	.926
Q16_11b_OppScanInpx	68.71	335.391	.817	.736	.923
Q16_12b_BeAlertInpx	68.66	348.929	.752	.623	.926
Q16_13b_AlertInblncInpx	68.97	336.773	.769	.654	.925
Q16_14b_CreNewProdInpx	68.59	348.972	.648	.462	.931
Q16_15b_PercAltnInpx	68.59	344.395	.727	.562	.927

Table 5-35: Reliability Statistics for Factor 1 (Factor Analysis Two)**Reliability Statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.874	.874	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q16_1b_PlanInpx	28.06	62.330	.736	.591	.840
Q16_2b_ExePlanInpx	27.96	62.508	.758	.626	.834
Q16_3b_FdResInpx	28.11	65.082	.720	.522	.844
Q16_4b_BldNetInpx	28.24	67.758	.629	.411	.865
Q16_5b_SrchInfoInpx	28.43	66.423	.672	.459	.855

Table 5-36: Reliability Statistics for Factor 2 (Factor Analysis Two)

5.5 Correlation Analysis: Nature of Entrepreneurial Opportunity and Entrepreneurial Actions

5.5.1 Introduction

In the previous section, we gained a better understanding of the structure of the various types of entrepreneurial activities through factor analysis. Based on the information regarding the perceived importance and the actual input of activities, two underlying factors of those activities have been identified, namely, “opportunity-specific activities” and “opportunity-preparing activities”. In the earlier section we measured the attributes of opportunity in terms of their objective/subjective nature

and Schumpeterian/ Kirznerian nature. To further explore the relationship between the nature of entrepreneurial opportunity and the entrepreneurial action, we will use the identified factors of activities for the correlation analysis in this section.

5.5.2 Factor Scores

A factor could be described in terms of their constituent variables and relative importance of them for that factor. Therefore, having discovered which factor exists, it is possible to calculate each individual case's score on a factor score. In short, a factor score represents a composite score for each individual case on a particular factor (Field, 2009, pp. 633-5).

Two factors have been identified based on two sources of information: perceived importance and actual input. As a result, 2x2 factor scores have been obtained through the factor analysis. These four factor scores have been presented in the following table. Table 5-37 shows the summary of factor scores calculated by the Anderson-Rubin method which have a mean of 0 and a standard deviation of 1.

Factor Scores	Perceived Importance of Entrepreneurial Activities	Actual Input of Entrepreneurial Activities

Opportunity-Specific Activities	OppSpec_Importance (F 1)	OppSpec_Input (F 3)
Opportunity-Preparing Activities	Prepare_Importance (F 2)	Prepare_Input (F 4)

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
F1: OppSpec_Importance	160	5.48219	-3.69157	1.79062	.000000	1.000000	1.000
F2: Prepare_Importance	160	5.27211	-1.41584	3.85627	.000000	1.000000	1.000
F3: OppSpec_Input	160	4.75745	-3.03949	1.71796	.000000	1.000000	1.000
F4: Prepare_Input	160	5.31884	-3.80085	1.51799	.000000	1.000000	1.000
Valid N (listwise)	160						

Table 5-37: Factor Scores: Entrepreneurial Activities

5.5.3 Correlation Tests

5.5.3.1 General Entrepreneurial Opportunity

F1 and F2 are two underlying factors that we identified from various entrepreneurial activities regarding their perceived importance. V13-V18 are the six variables we developed to reflect the different nature of the general entrepreneurial opportunities in the earlier section. (Table 4-5). The following table presents the correlation between them.

		F1: OppS pec_I mport ance	F2: Prepar e_Imp ortanc e	V13 _Ob OpG	V14 _Sub OpG	V15 _Idx ObO ppG	V16 _Idx subO ppG	V17 _Idx Sch G	V18 _Idx KirG
F1: OppSpe c_Import ance	Pearson Correlatio n	1	-.682 [*]	-.052	.002	-.220 ^{**}	-.452 ^{**}	-.242 ^{**}	-.214 ^{**}
	Sig. (2- tailed)		.000	.516	.983	.005	.000	.002	.007
	N	160	160	160	160	160	160	160	160
F2: Prepare _Import ance	Pearson Correlatio n	-.682 [*]	1	.018	-.071	.188 [*]	.402 [*]	.219 [*]	.316 [*]
	Sig. (2- tailed)	.000		.818	.370	.017	.000	.005	.000
	N	160	160	160	160	160	160	160	160

Table 5-38: Correlation Test on Factor 1 and 2 (General Entrepreneurial Opportunity)

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

5.5.3.2 Specific Entrepreneurial Opportunity

F3 and F4 are two underlying factors that we identified from the actual input of various entrepreneurial activities. V1-V6 are the six variables we developed to reflect the different nature of the specific entrepreneurial opportunities (Table 4-4). The following table presents the correlation between them.

		F3: OppS pec_I nput	F4: Prepa re_In put	V1_ ObO p	V2_ Sub Op	V3n _Idx ObO pp	V4_I dxSu bOp p	V5_I dxSc h	V6_I dxKi r
F3: OppS pec_Inp ut	Pearson Correlation	1	.633**	-.121	-.195*	.188*	-.354**	-.146	.040
	Sig. (2- tailed)		.000	.126	.013	.017	.000	.065	.614
	N	160	160	160	160	160	160	160	160
F4: Prepare _Input	Pearson Correlation	.633**	1	.009	-.081	.112	-.276**	-.119	-.008
	Sig. (2- tailed)	.000		.915	.311	.158	.000	.134	.917

N	160	160	160	160	160	160	160	160
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Table 5-39: Correlation Test on Factor 3 and 4 (Specific Entrepreneurial Opportunity)

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

5.5.4 Comparison and Analysis

Through the comparison between the above two tables, it is found that despite the different source of information, the patterns of entrepreneurial activities have some significant relationships with certain aspects of entrepreneurial opportunities. Firstly, the factor of opportunity-specific activities significantly correlates with the index of subjectivity of opportunity (F1 against V16; F3 against V4). Both of the two sources of information suggest that it is a negative relationship. This fact indicates that the more opportunity-specific actions the respondents take or the more important they perceive those actions, the less likely the respondent agrees with the statement such as “opportunity comes from entrepreneurs’ perception; an opportunity is a situation in which entrepreneurs envision new means-ends frameworks”. This makes good sense because once entrepreneurs get involved in opportunity-specific actions such as product development or problem solving, it means the entrepreneurial opportunity has become very concrete to the entrepreneurs. As such, the term “perception” and

“envision” are longer suitable to describe the opportunities. In other words, if the entrepreneurs are still in the stage of envisioning or perceiving an opportunity, it is unlikely that they have input considerable action close to the opportunity or regard those actions as very important.

Secondly, the factor of opportunity-specific activities significantly correlates with the index of objectivity of opportunity (F1 with V15; F3 with V3). Thirdly, the factor of opportunity-preparing activities has a significant correlation with the index of subjectivity of opportunity (F2 with V16; F4 with V4). Nevertheless, both the second and third points obtain contradictory evidence based on the information regarding the perceived importance and actual input, i.e. one positive relationship in general opportunities and one negative relationship in specific opportunities or vice versa.

5.6 Factor Analysis Three: Nature of Entrepreneurial Opportunity

5.6.1 Introduction

In the previous section, the dimensions of the concept of entrepreneurial opportunity have been explored in terms of its objectivity/subjectivity and its Schumpeterian/Kirznerian nature. We are going to explore the nature of

entrepreneurial opportunity further through the technique of factor analysis, specifically principal component analysis using those indicators (18 statements in the questionnaire) of the attributes of the opportunity. By using principal component analysis, it is expected that the structure of those opportunity-related variables could be found thus obtaining a better understanding of the nature of entrepreneurial opportunity.

5.6.2 Preliminary Analysis

The KMO measure verified the sampling adequacy for the analysis; the KMO = .78, and all KMO values for individual items were $> .53$ (see appendix 5), which is above the acceptable limit of .5 (Field, 2009). Bartlett's test of sphericity (153) = 555.46 is highly significant, $p < .001$, indicating that correlations between items are sufficiently large for PCA. The determinant of the correlation matrix is .19, which is greater than the necessary value of 0.00001 (Field, 2009, pp.65). Therefore, factor analysis is appropriate.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.781
Bartlett's Test of Sphericity	Approx. Chi-Square	599.457
	df	153
	Sig.	.000

Table 5-40: KMO and Bartlett's Test (Factor Analysis Three)

5.6.3 Factor Extraction

5.6.3.1 Total Variance Explained

There are 18 components that have been identified, the same as the number of variables to be analysed. But just a few of them will be important. To determine the importance of a particular component, we look at the magnitude of the associated eigenvalues presented in the following table. If Kaiser's criterion of retaining factors with eigenvalues greater than 1 is adopted, there would be six components which will make interpretation complicated. Given a closer look of the following "Total Variance Explained" table, it is found that the component 5 and 6 are just little above the value of 1 and do not account for considerable variance. As a result, there are four components identified as important. The combination of these four factors explains 47.82 % of the variance.

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.405	24.472	24.472	4.405	24.472	24.472	3.473	19.297	19.297
2	1.530	8.502	32.974	1.530	8.502	32.974	2.104	11.687	30.983
3	1.375	7.640	40.614	1.375	7.640	40.614	1.657	9.208	40.192
4	1.297	7.204	47.818	1.297	7.204	47.818	1.373	7.626	47.818
5	1.087	6.039	53.857						
6	1.001	5.562	59.419						
7	.917	5.097	64.516						
8	.837	4.648	69.164						
9	.781	4.340	73.504						
10	.727	4.038	77.542						
11	.703	3.908	81.450						
12	.628	3.490	84.940						
13	.562	3.122	88.062						
14	.526	2.924	90.986						
15	.468	2.600	93.587						
16	.431	2.393	95.979						
17	.400	2.222	98.201						
18	.324	1.799	100.000						

Extraction Method: Principal Component Analysis.

Table 5-41: Total Variance Explained (Factor Analysis Three)

5.6.3.2 Communalities and Reproduced Correlations

The following table presents the communalities (i.e. the proportion of common variance within a variable) before and after extraction. After the two factors have been extracted, the average communality for the 18 variables is .48.

Communalities		
	Initial	Extraction
Q11_1_OpsOb	1.000	.420
Q11_2_OpsSub	1.000	.574
Q11_3_OpsDis	1.000	.396
Q11_4_OpsCre	1.000	.540
Q11_5_OpsPerception	1.000	.423
Q11_6_PeopleDisOps	1.000	.655
Q11_7_PeopleExpOps	1.000	.634
Q11_8_OpsHilnnov	1.000	.520
Q11_9_OpsInfoAsy	1.000	.333
Q11_10_OpsExChange	1.000	.503
Q11_11_OpsSupDmdChange	1.000	.455
Q12_1_Possibility	1.000	.266
Q12_2_SituationEnvision	1.000	.512
Q12_3_SituationCre	1.000	.467
Q12_4_Idea	1.000	.498
Q12_5_Perception	1.000	.500
Q12_6_ability	1.000	.384
Q12_7_PossibilityDiff	1.000	.528

Extraction Method: Principal Component Analysis.

Table 5-42: Communalities (Factor Analysis Three)

The differences between the observed correlations and the correlations based on the model (residuals) are used to assess the fit of the model. To be regarded as a good model, we want most of the residuals to be less than 0.05. In fact, there are 75 residuals (49%) with absolute values greater than 0.05, which is just acceptable (Field, 2009, pp.664).

5.6.4 Factor Rotation

A pattern matrix is obtained from oblique rotation. The pattern matrix contains the factor loadings for each variable onto the two factors. Just as previously suggested, a cut-off point of 0.4 has been adopted for interpretative purposes, i.e. loadings greater than 0.4 represent substantive values (Fields, 2009, pp. 666; Stevens, 2002). Loadings with a value greater than 0.4 are marked in **bold** font.

The rotation of the factors clarifies the structure, enabling interpretation. There are 18 variables: component 1 has eight highly loaded variables; component 2 has two highly loaded variables; component 3 has three highly loaded variables and component 4 has four highly loaded variables.

Pattern Matrix ^a				
	Component			
	1	2	3	4
Q12_7_PossibilityDiff	.735	-.065	.118	-.032
Q11_11_OpsSupDmdChange	.681	-.034	.006	-.002
Q12_3_SituationCre	.652	-.022	-.150	.055
Q11_10_OpsExChange	.617	.011	-.161	.173
Q11_8_OpsHiInnov	.565	.332	.067	-.385
Q11_5_OpsPerception	.547	-.147	.131	.226
Q12_6_ability	.500	.045	.045	.231
Q12_1_Possibility	.437	-.008	-.148	.137
Q11_6_PeopleDisOps	-.067	.816	-.068	.041
Q11_7_PeopleExplOps	-.142	.802	.070	.104
Q11_2_OpsSub	.386	.102	-.646	-.180
Q11_1_OpsOb	.257	.103	.573	.020
Q11_4_OpsCre	.360	.109	-.557	.177
Q11_9_OpsInfoAsy	.317	.274	.350	-.015
Q12_4_Idea	.095	.002	.049	.672
Q12_2_SituationEnvision	-.061	.322	-.169	.618
Q11_3_OpsDis	.114	.016	.051	.585
Q12_5_Perception	.324	-.025	.151	.530

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 15 iterations.

Table 5-43: Pattern Matrix (Factor Analysis Three)

Table 5-44 is a correlation matrix between the two factors. The fact that the correlations exist tell us that the constructs measured could be interrelated and justifies the use of oblique rotation. Therefore, the results after the oblique rotation are more meaningful. Actually the orthogonal rotation (varimax) produces a result very similar to the oblique rotation.

Component Correlation Matrix				
Component	1	2	3	4
1	1.000	.197	-8.795E-5	.289
2	.197	1.000	.015	.048
3	-8.795E-5	.015	1.000	-.028
4	.289	.048	-.028	1.000

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

Table 5-44: Component Correlation Matrix (Factor Analysis Three)

5.6.5 Interpretation

From the pattern matrix for the data presented above, four clusters of variables exploring the nature of entrepreneurial opportunity have emerged to form four factors. The first factor has eight highly loaded variables, which make it the most complicated one to interpret. Kirzner's conceptualization of entrepreneurial alertness is a useful theoretical lens to obtain a clue to interpret this factor. Three of the top four variables could be well explained by the concept of alertness. Q12_7 states that "entrepreneurial opportunity is the possibility to serve customer differently and better", which indicates that opportunity requires alertness. In a very similar way, both Q11_11 (entrepreneurial opportunity comes from changes in supply and demand) and Q11_10 (entrepreneurial opportunity comes from changes in external environment such as policy, new merge of technology, demographic change and etc.) imply the requirement of entrepreneurial alertness as well. An exception is Q11_8, which states that entrepreneurial opportunity is connected with high levels of

innovation. This statement reflects the Schumpeterian nature of opportunity rather than the requirement of alertness. Nevertheless, in the following reliability test, the statistics suggest that the deletion of the contradictory item of “Q11_8” would increase the reliability. As such, the first factor could be regarded as reflecting entrepreneurial opportunity’s requirement of alertness.

The second factor has two constituent variables concerning whethermost people could identify or exploit an entrepreneurial opportunity. This factor is named as “availability factor” because it is about the general availability of entrepreneurial opportunity to most people.

The third factor has three constituent variables. Given the negative value of Q11_2 (Opportunity is subjective in nature, i.e., its existence depends on entrepreneurs) and Q11_4 (Opportunity is created or constructed), and the positive value of Q11_1 (Opportunity is objective in nature, i.e., it exists independently from entrepreneurs), the third factor presents the objective nature of opportunity. Thus, it is named as “objectivity factor”.

The fourth factor consists of four highly loaded variables. Three of them (Q12_4, Q12_2, Q12_5) reflect a common feature of entrepreneurial opportunity. That is opportunities' dependence on the entrepreneur. Those three statements all suggest that the existence of an opportunity has to rely on the entrepreneur (e.g. entrepreneur's vision, idea and perception). Thereafter, the fourth factor is named as "opportunity's dependence on entrepreneur".

5.6.6 Summarized Report

A principal component analysis (PCA) was conducted on the 18 items regarding the nature of entrepreneurial opportunity. Oblique rotation (direct oblimin) was conducted to optimize the factor structure. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis: KMO = .78 and all KMO values for individual items were > .56, which is well above the acceptable limit of .5 (Field, 2009). Bartlett's test of sphericity ($153 = 599.46$, $p < .001$), indicated that correlations between items are sufficiently large for PCA. An initial analysis was run to obtain eigenvalues for each component in the data set. Six components had eigenvalues over Kaiser's criterion of 1. Since factors of the eigenvalues of the fifth and sixth components were just above the value of 1 and account for little variance, they were discarded. Therefore there were four components that were retained in the final analysis. Table 5-43 shows the factor loadings after rotation. The items that cluster on

the same components suggest that factor 1 represents opportunity's requirement of alertness; factor 2 represents the general availability of entrepreneurial opportunity; factor 3 represents the objectivity of opportunity and factor 4 represents opportunity's dependence on entrepreneurs.

5.6.7 Reliability Analysis

The first factor we identified from this principal analysis, "opportunity's requirement of alertness" has a high reliability: Cronbach's $\alpha = .77$. However, the second and the fourth factor, "general availability of opportunity" and "opportunity's dependence on entrepreneur" have relatively low reliability: Cronbach's $\alpha = .61$ and $.59$ respectively. The third component, "objectivity of opportunity" has an unacceptably low reliability: Cronbach's $\alpha = .22$. That is because one of variables violates the reliability model assumptions. As a result, the scale of "objectivity of opportunity" would not be used in any further analysis.

The value in the column labelled "Cronbach's Alpha if Item is Deleted" in each table indicates that the removal of Q11_8, though negligible (from $.773$ to $.772$), would improve the overall reliability of the scale for the first factor. In addition, the removal

of Q11_1 would dramatically improve the overall reliability of the scale for the third factor (from .217 to .505).

Apart from the items of Q11_8 and Q11_1, none of the other items would increase the reliability if they were deleted.

Reliability Statistics			
	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Component 1	.772	.775	8
Component 2	.611	.611	2
Component 3	.217	.226	3
Component 4	.591	.588	4

		Scale Mean if Item Deleted	Scale Variance if Item Deleted	Correct ed Item- Total Correlation	Square d Multipl e Correlation	Cronbac h's Alpha if Item Deleted
Component 1: opportunity's requirement of alertness	Q12_7_PossibilityDiff	15.28	15.735	.584	.349	.729
	Q11_11_OpsSupDmdChange	15.15	15.587	.523	.314	.738
	Q12_3_SituationCre	15.21	16.165	.545	.328	.737
	Q11_10_OpsExChange	15.18	15.730	.553	.360	.734
	Q11_8_OpsHiInnov	14.83	16.569	.343	.132	.773
	Q11_5_OpsPerception	15.23	16.191	.456	.255	.750
	Q12_6_ability	15.24	16.248	.452	.260	.751
	Q12_1_Possibility	15.34	17.382	.354	.158	.766
Component 2: availability	Q11_6_PeopleDisOps	2.74	1.339	.440	.194	.
	Q11_7_PeopleExplOps	2.86	1.352	.440	.194	.
Component 3: objectivity of opportunity	Q11_2_OpsSub	4.42	2.283	.176	.121	.011
	Q11_1_OpsOb	4.62	2.929	-.045	.007	.505
	Q11_4_OpsCre	4.65	2.128	.249	.115	-.169 ^a
Component 4: opportunity's dep endence on entrepreneur	Q12_4_Idea	6.41	3.312	.446	.210	.458
	Q12_2_SituationEnvision	6.14	3.759	.302	.097	.572
	Q12_3_SituationCre	6.25	3.887	.304	.099	.568
	Q12_5_Perception	6.38	3.294	.438	.205	.464
a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions.						

Table 5-45: Reliability Statistics for Factor 1-4 (Factor Analysis Three)

5.7 Discussions and Summary

5.7.1 Tests of Hypotheses

Before the collection and analysis of the data, four sets of hypotheses are proposed by adopting deductive logic. Based on previous research and theories, these four hypotheses predict the existence of certain relationships between the nature of entrepreneurial opportunity and entrepreneurial activity. For the first and second hypotheses, there are four tests; for the third and fourth hypotheses, there are two tests. For each hypothesis all the conducted tests were based on the entire sample and two sub-groups of the samples.

5.7.1.1 Hypothesis 1: Objectivity and Discovering Action

The first hypothesis predicts that there is a positive relationship between the objective nature of opportunity and the entrepreneur's discovering action. According to the opportunity discovery theory, entrepreneurial opportunity exists as an objective subject independent from anyone, waiting to be discovered by an alert entrepreneur. As a result, associated entrepreneurial activities are more likely to include actions such as scanning information, keeping alert to potential opportunity, the perception of candidate opportunity etc.

From the four tests designed to test this hypothesis, three of them provided supporting evidence based on the entire sample whereas only one failed to provide such evidence. At this stage, this hypothesis is generally acceptable.

To further test this hypothesis, we will divide the entire sample into two groups, namely employer entrepreneurs and employee entrepreneurs. Although the results from the employee group still provide some supporting evidence, the employer group no longer provides supporting evidence. These results suggest that the acceptance of hypothesis 1 is not convincing. In other words, it has to be rejected.

5.7.1.2 Hypothesis 2: Subjectivity and Creating Action

The second hypothesis predicts that there is a positive relationship between the subjective nature of entrepreneurial opportunity and the entrepreneur's creative action. As opportunity creation theory suggested, entrepreneurial opportunity is a subjective reality that is socially constructed or enacted by the entrepreneurs.

Opportunity is formed by the entrepreneur's action and reaction to the external environment. As a result, the associated entrepreneurial activities are more likely to be creative in nature. Those creative activities include looking for resources, building social networks, the development of technology, new products, services etc.

From the four tests designed to test this hypothesis, three of them provided supporting evidence based on the entire sample whereas only one failed to provide such evidence. At this stage, this hypothesis is generally acceptable.

After the sample was divided into two groups, the results from the group of employee entrepreneurs justify the acceptance of hypothesis 2, since the results are the same as the results from the entire sample. However, the results from the group of employer entrepreneurs indicate that the acceptance of hypothesis 2 must be cautious as the results from this group do not provide as strong evidence as the result from the group of employee entrepreneurs.

5.7.1.3 Hypothesis 3: Opportunity's Schumpeterian nature and Disequilibrating Actions

According to the Schumpeterian view, entrepreneurs are the innovators who shock and disturb the economic equilibrium by carrying out new combinations to respond to the opportunity that usually comes from changes in technological, political, regulatory, social or demographical changes (Shane, 2003).

The third hypothesis predicts that there is a positive relationship between entrepreneurial opportunity's Schumpeterian nature and those entrepreneurial actions that disequilibrate the market.

In terms of the empirical tests, all tests, including the tests based on the entire sample and tests based on the sub-group of the sample, unanimously provide supporting evidence to hypothesis 3. As such we accept this hypothesis comfortably.

5.7.1.4 Hypothesis 4: Opportunity's Kirznerian nature and Equilibrating Actions

In contrast to the Schumpeterian view, the Kirznerian view provides an alternative explanation to the nature of entrepreneurial opportunity and associated activities. According to the Kirznerian view, entrepreneurial effort is an equilibrating force that brings the economy closer to equilibrium and leads to a more efficient response to opportunity that is derived from an information and knowledge asymmetry and errors and omissions made by prior market participants. To respond to this kind of opportunity, entrepreneurial actions include looking for and analysing information in order to perceive the opportunity and staying alert to potential opportunities.

As such, the fourth hypothesis predicts that there is a positive relationship between entrepreneurial opportunity's Kirznerian nature and those entrepreneurial actions that bring the economy closer to equilibrium.

In terms of the empirical tests, none of any tests, neither the tests based on the entire sample nor tests based on the sub-group of the sample, provide any supporting evidence to hypothesis 4. As such we reject this hypothesis.

5.7.1.5 Discussions

All the results mentioned above are summarized and presented in the following table.

From the four hypotheses proposed, the second and third one are accepted whereas the first and forth one are rejected based on the empirical evidence.

Despite the rejection of hypothesis 1, there are still some interesting findings that could be drawn from the tests. Firstly, the tests based on the entire sample suggest that the objectivity of opportunity does have a positive relationship with discovering actions. This implies that this hypothesis has some theoretical grounding and this kind of relationship does exist to some extent.

Secondly, the different results from the two sub-groups of samples suggest that the different perceptions regarding entrepreneurial opportunity lie between employee entrepreneurs and employer entrepreneurs. Based on the empirical result, the relationship is more likely to exist in the employee entrepreneurs rather than in employer entrepreneurs. This difference could be explained by their different employment status. Employer entrepreneurs, who are running or plan to start their own new business, are likely to have more interactions with opportunities than employee entrepreneurs. As such, although employer entrepreneurs input many discovering actions and regard those actions as important they tend to view entrepreneurial opportunity as something that depends on them, i.e., not something that exists independently from any individual. This leads to the relationship between the objective nature of opportunity and discovering actions being hardly found within employer entrepreneurs. Of course, this only partially explains the non-existence of such a relationship. On the other hand, because of the reduced or absence of business ownership, employee entrepreneurs may not have the tendency to view opportunity as something dependent upon themselves. In addition, compared to the creative actions (such as planning, building social networks, developing ideas into a business plan), employee entrepreneurs are more likely to input discovering actions or regard discovering actions as important.

	Hypothesis 1		Hypothesis 2		Hypothesis 3		Hypothesis 4	
	Number of tests confirming the hypothesis/ Number of total tests for this hypothesis							
Entire Sample	3	4	3	4	2	2	0	2
Employee Entrepreneur	2	4	3	4	2	2	0	2
Employer Entrepreneur	0	4	2	4	2	2	0	2

Table 5-46: Summary of Tests on Hypotheses

5.7.2 Factors Analysis: Nature of Entrepreneurial Opportunity and

Entrepreneurial Activities

Factor analysis, specifically speaking, principal component analysis, is the technique used in to identify clusters of variables and thus gain a better understanding of the structure of a set of variables. In this research, three separate sets of principal component analysis were conducted. The first and second (Section 5.4 and 5.5) concern the entrepreneurial activities based on entrepreneurs' actual input and perceived importance. There are 15 items regarding the entrepreneurial activities that have been analysed. The third set of principal component analysis (Section 5.7)

concerns the nature of entrepreneurial opportunity in general. There are 16 variables that have been analysed.

5.7.2.1 Entrepreneurial Activities

Based on the information about the actual input and perceived importance of various entrepreneurial activities, two sets of factor analysis were conducted. The results from the two sets of analysis were largely consistent except differences within two items (Looking for and analysis of information; Learning). Both of the two sets of analysis depict the items of entrepreneurial activities clusters in a very similar way. The items clustered in the first factor and the third factor, suggesting that these two factors represent “opportunity-specific activities”. In other words, the component variables of these two factors have a direct relationship with entrepreneurial opportunity. They are either directly working on the opportunity (e.g. opportunity scanning and recognition, problem solving, new product or service development), or opportunities that are direct results from these activities (e.g. perceiving a possibility to create a new business, being alert to opportunity, developing ideas into business plan).

Compared to the first and the third factor, the items clustered in the second factor and the forth factor suggest that these two factors represent “opportunity-preparing

activities”. In other words, the component variables of these two factors, instead of working directly on the opportunity, function as preparatory works for the emergence or creation of entrepreneurial opportunity. Typical examples of opportunity-preparing activities include “planning”, “building social networks”, “looking for resources” and “learning”.

Entrepreneurial Activities	Perceived Importance		Actual Input	
	Factor One: Opportunity-specific activity	Factor Two: Opportunity-Preparing activity	Factor Three: Opportunity-specific activity	Factor Four: Opportunity-Preparing activity
Opportunity Scan (Q16_11)	.878	.096	.928	-.075
Perceiving a possibility to create a new business (Q16_15)	.796	.053	.759	.038
Being Alert to opportunity (Q16_12)	.784	.018	.853	-.050
New product or service development (Q16_14)	.783	.026	.801	.117
Develop idea into business plan (Q16_10)	.782	-.083	.799	.020
Being alert to imbalance in supply and demand (Q16_13)	.677	-.111	.844	-.016
Opportunity Recognition (Q16_9)	.668	-.163	.549	.241
Develop Expertise (Q16_6)	.523	-.256	.703	.114
Problem Solving (Q16_7)	.428	-.397	.560	.273
Execution of Plan (Q16_2)	-.171	-.977	-.074	.930
Planning (Q16_1)	-.029	-.867	-.062	.905
Building Social Network (Q16_4)	.104	-.708	.268	.551
Looking for Resources (Q16_3)	.226	-.675	.118	.740
Looking for Information and	.204	-.647	.406	.464

analysing information (Q16_5)				
Learning (Q16_8)	.296	-.508	.468	-.355

Table 5-47: Factors of Entrepreneurial Activities

The identification of opportunity-preparing activities and opportunity-specific activities provides complementary views to current research on entrepreneurial activities and gains some insightful findings. Firstly, it adds one more attribute that can delineate entrepreneurial activities. Previous research suggests that opportunity could be discovered or created and opportunity could be regarded as a disequilibrating or equilibrating force to the economy. The identification of the above factors demonstrates that entrepreneurial activities could also be regarded as having a direct relationship or indirect relationship with opportunity.

Secondly, since opportunity-preparing activities and opportunity-specific activities are most likely to take place at different stages during the opportunity identification/development process, it is suggested that a time dimension should be introduced to take into account when opportunity and associated activities are studied. The actual input and the perceived importance of different kinds of entrepreneurial opportunities may vary in accordance with the timeline, i.e., the opportunity

development stage. Thus, the relationship between those activities and the nature of opportunity may change as well with the change of time.

Thirdly, the statistics in the reliability analysis (in Section 5.4.7 and 5.5.6) indicate that the scales developed to measure those factors have a high level of reliability. Therefore, in addition to a better understanding of the structure of those variables regarding entrepreneurial activities, another two functions of factor analysis have been achieved. Firstly, that the scales used in this research could be used in further research to construct a questionnaire to measure the underlying variables. The other function is that the large set of data could be reduced to a smaller size but would retain as much of the original information as possible (Field, 2009). In the case of this research, four factor scores (Section 5.5.2) are obtained for each of the identified factors regarding the actual input and perceived importance of entrepreneurial activities. Further analysis could be conducted by using those factor scores as the variables rather than the original data set.

5.7.2.2 Nature of Entrepreneurial Opportunity

Based on 18 statements about the origins, definitions and various aspects of entrepreneurial opportunity, a principal component analysis was conducted to further

explore the nature of opportunity. From the results, the 18 constituent variables clustered into four groups and thus four factors were identified. Interpreting the patterns of those clustered variables, four factors reflect different attributes of entrepreneurial opportunity. The first factor represents opportunity's requirement of alertness. The second factor represents the general availability of entrepreneurial opportunity. The third factor represents the objectivity/subjectivity of opportunity. The fourth factor represents opportunity's dependence on entrepreneurs. The four variables and their component statement are presented in the following table.

Factors	Statements	Factors and its factor loadings			
		1	2	3	4
Opportunity's Requirement of Alertness	Q12_7: An opportunity is the possibility to serve customers differently and better.	.735	-.065	.118	-.032
	Q11_11: Opportunity comes from changes in supply and demand.	.681	-.034	.006	-.002
	Q12_3: An opportunity is a situation in which entrepreneurs create new means-ends framework.	.652	-.022	-.150	.055
	Q11_10: Opportunity comes from changes of external environment. (E.g. change is policy, new merge of technology, demographic changes.)	.617	.011	-.161	.173
	Q11_8: Opportunity is with high level of innovation.	.565	.332	.067	-.385
	Q11_5: Opportunity comes from entrepreneur's perception.	.547	-.147	.131	.226
	Q12_6: An opportunity is an entrepreneur's ability to create a solution to a problem.	.500	.045	.045	.231
	Q12_1: An opportunity is the possibility of introducing a new product to the market at a profit.	.437	-.008	-.148	.137
The General Availability of Opportunity	Q11_6: Most of people could identify opportunity.	-.067	.816	-.068	.041
	Q11_7: Most of people could exploit opportunity.	-.142	.802	.070	.104

Objectivity/Subjectivity of opportunity	Q11_2: Opportunity is SUBJECTIVE in nature, i.e., its existence depends on entrepreneurs' behaviour.	.386	.102	-.646	-.180
	Q11_1: Opportunity is OBJECTIVE in nature, i.e., it exists independently from entrepreneurs.	.257	.103	.573	.020
	Q11_4: Entrepreneurial opportunity is CREATED or CONSTRUCTED.	.360	.109	-.557	.177
Opportunity's Dependence on Entrepreneurs	Q12_4: An opportunity is an idea that has developed into a business form.	.095	.002	.049	.672
	Q12_2: An opportunity is a situation in which entrepreneurs envision new means-ends framework.	-.061	.322	-.169	.618
	Q11_3: An opportunity is a situation in which entrepreneurs create new means-ends framework.	.114	.016	.051	.585
	Q12_5: An opportunity is an entrepreneur's perception of a feasible means to achieve benefits.	.324	-.025	.151	.530

Table 5-48: Summary of Factors Regarding the Nature of Entrepreneurial Opportunity

The identification of the first factor, opportunity's requirement of alertness, is in accordance with Kirzner's conceptualization of "alertness" as one of the most essential concepts within the study of entrepreneurship.

The second factor, the general availability of opportunity, is in accordance with McMullen and Shepherd (2006)'s classification of third person opportunity and first person opportunity. Opportunity is not for everyone but just for someone in the market. A third-person opportunity represents an opportunity for those individuals with the right quality, i.e. those who possess the right pertinent knowledge to perceive less uncertainty. The third-person opportunity could only become the first-person opportunity at the point when the prospective entrepreneur has the willingness to bear the uncertainty and decides that a third-person opportunity is an opportunity for himself or herself.

The third factor, the objectivity/subjectivity of opportunity, echoes the most widely debated nature of opportunity within previous research.

The identification of the fourth factor, opportunity's dependence upon the entrepreneur, indicates the importance of taking into account individual entrepreneurs

when studying opportunity. Opportunity's dependence on the entrepreneur reflects one of the most important attributes of entrepreneurial opportunity: the interactive relationship between opportunity and the entrepreneur. Therefore the proposal to implement the individual-opportunity network (ION) as the framework (Shane, 2003; Venkataraman and Shane, 2000) to study entrepreneurial opportunity is justified by the identification of this factor.

The statistics in the reliability analysis (in Section 5.6.7) show that the scale developed to measure opportunity's requirement of alertness has a high reliability and consequently could be used in further research. The scales measuring the general availability of opportunity and opportunity's dependence on entrepreneur have a relatively low reliability, indicating modification for these two scales is needed. Lastly, the scale measuring the objectivity/subjectivity of opportunity could be discarded.

Similar to the analysis of entrepreneurial activities, the factor scores for each factor are generated through the analysis for further analysis. However, as the factor score of the third factor is unacceptably unreliable, the objectivity/subjectivity of opportunity would not be used in further analysis.

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
F5: Requirement of alertness	160	5.17189	-2.21887	2.95302	.0000000	1.00000000	1.000
F6: General Availability	160	4.69090	-2.22534	2.46555	.0000000	1.00000000	1.000
F7: Objectivity of Opportunity	160	6.77336	-3.05829	3.71506	.0000000	1.00000000	1.000
F8: Opportunity's Dependence on Entrepreneurs	160	5.33758	-2.30042	3.03715	.0000000	1.00000000	1.000
Valid N (listwise)	160						

Table 5-49: Factor Scores: Entrepreneurial Opportunities

5.7.2.3 Relationships between Identified Factors

As discussed above, four factors concerning entrepreneurial opportunity and another two factors concerning entrepreneurial activities have been identified through factor analysis. The factor scores associated with each factor have also been calculated. The discussion in this section will concern the relationship between those factors. Because factors concerning the nature of opportunity are based on the information of general opportunity rather than the specific opportunity pursued by the entrepreneur, we will use the factors (F1 and F2 in Table 5-37) concerning the perceived importance of entrepreneurial activities in the relationship analysis.

There are four significant relationships between the factors that have been identified from the correlation analysis. (**. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed))

Firstly, a negative relationship was found between opportunity's requirement of alertness and opportunity-specific activities, as the Pearson's $r = -.29$, $p < .001$ (F5 with F1). According to this relationship, a low level of opportunity's requirement of alertness means opportunity-specific activities are more likely to happen.

Secondly, opportunity's requirement of alertness was found to have a positive relationship with opportunity-preparing activities, as the Pearson's $r = .31$, $p < .001$ (F5 with F2). According to this relationship, a high level of opportunity's requirement of alertness means opportunity-preparing activities are more likely to happen.

The first two relationships concern the factor of opportunity's requirement of alertness, which reflects the opportunity's ease of identification. If an opportunity is difficult to be found (i.e., requires more alertness), more opportunity-preparing activities (such as building social networks, looking for resources, learning and etc.) are required or perceived as important. When taking the time dimension into account,

these two relationships also make sense. In the earlier stage of opportunity development, opportunities require more alertness to be identified and are accompanied at the same time by opportunity-preparing activities. With the development of opportunity, opportunity becomes clear (i.e., alertness is not as much required as in the earlier stage) and opportunity-specific activities take place. This finding provides useful implication for potential entrepreneurs: it is worth distinguishing the opportunities that are not apparent to anyone from opportunities that are obvious to most people.

Thirdly, opportunity's dependence on entrepreneurs was found to negatively relate to opportunity-specific activities, as the Pearson's $r = -.40$, $p < .001$ (F8 with F1).

Fourthly, opportunity's dependence on entrepreneur was found to have positive relationship with opportunity-preparing activities, the Pearson's $r = .34$, $p < .001$ (F8 with F2).

These last two relationships concern the factor of opportunity's dependence on entrepreneurs. This factor reflects whether the entrepreneurial opportunity exists independently from entrepreneurs or not. The third relationship shows that a high level of independence of opportunity is more likely to be associated with opportunity-

specific activities. The fourth relationship shows that a high level of dependence of opportunity is more likely to be associated with opportunity-preparing activities.

Through the ontological lens, opportunity's dependence on the entrepreneur could be regarded as part of the subjective nature of opportunity. As such, the identification of the third and fourth relationship is consistent with and justifies the relationships found in Section 5.5.4: opportunity-specific activities are negatively related to the index of subjectivity whereas opportunity-preparing activities are positively related to the index of subjectivity.

The discovery of these four relationships reveals that the nature of entrepreneurial opportunity does relate to certain patterns of entrepreneurial activities. Those findings imply that it is important to match the appropriate entrepreneurial activities to opportunity of a particular nature or at a particular stage.

	F1: Opp-Spec	F2: Prepare	F5: Req.of alertness	F6: Availability	F7: Obj of Opportunity	F8: Dependence	Q17_1_Uncert	Q17_2_Risk	Q17_3_LessUncert	Q17_4_MoreWill
F1: OppSpec_Importance	1	-.682** .000	-.290** .000	-.001 .986	.050 .533	-.395** .000	.114 .150	-.160* .044	-.162* .041	-.271** .001
F2: Prepare_Importance	-.682** .000	1	.308** .000	.058 .470	.039 .628	.338** .000	-.103 .194	.275** .000	.198* .012	.326** .000
F5: Requirement of alertness	-.290** .000	.308** .000	1	.197* .012	.000 .999	.289** .000	.058 .463	.182* .021	.369** .000	.322** .000
F6: Availability	-.001 .986	.058 .470	.197* .012	1	.015 .849	.048 .549	.186* .019	.136 .086	.195* .014	.134 .091
F7: Objectivity of Opportunity	.050 .533	.039 .628	.000 .999	.015 .849	1	-.028 .723	.118 .136	.100 .207	-.007 .928	.210** .008
F8: Dependence on Entrepreneurs	-.395** .000	.338** .000	.289** .000	.048 .549	-.028 .723	1	-.059 .462	.152 .055	.156* .049	.367** .000
Q17_1_Uncert	.114 .150	-.103 .194	.058 .463	.186* .019	.118 .136	-.059 .462	1	.212** .007	.017 .836	.176* .026
Q17_2_Risk	-.160* .044	.275** .000	.182* .021	.136 .086	.100 .207	.152 .055	.212** .007	1	.338** .000	.357** .000
Q17_3_LessUncert	-.162* .041	.198* .012	.369** .000	.195* .014	-.007 .928	.156* .049	.017 .836	.338** .000	1	.146 .066
Q17_4_MoreWill	-.271** .001	.326** .000	.322** .000	.134 .091	.210** .008	.367** .000	.176* .026	.357** .000	.146 .066	1

Table 5-50: Correlation Analysis of Factors

CHAPTER 6

CONCLUSION

6.1 Summary of Main Findings

6.1.1 Answer to the Research Questions

At the beginning of the research, the following research question was asked:

“What is the relationship between the nature of entrepreneurial opportunity and the actions to pursue it?”

Two sub-questions were also asked:

- 1. What is the nature of entrepreneurial opportunity?**
- 2. What is the role of entrepreneurial action in the pursuit of opportunity?**

By the end of the research, corresponding answers have been gained. For the first sub-research question, it was found that the nature of entrepreneurial opportunity could be delineated not only in terms of objectivity/subjectivity and Schumpeterian/Kirznerian opposition as suggested by previous research but also, the nature of opportunity could

vary in terms of its requirement of alertness, general availability and its dependence on entrepreneurs.

For the second sub-research question, in addition to discovering/creating roles and economy disequilibrating/equilibrating roles, various types of entrepreneurial actions cluster into two groups. One group consists of opportunity-preparing activities that function as laying ground for the emergence or creation of entrepreneurial opportunity but have little direct interaction with opportunity. The other group comprises opportunity-specific activities, directly working on the entrepreneurial opportunity or working as the antecedent of opportunity.

For the main research question, the tests of the hypotheses reveal that: (1) opportunity's subjective nature has a positive relationship with entrepreneurs' creating activities, and (2) opportunity's Schumpeterian nature has a positive relationship with entrepreneurs' economy-disequilibrating activities. Through a further analysis of the identified factors, it was found that opportunity-specific activities negatively relate to opportunity's requirement of alertness and opportunity's dependence on entrepreneurs whereas opportunity-preparing activities positively

relate to the requirement of alertness and opportunity's dependence on the entrepreneur.

6.1.2 Main Findings and Contributions

The main findings from test of hypotheses and factor analysis in this research are summarised in Fig 6-1. From the four hypotheses we proposed, two of them were confirmed with empirical evidence and the other two were rejected. Consequently from the two parallel theories regarding entrepreneurial opportunity, discovery theory and creation theory, the latter has been accepted. In addition, from Schumpeter's and Kirzner's explanations of entrepreneurial opportunity, the former gains more supporting evidence.

Apart from the objective/subjective nature of entrepreneurial opportunity, another three attributes have been identified. They are opportunity's requirement of alertness, the general availability of opportunity and opportunity's dependence on the entrepreneur. By the identification of these attributes, a better understanding of the nature of opportunity has been achieved.

In terms of entrepreneurial activities, the pattern in which various types of entrepreneurial activities cluster suggests that one group represents opportunity-preparing activities and the other group represents opportunity-specific activities.

In addition to the this finding, some scales that have been developed in this research have a high reliability (e.g. items with a value greater than .7 in table 4-8; items of opportunity's requirement of alertness, items of opportunity-specific and opportunity-preparing activities) and could be used in further research.

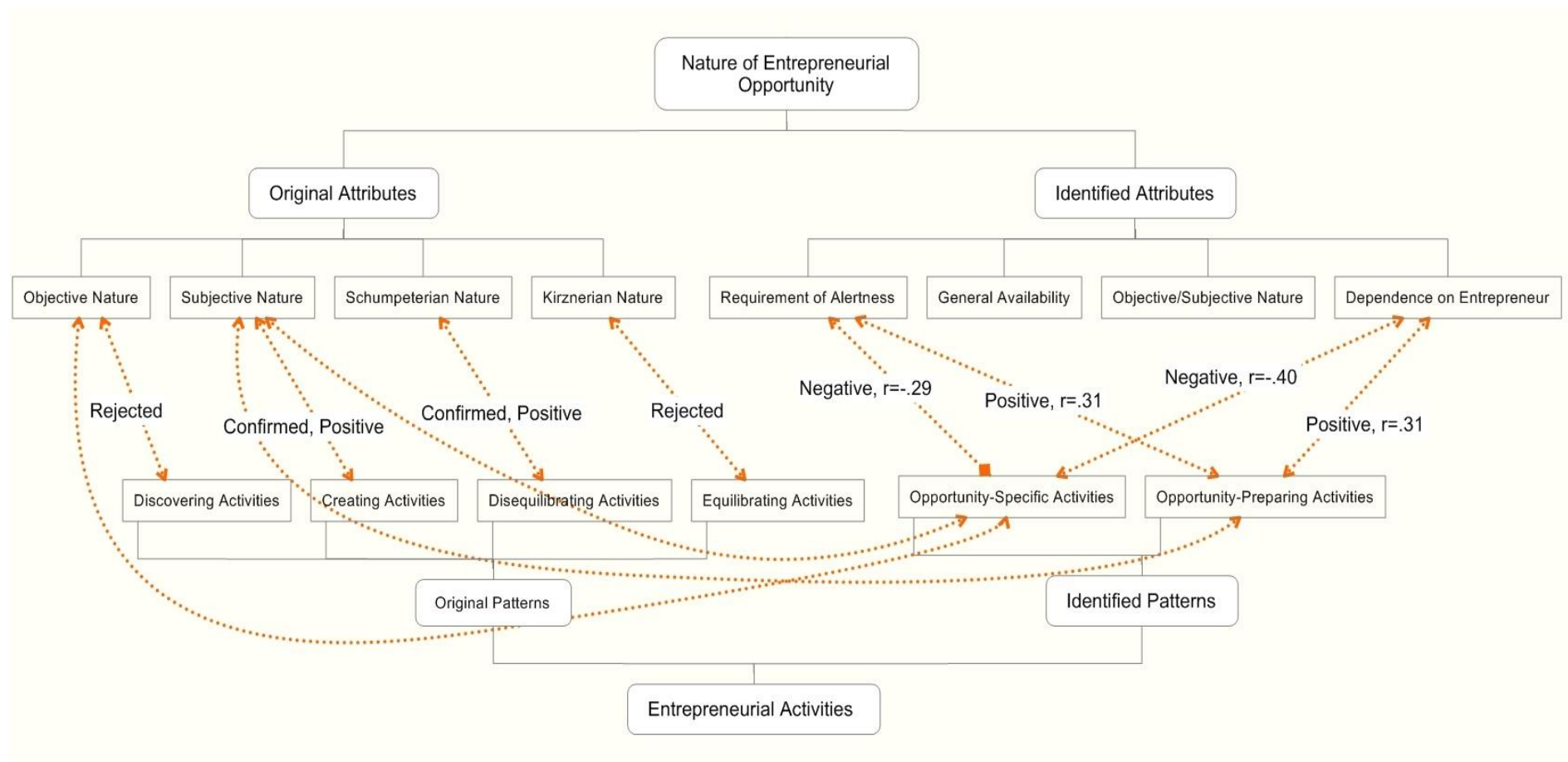


Figure 6-1: Summary of Main Findings

6.2 Limitations of the Study

It is worth pointing out that there are some limitations to this research, just like any other research. These limitations are mainly concerned with research methodological issues including population criteria, sample size and the measurement used. In terms of population criteria, this research applies only to entrepreneurs in China, who have registered with one of four entrepreneur associations. The common features of this group of people may present weaknesses in the generalizability of this research.

In the process of operationalization, the entrepreneur is identified by the criteria questions and the entrepreneurial activities are operationally defined as “anything to help start a new business, such as looking for equipment or a location, organizing a start-up team, working on a business plan, beginning to save money, or any other activities that would help launch a business”. However, it should be made clear that entrepreneurship is not limited to starting up a new business.

In terms of the sampling, the principal of randomization was impaired because the respondents were selected from certain associations for convenience and therefore the generalizability is weakened. However, random sampling was used within the

registered members to reduce the negative impact. The sample size was limited by the resources and research periods. An increase on the sample may improve the external validity considerably.

The last limitation is about the measurement validity of this research. As shown in previous sections (e.g. Section 4.7.1 and Section 5.7.7), some scales developed to measure certain variables have relatively low levels of reliability. This problem was caused by at least two reasons. The first reason was that the theoretical work before the empirical work was not sufficient, which lead to incomplete measurements of certain variables. A more thorough literature review with more recent research would solve this problem. The second reason for the low reliability in measurement is due to a lack of empirical reference before the design. An antecedent qualitative analysis based on interviews or a larger scale of pilot study would definitely increase the measurement validity.

6.3 Suggestions for Further Study

Based on the findings presented in this research, a number of promising research ideas could be introduced. Firstly, there is still a lack of evidence to support the hypotheses that were generated from current theories. Searching for this evidence to prove or

disprove those hypotheses and to improve the theories would make a significant theoretical contribution. Secondly, alternative patterns of entrepreneurial activities would better explain the relationship between entrepreneurial activities and opportunity leading to potential further questions such as: are there any more attributes of entrepreneurial opportunity which could be identified? How could entrepreneurial activities cluster and what functions do they have?

It is obvious that a great deal of research is still required to understand the rather abstract yet promising concept of entrepreneurial opportunity. With a growing investigation of the entrepreneurial activities associated with the opportunity, the research would become more empirically accessible. Eventually, the relevant theories will be more complete and our understanding of entrepreneurial opportunity will be enhanced.

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APPENDICES

Appendix 1: Questionnaire

Block 1: Basic Information

Q.1 What is your gender?

☐ Female

☐ Male

Q.2 What is your age?

☐ Exact age ____

☐ Under 18

☐ 18-24

☐ 25-34

☐ 35-44

☐ 45-54

☐ 55-64

☐ Above 65

Q.3 What is the highest level of education you have complete?

☐ High school or under

☐ College

☐ Undergraduate

☐ Master

☐ Above Master

☐ other

Q.4 Which of the following best describes your main employment status?

☐ Employed

☐ Seeking employment

☐ Self-employed

☐ Preparing to be self-employed

Block 2.About the New Business

Q.5Are you, alone or with others, currently trying to start a new business, including any self-employment or selling any goods or service to others?

☐ Yes

☐ No

Q.6As an employee, are you currently involved into employer's new business starting activities?

☐ Yes

☐ No

☐ I am the employer

Q.7Over the past two years, have you done anything to help start this new business, such as looking for equipment or a location, organizing a start-up team, working

on a business plan, beginning to save money, or any other activities that would help launch a business?

☐ Yes

☐ No

a. How many months have you been involved in starting this business?

☐ ____ months

Q.8 Will you personally own all, part, or none of this business?

☐ All

☐ > 50%

☐ < 50%

☐ None

Q.9 How many people, including yourself, will own and manage this new business?

☐ ___ people

☐ >5 people

☐ Do not know

Block 3: Entrepreneurial Opportunities

Q.10 In terms of the opportunity you are pursuing, to what extend you agree or disagree the following statement? (5= Strongly agree, 1= Strongly disagree)

	5	4	3	2	1
1. THIS entrepreneurial opportunity is OBJECTIVE in nature, i.e., it exists independently from entrepreneurs.					
2. THIS entrepreneurial opportunity is SUBJECTIVE in nature, i.e., its existence depends on entrepreneurs' behaviour.					
3. THIS entrepreneurial opportunity is DISCOVERED or RECOGNIZED.					

4. THIS entrepreneurial opportunity is CREATED or CONSTRUCTED.					
5. This opportunity comes from entrepreneur's perception.					
6. Most of people could identify this opportunity.					
7. Most of people could exploit this opportunity.					
8. This opportunity is with high level of innovation.					
9. This opportunity comes from information asymmetry. (i.e. information people gained differs)					
10. This opportunity comes from changes of external environment. (e.g. change is policy, new merge of technology, social structure.)					
11. This opportunity comes from changes in supply and demand.					

Q.11 In terms of the general entrepreneurial opportunity, to what extend you agree or disagree the following statement? (5= Strongly agree, 1= Strongly disagree)

	5	4	3	2	1
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1. Opportunity is OBJECTIVE in nature, i.e., it exists independently from entrepreneurs.					
2. Opportunity is SUBJECTIVE in nature, i.e., its existence depends on entrepreneurs' behaviour.					
3. Entrepreneurial opportunity is DISCOVERED or RECOGNIZED.					
4. Entrepreneurial opportunity is CREATED or CONSTRUCTED.					
5. Opportunity comes from entrepreneur's perception.					
6. Most of people could identify opportunity.					
7. Most of people could exploit opportunity.					
8. Opportunity is with high level of innovation.					
9. Opportunity comes from information asymmetry.					

10. Opportunity comes from changes of external environment. (e.g. change is policy, new merge of technology, Demographic changes.					
11. Opportunity comes from changes in supply and demand.					

Q.12 To what extent you agree or disagree following statement regarding the definition of entrepreneurial opportunity?

	5	4	3	2	1
1. An opportunity is the possibility of introducing a new product to the market at a profit.					
2. An opportunity is a situation in which entrepreneurs envision new means-ends framework.					
3. An opportunity is a situation in which entrepreneurs create new means-ends framework.					
4. An opportunity is an idea that has developed into a business form.					
5. An opportunity is an entrepreneur's perception of a feasible means to achieve benefits.					

6. An opportunity is an entrepreneur's ability to create a solution to a problem.					
7. An opportunity is the possibility to serve customers differently and better.					

Block 5: Entrepreneurial Action

Q 15: To what extent you agree or disagree following statements regarding the relationship between opportunity and action?

	5	4	3	2	1
a. The entrepreneurial opportunity exists before any action took place.					
b. It is the entrepreneurial action that forms the opportunity, i.e., the opportunity is expressed in action.					

Q 16: How do you evaluate the importance of these entrepreneurial actions?

(10=most important, 1=least important) To what extend you input these action in your process? (10=most, 1=least)

	Importance	Input
	1-10	1-10
1. Planning		
2. Execution of planning		
3. Looking for resources		
4. Building social network		
5. Looking for and analyse information		
6. Technology development		
7. Problem solving		
8. Learning		
9. Opportunity perception		
10. Develop idea into business plan		
11. Opportunity scan		
12. Being alert to opportunity		
13. Being alert to imbalance in supply and demand		
14. New product/service development		

15. Perceiving a possibility to create a new business or improve an existing one.		
16. Other, please specify		

Q 18: Please leave any comments regarding the entrepreneurial opportunity or activity. Please leave your contact if you wish to have a report of this survey.

Appendix2: Anti-image Correlation Matrices (Factor Analysis One)

	Q16_1a_Planx	Q16_2a_ExePlanx	Q16_3a_FdResx	Q16_4a_BldNetx	Q16_5a_SrchInfox	Q16_6a_DvlpExptx	Q16_7a_SolvProbx	Q16_8a_Lrningx	Q16_9a_RecOppx	Q16_10a_DevIdeax	Q16_11a_OppScanx	Q16_12a_BeAlertx	Q16_13a_AlertInbIncx	Q16_14a_CreNewProdx	Q16_15a_PercAltnx
Q16_1a_Planx	.946 ^a	-.402	-.069	-.122	-.125	.072	-.030	-.074	-.070	-.002	.002	-.014	-.113	-.040	.027
Q16_2a_ExePlanx	-.402	.919 ^a	-.201	-.051	-.155	.105	-.229	-.108	.030	.033	-.038	-.021	.018	.065	.100
Q16_3a_FdResx	-.069	-.201	.958 ^a	-.197	-.214	-.088	-.166	.020	-.018	-.039	.067	-.146	.032	-.110	-.032
Q16_4a_BldNetx	-.122	-.051	-.197	.953 ^a	-.056	-.131	.055	-.219	-.082	-.069	-.061	.052	-.081	.188	-.008
Q16_5a_SrchInfox	-.125	-.155	-.214	-.056	.939 ^a	-.296	.214	-.140	-.097	-.005	.063	.007	-.047	-.102	-.060
Q16_6a_DvlpExptx	.072	.105	-.088	-.131	-.296	.937 ^a	-.125	-.086	.083	-.165	-.129	.107	.038	-.038	-.165
Q16_7a_SolvProbx	-.030	-.229	-.166	.055	.214	-.125	.928 ^a	-.147	-.075	-.334	.052	.077	-.098	.007	-.097
Q16_8a_Lrningx	-.074	-.108	.020	-.219	-.140	-.086	-.147	.959 ^a	-.139	.090	.017	-.028	-.082	-.206	.013
Q16_9a_RecOppx	-.070	.030	-.018	-.082	-.097	.083	-.075	-.139	.949 ^a	-.148	-.338	-.136	.085	.039	-.096

Q16_10a _DevIdea x	-.002	.033	-.039	-.069	-.005	-.165	-.334	.090	-.148	.946 ^a	-.149	-.163	-.035	-.195	-.009
Q16_11a _OppSca nx	.002	-.038	.067	-.061	.063	-.129	.052	.017	-.338	-.149	.939 ^a	-.227	-.040	-.167	-.025
Q16_12a _BeAlertx	-.014	-.021	-.146	.052	.007	.107	.077	-.028	-.136	-.163	-.227	.942 ^a	-.258	-.128	.067
Q16_13a _AlertInbl ncx	-.113	.018	.032	-.081	-.047	.038	-.098	-.082	.085	-.035	-.040	-.258	.921 ^a	.053	-.457
Q16_14a _CreNew Prodx	-.040	.065	-.110	.188	-.102	-.038	.007	-.206	.039	-.195	-.167	-.128	.053	.944 ^a	-.125
Q16_15a _PercAltn x	.027	.100	-.032	-.008	-.060	-.165	-.097	.013	-.096	-.009	-.025	.067	-.457	-.125	.923 ^a

a. Measures of Sampling Adequacy(MSA)

Appendix 3: Anti-image Correlation Matrices (Factor Analysis Two)

	Q16_1 b_Plan Inpx	Q16_2 b_Exe PlanIn px	Q16_3 b_FdR esInpx	Q16_4 b_BldN etInpx	Q16_5 b_Srch InfoInp x	Q16_6 b_Dvlp ExptIn px	Q16_7 b_Solv Probln px	Q16_8 b_Lrni ngInpx	Q16_9 b_Rec Oppln x	Q16_1 0b_De vIdealn px	Q16_1 1b_Op pScanl npx	Q16_1 2b_Be AlertIn px	Q16_1 3b_Ale rtInblnc Inpx	Q16_1 4b_Cre NewPr odInpx	Q16_1 5b_Per cAltnIn px
Q16_1b_PlanInpx	.902 ^a	-.517	-.088	-.139	-.049	-.026	.031	-.066	-.105	.083	-.083	-.072	-.097	.145	.122
Q16_2b_ExePlanInpx	-.517	.883 ^a	-.279	.020	-.182	-.005	-.172	.029	-.039	-.046	.171	.066	.029	-.152	-.058
Q16_3b_FdResInpx	-.088	-.279	.952 ^a	-.165	-.093	.007	-.020	-.093	-.043	-.014	-.005	-.192	-.042	.139	.028
Q16_4b_BldNetInpx	-.139	.020	-.165	.958 ^a	-.092	-.053	-.150	-.140	-.090	.068	-.126	.118	.020	.021	-.115
Q16_5b_SrchInfoInpx	-.049	-.182	-.093	-.092	.965 ^a	-.120	.062	-.187	.055	-.098	.015	-.085	.002	-.102	-.125
Q16_6b_DvlpExptInpx	-.026	-.005	.007	-.053	-.120	.960 ^a	-.253	-.036	.031	-.132	.016	-.028	-.179	-.195	.009
Q16_7b_SolvProblnpx	.031	-.172	-.020	-.150	.062	-.253	.962 ^a	-.027	-.035	-.113	.000	-.016	-.063	-.053	-.130
Q16_8b_LrningInpx	-.066	.029	-.093	-.140	-.187	-.036	-.027	.965 ^a	-.125	-.035	-.084	.055	.067	-.096	-.166
Q16_9b_RecOpplnpx	-.105	-.039	-.043	-.090	.055	.031	-.035	-.125	.955 ^a	-.312	-.138	.057	.002	-.102	.024

Q16_10b_DevIdeal npx	.083	-.046	-.014	.068	-.098	-.132	-.113	-.035	-.312	.946 ^a	-.284	-.069	-.019	.079	-.043
Q16_11b_OppSca nInpx	-.083	.171	-.005	-.126	.015	.016	.000	-.084	-.138	-.284	.927 ^a	-.314	-.347	-.088	-.044
Q16_12b_BeAlertl npx	-.072	.066	-.192	.118	-.085	-.028	-.016	.055	.057	-.069	-.314	.939 ^a	-.064	-.277	-.139
Q16_13b_AlertInbl ncInpx	-.097	.029	-.042	.020	.002	-.179	-.063	.067	.002	-.019	-.347	-.064	.948 ^a	-.022	-.258
Q16_14b_CreNew ProdInpx	.145	-.152	.139	.021	-.102	-.195	-.053	-.096	-.102	.079	-.088	-.277	-.022	.933 ^a	.018
Q16_15b_PercAltn Inpx	.122	-.058	.028	-.115	-.125	.009	-.130	-.166	.024	-.043	-.044	-.139	-.258	.018	.957 ^a

a. Measures of Sampling Adequacy(MSA)

Appendix 4: Reproduced Correlations and Residuals (Factor Analysis Two)

Reproduced Correlation	Q16_1b_PlanInpx	Q16_2b_ExePlanInpx	Q16_3b_FdResInpx	Q16_4b_BldNetInpx	Q16_5b_SrchInfoInpx	Q16_6b_DvlpExptInpx	Q16_7b_SolvProbInpx	Q16_8b_LrningInpx	Q16_9b_RecOpplnpx	Q16_10b_DevlDealnpx	Q16_11b_OppScanInpx	Q16_12b_BeAlertInpx	Q16_13b_AlertInblnInpx	Q16_14b_CreNewProdInpx	Q16_15b_PercAltnInpx
Q16_1b_PlanInpx	.752 ^a	.767	.701	.614	.609	.458	.522	.546	.489	.426	.409	.392	.417	.308	.421
Q16_2b_ExePlanInpx	.767	.782 ^a	.714	.624	.619	.462	.529	.554	.494	.429	.411	.394	.419	.309	.424
Q16_3b_FdResInpx	.701	.714	.672 ^a	.606	.617	.505	.551	.563	.518	.485	.483	.459	.482	.375	.476
Q16_4b_BldNetInpx	.614	.624	.606	.562 ^a	.585	.516	.542	.544	.512	.507	.518	.490	.509	.410	.496
Q16_5b_SrchInfoInpx	.609	.619	.617	.585	.620 ^a	.575	.589	.584	.558	.574	.596	.561	.579	.477	.559
Q16_6b_DvlpExptInpx	.458	.462	.505	.516	.575	.609 ^a	.587	.561	.560	.631	.678	.633	.645	.556	.610
Q16_7b_SolvProbInpx	.522	.529	.551	.542	.589	.587	.582 ^a	.565	.553	.598	.633	.593	.608	.514	.580
Q16_8b_LrningInpx	.546	.554	.563	.544	.584	.561	.565	.555 ^a	.537	.566	.594	.558	.574	.479	.551
Q16_9b_RecOpplnpx	.489	.494	.518	.512	.558	.560	.553	.537	.527 ^a	.572	.607	.569	.582	.493	.555
Q16_10b_DevlDealnpx	.426	.429	.485	.507	.574	.631	.598	.566	.572	.660 ^a	.714	.666	.677	.589	.637
Q16_11b_OppScanInpx	.409	.411	.483	.518	.596	.678	.633	.594	.607	.714	.779 ^a	.725	.735	.646	.688
Q16_12b_BeAlertInpx	.392	.394	.459	.490	.561	.633	.593	.558	.569	.666	.725	.675 ^a	.685	.601	.642
Q16_13b_AlertInblnInpx	.417	.419	.482	.509	.579	.645	.608	.574	.582	.677	.735	.685	.695 ^a	.607	.653
Q16_14b_CreNewProdInpx	.308	.309	.375	.410	.477	.556	.514	.479	.493	.589	.646	.601	.607	.537 ^a	.567
Q16_15b_PercAltnInpx	.421	.424	.476	.496	.559	.610	.580	.551	.555	.637	.688	.642	.653	.567	.615 ^a

Residuals	Q16_ 1b_PlanInpx	Q16_ 2b_ExePlanInpx	Q16_ 3b_FdResInpx	Q16_ 4b_BldNetInpx	Q16_ 5b_SrchInfoInpx	Q16_ 6b_DvlpExptInpx	Q16_ 7b_SolvProbInpx	Q16_ 8b_LrningInpx	Q16_ 9b_RecOpplnpx	Q16_ 10b_DevIdealnpx	Q16_ 11b_OppScanInpx	Q16_ 12b_BeAlertInpx	Q16_ 13b_AlertInblnpx	Q16_ 14b_CreNewProdInpx	Q16_ 15b_PercAltnInpx
Q16_1b_PlanInpx		-.032	-.096	-.081	-.069	-.006	-.050	-.063	-.002	.001	.058	.052	.057	.014	-.028
Q16_2b_ExePlanInpx	-.032		-.069	-.125	-.025	.013	.009	-.078	-.031	.011	-.018	.026	.012	.093	.009
Q16_3b_FdResInpx	-.096	-.069		-.051	-.044	-.034	-.046	-.042	-.035	.003	.023	.069	.016	-.024	-.008
Q16_4b_BldNetInpx	-.081	-.125	-.051		-.046	-.019	.003	.013	-.011	-.039	.018	-.062	-.016	-.037	.022
Q16_5b_SrchInfoInpx	-.069	-.025	-.044	-.046		-.002	-.070	.015	-.082	-.022	-.043	-.001	-.042	.027	.011
Q16_6b_DvlpExptInpx	-.006	.013	-.034	-.019	-.002		.049	-.045	-.075	-.039	-.083	-.068	-.022	.005	-.065
Q16_7b_SolvProbInpx	-.050	.009	-.046	.003	-.070	.049		-.051	-.045	-.020	-.066	-.068	-.031	-.028	-.008
Q16_8b_LrningInpx	-.063	-.078	-.042	.013	.015	-.045	-.051		.001	-.030	-.024	-.066	-.072	-.012	.014
Q16_9b_RecOpplnpx	-.002	-.031	-.035	-.011	-.082	-.075	-.045	.001		.077	.008	-.077	-.061	-.042	-.082
Q16_10b_DevIdealnpx	.001	.011	.003	-.039	-.022	-.039	-.020	-.030	.077		.005	-.060	-.060	-.115	-.069
Q16_11b_OppScanInpx	.058	-.018	.023	.018	-.043	-.083	-.066	-.024	.008	.005		.006	.017	-.087	-.058
Q16_12b_BeAlertInpx	.052	.026	.069	-.062	-.001	-.068	-.068	-.066	-.077	-.060	.006		-.036	.002	-.043
Q16_13b_AlertInblnpx	.057	.012	.016	-.016	-.042	-.022	-.031	-.072	-.061	-.060	.017	-.036		-.095	.006
Q16_14b_CreNewProdInpx	.014	.093	-.024	-.037	.027	.005	-.028	-.012	-.042	-.115	-.087	.002	-.095		-.092
Q16_15b_PercAltnInpx	-.028	.009	-.008	.022	.011	-.065	-.008	.014	-.082	-.069	-.058	-.043	.006	-.092	

Appendix 5: Anti-image Correlation Matrices (Factor Analysis Three)

	Q11_1_ OpsOb	Q11_2_ OpsSub	Q11_3_ OpsDis	Q11_4_ OpsCre	Q11_5_ OpsPer ception	Q11_6_ People DisOps	Q11_7_ People ExplOps	Q11_8_ OpsHiln nov	Q11_9_ OpsInfo Asy	Q11_10_ OpsEx Change	Q11_11_ OpsSu pDmdC hange	Q12_1_ Possibili ty	Q12_2_ Situatio nEnvisi on	Q12_3_ Situatio nCre	Q12_4_ Idea	Q12_5_ Percepti on	Q12_6_ ability	Q12_7_ Possibili tyDiff
Q11_1_OpsOb	.689 ^a	.095	-.107	.033	-.038	.034	-.089	-.152	-.110	.034	.003	-.093	.107	.009	-.085	-.075	.068	-.063
Q11_2_OpsSub	.095	.680 ^a	.089	-.289	-.021	-.043	.028	-.054	.012	-.159	-.104	-.107	-.038	.059	.173	-.048	-.018	.062
Q11_3_OpsDis	-.107	.089	.761 ^a	-.058	-.149	-.017	.042	.100	.017	-.058	-.097	-.114	-.290	.055	.070	-.045	-.152	.060
Q11_4_OpsCre	.033	-.289	-.058	.770 ^a	-.043	-.035	-.047	-.012	.107	-.011	.057	-.106	-.061	-.278	-.177	.114	-.092	-.010
Q11_5_OpsPerception	-.038	-.021	-.149	-.043	.788 ^a	.208	-.053	-.158	-.092	-.230	.060	.086	.016	-.026	-.223	-.020	.047	-.239
Q11_6_PeopleDisOps	.034	-.043	-.017	-.035	.208	.531 ^a	-.434	-.135	-.096	-.159	-.016	-.013	-.047	.113	-.122	.035	.092	-.104
Q11_7_PeopleExplOps	-.089	.028	.042	-.047	-.053	-.434	.553 ^a	-.047	-.024	.107	.052	.084	-.081	-.070	.024	-.048	-.116	.066
Q11_8_OpsHilnnov	-.152	-.054	.100	-.012	-.158	-.135	-.047	.740 ^a	-.060	.053	-.127	-.109	-.125	-.112	.181	.097	-.015	-.101
Q11_9_OpsInfoAsy	-.110	.012	.017	.107	-.092	-.096	-.024	-.060	.769 ^a	-.068	-.110	.014	-.087	.009	.089	-.028	-.199	.070

Q11_10_OpsE xChange	.034	-.159	-.058	-.011	-.230	-.159	.107	.053	-.068	.842 ^a	-.244	-.116	-.113	-.154	.064	-.151	.058	-.070
Q11_11_OpsS upDmdChange	.003	-.104	-.097	.057	.060	-.016	.052	-.127	-.110	-.244	.843 ^a	.027	.129	-.162	-.178	-.008	-.074	-.136
Q12_1_Possibi lity	-.093	-.107	-.114	-.106	.086	-.013	.084	-.109	.014	-.116	.027	.853 ^a	-.027	.028	-.051	-.103	.006	-.158
Q12_2_Situatio nEnvision	.107	-.038	-.290	-.061	.016	-.047	-.081	-.125	-.087	-.113	.129	-.027	.748 ^a	.005	-.167	-.097	.015	.062
Q12_3_Situatio nCre	.009	.059	.055	-.278	-.026	.113	-.070	-.112	.009	-.154	-.162	.028	.005	.845 ^a	-.070	.014	-.220	-.119
Q12_4_Idea	-.085	.173	.070	-.177	-.223	-.122	.024	.181	.089	.064	-.178	-.051	-.167	-.070	.697 ^a	-.265	-.047	.104
Q12_5_Percep tion	-.075	-.048	-.045	.114	-.020	.035	-.048	.097	-.028	-.151	-.008	-.103	-.097	.014	-.265	.841 ^a	-.177	-.161
Q12_6_ability	.068	-.018	-.152	-.092	.047	.092	-.116	-.015	-.199	.058	-.074	.006	.015	-.220	-.047	-.177	.836 ^a	-.179
Q12_7_Possibi lityDiff	-.063	.062	.060	-.010	-.239	-.104	.066	-.101	.070	-.070	-.136	-.158	.062	-.119	.104	-.161	-.179	.841 ^a